Myint Swe Khine
Yang Liu *Editors*

Handbook of Research on Teacher Education

Innovations and Practices in Asia

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Editors and Contributors

About the Editors

Myint Swe Khine is an Adjunct Professor at Curtin University, Australia. He has more than 30 years of experience in teacher education. He received Master's degrees from the University of Southern California, USA, University of Surrey, UK, and the University of Leicester, UK, and a Doctoral degree from Curtin University, Australia. He worked at the National Institute of Education, Nanyang Technological University, Singapore, and Emirates College for Advanced Education in the United Arab Emirates. He has wide-ranging research interests in teacher education, science education, learning sciences, psychometrics, measurement, assessment, and evaluation. He is a member of the Editorial Advisory Board of several international academic journals. Throughout his career, he has published over 40 edited books. These include *Large Scale School Reform and Social Capital Building* (Routledge, 2013), *Emerging Trends in Learning Analytics* (Brill, 2019), *Contemporary Perspectives on Research in Educational Assessment* (Information Age Publishing, 2020), and *Rasch Measurement: Applications in Quantitative Educational Research* (Springer, 2020).

Yang Liu is a lecturer at the Shanghai Maritime University in China. He received a Master's degree from Nanyang Technological University, Singapore, and a Ph.D. from Curtin University, Australia. His published work includes investigating students' conceptual learning of science by using visual representations, content analysis of science textbooks, and exploring the effective teaching strategies when multiple modes of visualizations are presented in secondary school science classrooms. He further developed measuring instruments as well as instructional strategies for teachers based on the close examination of teachers' teaching practices. His past research has been presented at national and international science and science education conferences. Yang continues to give significant attention to teachers' instruction and teacher education.

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Chapter 1
Teacher Education at the Crossroads: Challenges and Prospects in Changing Times

Myint Swe Khine and Yang Liu

Abstract Educators face formidable challenges in educating the young generation in escalating technology development, intense economic competitions, and uncertain world events. It is more challenging to train teachers who can guide students to equip them with knowledge and skills, survive the future labour market, and prepare them for the jobs that do not exist today. The spirited discussion on teacher education has been taking place in recent years. The studies show that the most effective way to raise the education standards begins with teacher quality. It is undeniable that teacher education affects teacher quality and, in turn, can affect student achievement and readiness in society. The design of teacher education varies from one country to another. Each country faces a unique challenge in dealing with political, economic, and societal demands in their respective contexts. This chapter synthesizes teacher education endeavours in 20 Asian countries described in this handbook.

Keywords Teacher education · Professional development · Curriculum · Challenges · Teacher quality

Introduction

In the past decades, globalization as a driving force of societal change has motivated education practitioners to learn about schools' accomplishments in other nations to redesign their education systems for competitiveness. Throughout the world, policymakers constantly rectify the direction of teaching and learning in schools (Pushpanadham, 2020). Education systems in countries are aligned with national aspirations and economic development to provide quality education for their citizens. Quality education begins with quality teachers. When teachers are designated as the

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spearhead of the overwhelming reforms, well-trained and highly qualified teachers are critical to advancing the educational system achieving the desired goals.

Teacher educators have grappled with perennial issues and formidable challenges in teacher preparation and meaningful reforms in schools. Many attempts have been made for sharing the experiences and findings worldwide, with emergent findings and promising results on teacher education, curriculum, assessment, teaching and learning approaches, pedagogical innovations and practices, and professional development in educating the next generation of globally competent students. However, solutions to multifaceted educational issues are elusive due to the continually changing and developing environment. Questions, such as how teachers are trained and assessed, and what content, curriculum, and instructional strategies are used in rapidly changing technological society, and demographic shifts, are frequently asked. It is evident that robust, comprehensive, and translational research in all aspects of teacher education, innovative approaches, and research-informed practices are essential in elevating the standard of education and the teaching profession (Fox et al., 2020).

This handbook invited frontline teacher educators and researchers to address crucial issues regarding teachers and teacher education to enhance their quality. By correlating to teacher training practice and teacher education policy implementation, we sought to create a forum for international and cross-cultural dialogue with educators and researchers from different parts of the world. We hope to draw attention to teachers' accomplishments and derive meaningful interpretation from the ideas and research findings for a well-balanced approach to teacher education. The book covers teacher education in 20 countries—Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, Hong Kong SAR, India, Indonesia, Japan, Korea, Lao People's Democratic Republic, Macau SAR, Malaysia, Myanmar, Pakistan, Philippines, Singapore, Taiwan, Thailand, and Vietnam.

This volume is organized into five parts to reflect the status of research, innovations, and practices in teacher education in Asia. The chapters in Part I portray perspectives of teacher education systems in Asia, and Part II covers subject-specific teacher education in various countries. The chapters in Part III focus on redesigning teacher education, and teacher education reforms are described in Part IV. Finally, the chapters in Part V deal with teacher professional development.

Asian Perspectives on Teacher Education

In Part I, teacher educators from Singapore, China, Myanmar, Pakistan, Bhutan, Malaysia, Bangladesh, Hong Kong SAR, India, Indonesia, Lao People's Democratic Republic, and China share their perspectives on teacher education research and development, teacher education system, structure, problems and opportunities, and historical account with contemporary implications in their respective countries. This part begins with Chap. 2 on "Teacher Education in a Developmental State: Singapore's Ecosystem Model". The authors discuss some challenges that need to

be addressed for teacher education to sustain and fulfil its role in nation-building in their context. Chapter 3 examines the practices, development, and challenges of teaching education in Macau. In Chap. 4, a senior analyst from the International Development Agency analyses the teacher education system in Myanmar. Teacher education in Bhutan, Malaysia, and Bangladesh is covered in Chaps. 5, 6, and 7, respectively. The authors in these chapters provide highlights, challenges, and future directions in their respective countries.

Chapter 8 compares initial teacher education in Singapore and South Korea. The authors present key features of teacher education in both countries and discuss the role of Confucian values, the high social status of teachers, and collaborative culture in their education systems. Chapter 9 examines the teacher education curriculum in India and national imaginations and actual practices. The authors in Chap. 10 discuss teacher education and development in Indonesia and propose how teacher training institutions can prepare teachers for the twenty-first century. In Chap. 11, educators from Lao PDR present a comprehensive account of teacher education in their context. The chapter covers the historical development of teacher education from the post-revolutionary period till recent times. The author of Chap. 12 argues the importance of teachers' role in the Bangladesh educational system, focussing on quantitative and qualitative aspects and preparing and orienting the trainees to the teaching profession. Finally, Chap. 13 offers teacher education development in China, covering a historical view of the changes of teacher education dated back to the early 1900s to the modern time.

Subject-Specific Teacher Education

The chapters in Part II discuss subject-specific teacher education in the areas of English language, science, mathematics, biology, and psychology education. This part begins with Chap. 14, in which the trend and highlights of mathematics teacher education research in Korea are discussed. The authors analyse mathematics teacher education research trends from 595 research articles using topic modelling based on latent Dirichlet allocation algorithms. The chapter concludes with implications and issues to expand teacher education research in Korea. Chapter 15 covers a study on the awareness and attitudes of Filipino English language teachers. Chapter 16 examines science teacher education in Taiwan and explains efforts to equip science teachers with the necessary competence to meet the new curriculum standards. The topic of language teacher education in Vietnam is presented in Chap. 17. The chapter offers a historical background of research into English language teacher education in Vietnam and highlights several emerging themes that hold potential for future research. In Chap. 18, the authors present a case study conducted in Macau that examines how the English language streamed primary teacher education programme and year-long teaching practicum prepared two-year four pre-service teachers to teach English in a local primary school in Macau SAR.

Chapter 19 examines the psychology teacher education in Brunei. The author reports that psychology continues to attract Brunei secondary school and university students, and psychology as a subject is expected to contribute to the social and economic development of the country. Chapter 20 explores the pre-service English teacher employability and problems associated with the teacher education system in Indonesia. The author reports a multi-case study in four teacher colleges and four schools to identify the issues and presents the findings. Chapter 21 provides results from a case study in Macau to determine the effects of oral feedback on pre-service teachers' English language lesson plans. The findings suggest that teacher educators may consider combining written and oral comments and increase the amount of feedback on the tasks. In Chap. 22, the authors assess biology teachers' perceptions of their working environment in the context of China's education reforms using the Science Teacher Working Environment Survey (STWES). One of the findings includes a modest positive correlation between teachers' perception of working contexts and workplace learning. Chapter 23 reviews Indonesia's education system and policies and analyses the English language teacher education programme and its approaches. The author highlights the need for research in language teacher education to introduce innovative practices and implement research-based strategies.

Redesigning Teacher Education

Chapters in Part III focus on changes, redesigning, and reshaping of teacher education in some Asian countries. This part begins with an account of changes for a new landscape of teacher education in Singapore. Chapter 24 focusses on recent changes in teacher education programs, particularly structural extension and curriculum revision of the postgraduate diploma programme and the advent of the premier Teaching Scholars programme in Singapore. Chapter 25 presents the contemporary challenges of teacher education in India. The chapter introduces the overview of the main issues in teacher education in the last two decades and presents the research findings, innovative approaches, and adaptive practices in this context. The author in Chap. 26 describes primary school teachers' experience in the transition from face-to-face to remote teaching in Bangladesh. The recent pandemic disrupts the social and economic well-being of the citizens and educational institutions. At the same time, this unprecedented situation provides an opportunity to expand the learning opportunities beyond the walls of the classrooms using a variety of technological tools and distance learning. The chapter reports the study's findings that assess the experience of school teachers on remote learning during the pandemic. The authors in Chap. 27 stress the need to offer education to culturally and linguistically diverse students in South Korea. The chapter describes the importance of multiculturalism in education. It suggests theoretical models for multicultural education for pre-service and in-service teachers to deal with culturally and linguistically diverse students in South Korea.

Chapter 28 reports the case study analysis of the lesson study in Japan. According to the authors, teachers in Japan have traditionally engaged in lesson study to improve their teaching and enhance student's learning. The authors note that lesson study is based on understanding and expertise rather than on educational theories. Two case studies are presented in the chapter, and how Japanese teachers gain and improve their knowledge through a lesson study is discussed. Chapter 29 presents findings from a study to explore the attributes of successful teacher certification and placement in Taiwan. The study involves 2551 pre-service teacher education students. The results from the decision trees indicated that student teachers' pedagogical content knowledge served as a successful rule for student groups from different academic schools across two checkpoints. Chapter 30 examines the recent structural changes in programme requirements of an undergraduate teacher education programme in Thailand. The authors evaluate the proposed 2019 policy changes through documentary analysis and discuss the issues in implementation.

Referring to the Fourth Industrial Revolution and the need to reform general education in the country, Chap. 31 addresses the issues related to improving Vietnam's teacher education curriculum. The chapter proposes a competence-based approach and strategies to advance teacher education programs to meet the demand of the teacher labour market. The author in Chap. 32 points out the discrepancies in the quality of teacher training institutions in Indonesia—a country with diverse socio-economic and geographical differences. The chapter reports findings from a study that involves 26 stakeholders to explore the quality of teacher education from multiple perspectives.

Teacher Education Reforms

Part IV, titled "Teacher Education Reforms", analyses educational reform attempts in nine countries. This part begins with Chap. 33, in which teacher education reform in Japan is reported. Japan faces unique problems due to the retirement of the baby boomer generation and decreased teacher applications. This chapter introduces the new educational trends to address the issues and reform based on professional teaching standards and teacher training. The authors in Chap. 34 examine the implication for teacher education in a time of rapid reform in Myanmar. The chapter highlights the potential of standards-based educational reform to improve teacher quality in Myanmar. Recent political turmoil poses great uncertainty for the country to move forward with much-needed reforms. Chapter 35 traces educational reforms in the Philippines and reports the introduction of action research in teacher education curriculum. The authors propose a model of teaching action research with three-pillar approach that identifies action research as systematic and reflective inquiry and a means of improving instructional practice.

Chapter 36 assesses the perception of trainee teachers towards inclusive education in Thailand. The study examined how two groups of prospective teachers and staff

perceived pre-service teacher training for inclusive education. Semi-structured interviews were conducted to review the pedagogical approaches used and the instructors views of inclusive education. The study uses the Sentiments, Attitudes, and Concerns for Inclusive Education Rating Scale (SACIE-R) questionnaire to collect quantitative data. Based on the findings, the authors present implications for the development of teacher education in this context. Chapter 37 examines the tradition, challenges, and innovation in teacher education in Japan. The chapter provides the current status of Japanese teacher education and how teacher education has evolved and reformed to meet the changing needs. The authors identified three major issues in teacher education—teacher burnout, student diversity, and the use of technology in the classroom.

In Chap. 38, teacher education at the crossroads and the need for a new direction in India is portrayed. The author notes that teacher education development in the country followed an uneven trajectory and stagnation in the contents, processes, and pedagogies. The author proposes a new perspective on teacher education that consists of five key elements. The author believes that such an approach encourages critical thinking, social transformation, and inclusive society through equitable schooling. Chapter 39 offers an account of preparing teachers for a changing world, development, and challenges in Brunei Darussalam. The authors also present findings from the lesson and learning study and outline the challenges in improving teaching and learning in their context. Chapter 40 provides a review and analysis of pedagogical education in Laos. The authors note that Laos is one of the fastest-growing economies, and the government stresses enhancing teachers performance by improving pedagogical education. The chapter provides background information on teacher training institutions, curriculum, and teaching standards in Laos and discusses future directions to meet the challenges in the digital era.

As a transition country in Asia, Vietnam is experiencing the changes and reforms in all aspects of society, and education is not an exception. In Chap. 41, the authors trace the teacher training system and curriculum from 1945 to recent and highlight the significant system and programme changes associated with general education reforms in Vietnam. Chapter 42 examines special education teacher training in China and introduces concept of Learning in Regular Class (LRC). The author notes that LRC practices are prevalent in the schools for the past three decades in China, and children with special needs have been paid more attention. The chapter discusses teacher education reforms that emphasize special and inclusive teacher education in China. In Chap. 43, the authors further explore the education reforms in Myanmar with the implementation of the National Education Strategic Plan (NESP) 2016–2021. The pandemic and recent military coup in the country implicates the attempt to reform the education system in Myanmar. The authors discuss the role of teachers and teacher education in responding to the challenges.

Teacher Professional Development

Chapters in Part V critically examine teacher professional development in seven Asian countries. This part begins with a chapter on the professionalization of teaching in Thailand. Chapter 44 explores university academics in Thailand and perceptions of their profession as teachers and fellows of the Advance Higher Education. The chapter also identifies the implications of professionalizing teaching on their career, students, and their institutions. The authors in Chap. 45 evaluate teachers professional development in Bangladesh. The chapter identifies a lack of guidance on curriculum development, collaboration among teachers, and peer support as significant hindrances. It suggests a holistic teacher education framework based on andragogy and the use of digital learning strategies.

Teacher leadership in teacher development for school improvement and student achievement is described in Chap. 46. The author discusses the need to explore dynamic andragogical methods to develop savvy teacher leaders and provide professional development opportunities. Chapter 47 examines perspectives and insight into professional development practice by listening to the voices of teachers in Cambodia. The author conducted in-depth interviews with Cambodian primary teachers. Findings suggest that although the teachers clearly understood and articulated their professional development needs, these were not fully met with the current arrangements. The author proposes a sustainable and grassroots approach for professional development in this context. Chapter 48 explores ways to enhance the identity construction of teachers through narrative inquiry. The study in Hong Kong finds that teacher candidates favoured narrative methods and exhibited strong initiatives to reflect their identity development.

Chapter 49 presents findings from a study on the influence of leadership training on English teachers instructional leadership in Taiwan. The study uses different graphic organizers and guiding questions in the training sessions to reflect their roles as teacher leaders. The chapter reports the practical implications of designing professional development in teacher leadership. Finally, Chap. 50 discusses teacher education in Pakistan with a specific focus on the professional development of teacher educators. The authors examine the structure of teacher education and issues and problems and suggest providing induction and professional development opportunities for teacher educators.

Conclusion

The chapters in this handbook best reflect current trends and highlight contemporary teacher education programs in Asian countries. It is our hope that readers will benefit from the insightful accounts of teacher education endeavours described in this

volume. We also hope this handbook adds to our understanding of the complexity of teacher education that had confronted the educators in the past and will continue to challenge in future.

References

Fox, J., Alexander, C., & Aspland, T. (2020). In J. L. Fox (Ed.), *Teacher education in globalised times: Local responses in action.* Springer.

Pushpanadham, K. (2020). *Teacher education in the global era: Perspectives and practices.* Springer.

Part I
Asian Perspectives on Teacher Education

Chapter 2
Teacher Education in a Developmental State: Singapore's Ecosystem Model

Rita Z. Nazeer-Ikeda and S. Gopinathan

Abstract In Singapore, teacher education and the nation state have a longstanding, strong, and co-dependent relationship. Teacher education is central to Singapore's human capital development strategies while simultaneously enabling the developmental state's engagement of education for social and political development. This chapter examines the roles, characteristics, and relevance of Singapore's teacher education over time. With this examination, we argue that teacher education in Singapore has accomplished beyond its reach because it thrives within an ecosystem characterized by attuned stewardship with nimble policies, high levels of resourcing, and supportive communities of practice at the institutional, national, and international levels. This robust ecosystem has served Singapore well but needs to be re-examined alongside the uncertainties that are looming over the developmental state. The chapter ends with a discussion of some challenges that need to be adequately addressed in order for Singapore's teacher education to sustainably fulfil its role in nation-building.

Keywords Singapore's teacher education · Developmental state · Ecosystem model · Human capital · Nation building

Introduction

Singapore continues to be in headlines highlighting best performing school systems in the world. Singapore students rank very high in international assessments particularly the Organisation for Economic Cooperation and Development's (OECD) Programme for International Student Assessment (PISA), as well as the International Association for the Evaluation of Educational Achievement's (IEA) Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS). The nation state's prominence in education has been growing since 2003 when Singapore's students topped TIMMS with 90%

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of its participants surpassing the international median score (Goodwin et al., 2017). In 2015, Singapore made international headlines not only for topping TIMSS again but also for PISA which assessed about 540,000 15-year-olds across 72 participating countries and economies (OECD, 2018). Even though Singapore slipped to the second spot in PISA 2018, it "continued to have high proportions of students who did well—with the second-highest percentage of all-rounders—and low proportions of low performers" (Teng, 2019a).

Singapore's accomplishments could be perceived as a miracle by some, but in reality, this is far from a tale of chances. Strategic policy initiatives characterize Singapore's educational achievements. These are anchored in its firm commitment to provide quality education provision for all by investing in a public education system as well as the government's recognition of the economic value of the English language and thus the primacy given to the language as a common medium of instruction at all levels. Furthermore, Singapore focusses on primary and secondary education as foundation to the varied pathways thereafter, and relatedly, the building of a pipeline for skills acquisition via vocational, in the early post-independent years, then technical schools and polytechnics instead of merely expanding higher education. Most significantly, Singapore recognizes the importance of quality teachers and prioritizes pre- and in-service teacher development.

Aligned with the theme of this book, this chapter examines the roles, characteristics, and relevance of Singapore's teacher education over time. It asks the questions—"what is the role of teacher education in Singapore's development?", "what could explain the achievements of Singapore's teacher education?", and "how could these achievements be sustained over time?". In doing so, we will deconstruct the notion of Singapore as an education wonder and argue that its success is a result of *attuned stewardship with nimble policies*,[1] *high levels of resourcing*, as well as *supportive communities of practice* which synergize as a conducive education ecosystem. Furthermore, teacher education in Singapore does not exist in a vacuum but is strategically placed at the core of this ecosystem and nurtured to serve the nation state's development policies. Teacher education for us then, particularly in the case of Singapore, includes both pre-service teacher preparation and in-service professional development, reflecting the essence of interdependence and continuity as in an ecosystem. This robust ecosystem has served Singapore well and if continually cultivated can continue to respond to the challenges and opportunities of the future. We will close the chapter discussing the implications of this ecosystem for teacher education that is being reshaped by post-COVID realities and evolving megatrends.

Teacher Education in the Developmental State

Singapore is a small nation state. At a size of 728.3 km^2 (Department of Statistics Singapore, 2021a), it is smaller than many metropolises. The city-state is ranked as one of the most liveable cities... [and] among the world's most competitive economies" (World Bank, 2019). Data just before COVID-19 showed that it had

a 91% home ownership rate, an unemployment rate of 2.1%, and a crime rate of 587 per 100,000 general population (Department of Statistics Singapore, 2019).

Scholars attribute Singapore's achievements to the strategic involvement of its government, characterizing it as a *developmental state* (Castells, 1988; Gopinathan & Sharpe, 2004; Gopinathan, 2007). A developmental state is run by a government that prioritizes economic growth, formed in the absence of stability. This was seen in several Asian countries including South Korea, Taiwan, and Singapore. The Singapore developmental state "came to power during a period of political and economic uncertainty in 1965, when the island city-state was excluded from the Federation of Malaysia, and 'forced into independence'" (Pereira, 2008, p. 1191). Singapore became the "quintessential Developmental State" when "strong development policies, guided by governments [its government], become a necessity to compete successfully in an open economy structured at the world level" (Castells, 1988, pp. 3–4). Since then, the Singapore government has retained its legitimacy through sustained development, particularly in the economy.

Its fiscal measures in response to COVID-19 are an example. In 2020, amidst the global economic downturn, the government proactively introduced five budgets, committing approximately SGD100 billion (20% of its GDP) to economic, social, and public health support. As a result, Singapore's economic contraction was reduced, and resident unemployment rate was protected from escalation. Furthermore, even though the Gini coefficient *before* taxes and transfers was consistent in 2019 and 2020 at 0.452, there was a significant reduction in the coefficient *after* taxes and transfers. The reduction from 0.398 to 0.375 "can be attributed to the COVID-19 measures which were tilted to provide more help to those with lower incomes and who may lack other forms of support" (Ministry of Finance Singapore, 2021a, p. 27).

Through strategic measures, Singapore has sustained development, overcoming various economic crises even though it is starved of natural resources. In fact, this hunger leaves the nation state with little choice but to rely on its most available resource, its people. Singapore is known for its human capital strategies, putting in place systems that are attentive to its people's knowledge, skills, and health. According to findings of The World Bank's Human Capital Project, which was launched in 2018 and measures the Human Capital Index (HCI) of 174 economies, Singapore's HCI of 0.88 in 2020 is the world's highest. This figure means that a "child born in Singapore today will be 88% as productive when she grows up [by age 18] as she could be if she enjoyed complete education and full health" (World Bank, 2020). The average worldwide percentage before COVID-19 as at 2020 is 56% (World Bank, 2021).

The relationship between investment in human capital and the legitimization of the developmental state is a longstanding one. Historically and contemporarily, in developing its human capital, education is central to the nation state's path to economic, social, and political development. These may take different forms and degrees depending on the megatrends of the period, but essentially, the hand of the state is evident.

Singapore attained internal self-governance from the British in 1959[2] even though the nation state became fully independent in 1965.The fifties and sixties were periods

of political survival. The government inherited a multi-ethnic immigrant population which was facing the aftermath of World War II, British post-colonialism and after 1965, expulsion from Malaysia. It had to gain power and authority through public approval by showing that it was able to offer a better life to its healing people. Alongside its fixation on economic growth, the government leveraged on education politics as an integrative mechanism as well as a means that promises social mobility.

"[T]he newly elected local government embarked on an ambitious programme of universal free primary education in the Five-Year Plan (1961–1965)… [resulting in] the mass building of schools to ensure that every child had a place in school…" (Chang & Kho, 2010, pp. 15–16). At independence, even with increased student enrolment, Singapore's approximately two million population remained largely "illiterate and unskilled" (OECD, 2014, p. 135), driving its motivation to improve the quality of education and prepare a workforce that was relevant for the industrial economy.

At the same time, the then new nation state was faced with the challenge of creating a national identity for its ethnically and linguistically diverse population. The school system during the colonial period was largely vernacular-based, with Chinese-, Malay-, and Tamil-medium schools. There were also religious-based schools including Islamic *madrasahs* and church-funded schools. In addition to such segregation, Singapore inherited the aftertaste of discontent with the colonial government's disproportionate support for English-medium schools over vernacular ones (Doraisamy, 1969; Kho, 2010). In the mid-1950s, "Chinese, Malay and Tamil education found no real support from the government… resulting [in] student unrest in 1955 [which] led to the appointment of the All-Party Committee on Chinese Education in Singapore in May 1955" (Kho, 2010, p. 13). Among others, this resulted in the equal treatment of the four language streams and the introduction of bilingual education. The bilingual school policy, gradually made compulsory and examinable from 1966 (Goh & Gopinathan, 2008), was thus a strategic step that enabled proficiency in both the English language as a socially unifying lingua franca as well as a mother tongue language as a heritage acknowledgement.

Aside from social integration, Singapore's education system also advocates social mobility with meritocracy. Promising opportunities for all based on merit, meritocracy suggests that movement across social stratification is possible if one were to work hard. Even though it downplays the deep-rooted influences of students' socio-economic backgrounds and assumes that schools are able to level the playing field, the promise itself is appealing. The idea that "everyone [has] equal access to wealth [through education] and this, in terms of trust building, was as important as wealth generation itself…" (Gopinathan & Sharpe, 2004, p. 123). This was, and still is, reaffirmed when Singapore's economy indeed grew alongside its educational development.

> The return of investment on education was such that the states could justify the expansion and diversification of education as high priority; wealth generated by economic growth justified further investment in education. Thus a virtuous circle of investment in high skills creation, which justified high wages and thus higher standards of living all around, was created in these developmental states [including Singapore]. (Gopinathan, 2007, p. 40)

With such access to human capital development, the government is further able to use education to facilitate sociopolitical alignment and participation. It is used as a medium to propagate political ideals often through citizenship education which teaches "concepts, processes and values of education for democratic citizenship" (Sim, 2005, p. 58). Citizenship education is a "hidden curriculum... that transmits implicit social norms and political expectations in an implicit way as part of school life" (Lee, 2013, p. 241). In order to continually serve its purpose, citizenship education in Singapore has taken many forms over the years (see Sim, 2005). At present, Character and Citizenship Education (CCE) has a few components "such as the teaching of values, National Education,[3] Social and Emotional Learning, and Education and Career Guidance" (MOE Singapore, 2020a).

The role of education in Singapore for economic transformation, social cohesion, and political participation, facilitated within the framework of a developmental state, is thus historically entrenched and remains largely relevant. Teachers are placed at the core of these human capital and education development policies. Even though it is now widely recognized that the quality of teachers has a direct impact on the quality of education in schools, Singapore learned this much earlier.

Since the post-war period and even before its independence, teachers in Singapore have been playing a central role in maintaining peace and uniting a diverse population through education. With the establishment of Singapore's Teachers' Training College (TTC) in 1950, formal teacher preparation began its journey as an indispensable contributor to the nation state's transformation. Reforms in Singapore "were inevitably linked to an increasing emphasis on the strategic role of teachers, and thus teacher education as a means of upgrading the workforce and through them developing the economy and building the nation" (Chen et al., 2003, p. 900). This journey of preparing quality teachers in Singapore, however, was only possible as it thrived within a symbiotic ecosystem that encompasses attuned stewardship, substantial resources, and communities of practice (Fig. 2.1). The nation state's small size, singular teacher education institution, and dominant public system of schooling result in strong alignment of theory, policy, and practice.

Attuned Stewardship with Nimble Policies

We have established that as a developmental state, Singapore continually engages education to perpetuate its vision as a modern state. Its sustained economic strength legitimizes the state's involvement in human capital development, allowing it to propagate its social and political ideals. "Education is a key element for the reproduction and legitimation of the modern state... [and so] educational systems and practices, including teacher education, are still mandated, organized, certified, and financed mainly by the state" (Sieber & Mantel, 2012). Given the critical role of teachers in educational development, the hand of the state is undoubtedly also visible in their preparation and professional development.

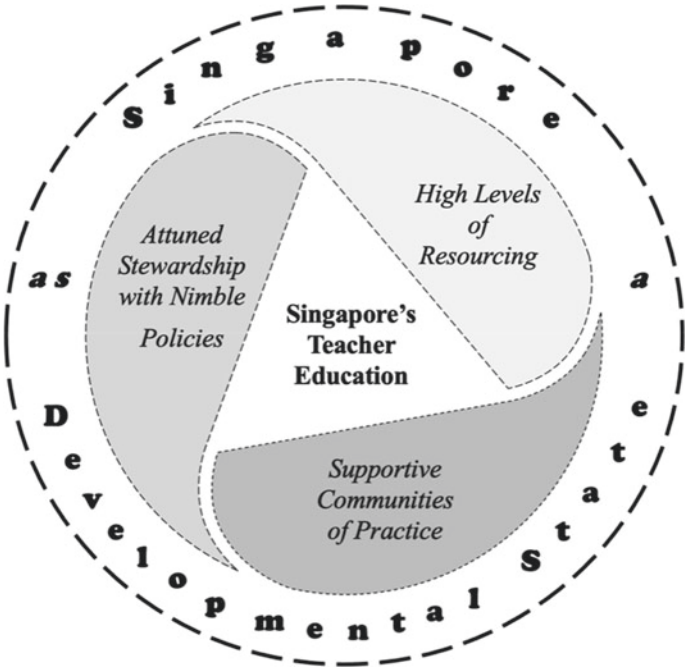

Fig. 2.1 Singapore teacher education ecosystem. *Source* Developed by authors

State control in Singapore's teacher education has evolved over the years. Even with the establishment of TTC in 1950 as an attempt to control how teachers were formally trained, teacher preparation lacked human and physical resources. Teacher trainers were insufficiently qualified, and the Cairnhill campus, where TTC was based, could not provide adequate physical space (Kho, 2010). The events in the mid-1950s mentioned earlier taught policymakers two important lessons on education—firstly, education has the ability to rile or unite the population, and thus secondly, education and relatedly teacher education are too important to be left unregulated. The four-streamed (i.e. English, Chinese, Malay, and Tamil) colonial model led to language-based segregation, and a strong local-led model was necessary.

Yet, "[g]reater emphasis on teacher training and progression to teacher education took place only when Singapore obtained complete internal self-government in 1959, with the urgency of building a nation" (Kho, 2010, p. 14). The local government took back as much control within its limited capacity then, culminating in a centralized education system after the nation state gained full independence. For the three decades that followed, "strong political leadership… [with] centralisation of authority over formal education and curriculum development" (Sim, 2005, p. 61) characterized Singapore's education system. Few matters were left to chances, reflecting how important education was to the nation state's development goals.

Over time, however, having established a robust education framework and recognizing that stakeholders no longer appreciate overt state control, Singapore's Ministry of Education (MOE) now sets ideological directions and boundaries but exercises flexibility in policy implementation (hence the term "stewardship"). Supporting this bounded autonomy is the creation of school zones and clusters according to geographical location. Schools in Singapore are divided into the North, South, East, and West zones. Within each zone, schools are further grouped into six or seven clusters. Each cluster is headed by a Cluster Superintendent whose role is to ensure that schools are not only run effectively, but also collaboratively, in order to attain the nationally set Desired Outcomes of Education (see MOE Singapore, 2021b). Singapore's cluster system is a model of centralized decentralization that provides balance between alignment to national priorities and autonomy in policy implementation.

This change took place gradually, as seen in the shifts from a single-minded "survival-driven" education (circa 1959 at self-governance or 1965 at independence to 1978) to an "efficiency-driven" education (1979–1996), before moving to an "ability-driven" education (1997–2011) and from 2012, a "values-driven" education (OECD, 2016). The most significant of these was in 1997 alongside the launch of Thinking Schools, Learning Nation (TSLN)—a visionary redirection to "move away from an industrial model of schooling to the creation of schooling environments where an individual's talents and abilities can be developed to contribute to building the knowledge workers within the society" (Chong & Gopinathan, 2008, p. 122). TSLN had a profound effect on teaching and teacher preparation as it shaped the Teach Less Learn More (TLLM) philosophy (Goodwin et al., 2017) and the current core values for the twenty-first century skills framework (OECD, 2016), both of which emphasize student-centred holistic learning rather than an over-emphasis on academic teaching.

The close relationship between the nation state and teacher preparation is not unique to Singapore and can be observed in many international contexts. What is less common, however, is the fact that pre-service teacher preparation in Singapore is centralized in a singular institution, the National Institute of Education (NIE). MOE, NIE, and Singapore schools work very closely to align theory, policy, and practice within an "Enhanced Partnership Model". Each partner within this organizational framework has "clearly defined accountabilities… weighted at different points in the teacher education continuum, starting from ITP [initial teacher preparation] to the early stages of a teacher's career and further in their professional development" (NIE, 2009, p. 41). This established relationship not only allows for a circulation of knowledge and experiences, but also facilitates quick responses to the changing needs of the education system. Outcomes of this inter-reliant tripartite relationship are evident in many areas including education policy conception and implementation, resource allocation, and especially teacher development.

Singapore is very selective of its teachers, and this has shown results. Studies on Singapore as a high-performing school system have attributed its success largely to its teacher selection and preparation (Barber & Mourshed, 2007). MOE recruits the student teachers for NIE's initial teacher preparation programs. These student teachers generally come from the top 30% of the wider student cohort. The process

begins with curriculum vitae screening, followed by a literacy assessment, before meeting the candidate for an interview to evaluate attitude, aptitude, and personality (Barber & Mourshed, 2007; Goodwin et al., 2017).

While studying at NIE, student teachers are being further monitored for suitability. In addition to their academic studies, they are also required to complete teaching practicum in schools. This can be in "the form of a shorter period of attachment to schools for school experience and teaching assistantship, and another of a longer duration for block teaching" (NIE, 2021), length of which varies according to the programs students are enrolled in (see Goodwin et al., 2017). During teaching practicum, student teachers are supervised and mentored by experienced teachers in schools, as well as NIE's faculty. The concept of teaching practicum itself has been well studied to be an integral part of initial teacher preparation, but it is the way in which it is being comprehensively and seamlessly implemented in Singapore that is to be appreciated. There is a clear circulation of knowledge and experiences in teacher preparation, starting from the screening by MOE, rigorous academic preparation at NIE, and first-hand classroom experience in schools.

Another significant outcome of the Enhanced Partnership Model can be seen in how Singapore overcame its teacher shortage. In a world where "countries must recruit a total of 68.8 million teachers: 24.4 million primary school teachers and 44.4 million secondary school teachers" (UNESCO Institute of Statistics, 2016, p. 1) by 2030 in order to achieve Sustainable Development Goal (SDG) 4.1, Singapore is surprisingly scaling down on its teacher recruitment. MOE revealed that it had attained its desired size for the teaching force in 2012 "after an aggressive eight-year recruitment drive" (Davie, 2014). Singapore's teaching force in 2019 is 32,225 strong as compared to 29,862 a decade ago (Table 2.1). The number of teachers in the year 2000 was 22,940 and just 19,132 in 1990 (MOE Singapore, 2020b). This increase has been achieved through strategic policies that attract, professionally develop, and retain teachers—a reflection of how attuned and nimble education policies in Singapore are. "With a healthy teacher supply and low teacher attrition, coinciding with reduced student enrolment, Singapore has overcome the persistent problem of teacher shortage" (Nazeer-Ikeda, 2021, p. 32).

Teachers in Singapore work long hours—forty-six hours per week according to the Teaching and Learning International Survey (TALIS) 2018 (OECD, 2019). As compared to 2013, when the survey was last conducted, this is a two-hour reduction (MOE Singapore, 2019b). The average among other participating economies is thirty-nine hours. Teachers in Singapore also comparatively spend less time on teaching and more time on marking and administrative work (Teng, 2019b). Besides day-to-day responsibilities, teachers have to keep up with the "slew of reforms" over the past two decades and an increasingly "questioning public" that expect teachers to "be selflessly committed to developing and nurturing students" (Tan, 2019). Furthermore, teachers can feel overwhelmed by the strong results-oriented culture, with pressures placed upon them by parents and in some cases, schools' middle management (Nazeer-Ikeda, 2021).

Teaching in Singapore is clearly not a walk in the park. Yet, "[t]eaching was the first-choice career for 71% of teachers in Singapore... [compared to] 67% in OECD

Table 2.1 Ten-year comparison of Singapore schools, student enrolment, teachers, and student teachers

Total	Year									
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of schools[a]	356	356	357	365	369	366	365	359	356	342
Student Enrolment[4] in schools	510,714	498,563	487,342	473,375	463,292	454,516	446,335	436,186	428,550	424,402
Number of teachers in schools	29,862	30,815	31,791	32,779	32,898	33,105	33,378	33,163	32,680	32,225
Student teacher enrolment at NIE[b]	2816	2579	2445	1838	1913	1549	1443	1122	1309	1323

[a]Number of schools include elementary (or primary, in Singapore), secondary, mixed level (primary and secondary or secondary and junior college), and junior college or centralized institute

[b]Student teacher (NIE) enrolment figures are for Postgraduate Diplomas and Diplomas in education-related subjects. Figures for B.A./B.Sc. (Education) are included under Nanyang Technological University (NTU) which NIE is a part of. As at 7 September 2020, 722 NIE undergraduates are enrolled at NTU (2021)

Source Authors' compilation based on Singapore's Education Statistics Digests (MOE Singapore, 2019a, 2020b)

countries and economies participating in TALIS" (OECD, 2019, p. 1). One of the key strategies to attract and retain the country's crème de la crème in the profession is to offer attractive compensation packages to teachers from the time of recruitment and throughout their teaching careers. For up to two years, student teachers receive a monthly salary according to their educational level and work experiences, as well as benefits as Singapore civil servants. The tuition fees of most student teachers are also fully sponsored by MOE, and they have access to funds for study materials. Upon graduation, student teachers are guaranteed jobs in schools where they serve a bond which varies in length, depending on their study program (Goodwin et al., 2017). Starting salaries are competitive, "comparable to those of accountants and engineers in the civil service" (National Center on Education & the Economy, 2016, p. 1). Teachers also receive bonuses (yearly, performance, and other variable bonuses) as well as the CONNECT plan (CONtinuity, Experience, and Commitment in Teaching) which incentivizes teachers with payouts at different points of service. In addition, they are eligible for general civil service benefits including medical and dental (MOE Singapore, 2019c).

On top of financial incentives, attention is also paid to Singapore teachers' professional growth and career satisfaction. MOE recognizes that "different teachers have different aspirations" (MOE Singapore, 2021c) and encourages three career development tracks (i.e. teaching, school leadership, and senior specialist), thus widening how teachers define professional success and derive satisfaction. Furthermore, there is "flexibility for lateral movements across the different tracks. Teachers can choose to move across the different career tracks, as long as they meet the requirements of the job they aspire to take on" (MOE Singapore, 2021c).

While in the service, teachers' professional growth is prioritized. Singapore's in-service development program has been recognized internationally, particularly distinguished for the 100 hours[5] of professional development that teachers are entitled to. In a parliamentary response on 4 March 2020, then Minister of Education Ong Ye Kung shared the responses of teachers when asked about the skills they needed most. Six competencies were highlighted—assessment literacy, inquiry-based learning, differentiated instruction, support for students with special educational needs, e-pedagogy, and CCE (see MOE Singapore, 2020a). These were taken into consideration and now make up the "areas of practice" in Singapore's *Skills Future for Educators* professional roadmap (MOE Singapore, 2020c).

Skills Future for Educators complements the existing professional development opportunities presented to teachers. "[In this initiative, teachers] are encouraged to work towards having a 'proficient' level of practice—which is not more than 20 hours of professional development—in each of these six areas over a period of five years… [and this] is within this existing load of 100 hours per year" (Teng, 2020).Other existing professional development opportunities "include the Singapore Instructional Mentoring Programme, Teacher Work Attachment Programme, and Outstanding Educator-in-Residence Programme" (MOE Singapore, 2021d). In addition, MOE also offers "professional development packages and leave schemes, including scholarships and sponsorships" as well as the "Management and Leadership in Schools programme and Leaders in Education programme" (MOE Singapore, 2021d).

Considering the variety of opportunities, in order to take ownership and pride in their growth, teachers set their own customized development targets and plan.

> [T]o make sure that training is useful, it is important that teachers decide for themselves the kind of training they need. This is the essence of professional autonomy – teachers taking ownership of the tools of their craft. It is essential in determining the standards of practice, developing mastery, deepening capabilities and instilling professional pride. If you cannot do that, you are like a chef that just reheats the food that somebody else cooked. The concept of professional ownership applies to all industries, trades, and crafts, and is in fact the core philosophy of SkillsFuture.
>
> Then Minister of Education, Ong Ye Kung (MOE Singapore, 2020a)

Singapore's strategies of making teaching an attractive career choice and motivating teachers through professional satisfaction have contributed to its success in overcoming its teacher shortage. It is also worth noting that student enrolment in schools has decreased significantly due to declining birth rates and changing demographics (MOE Singapore, 2021e), resulting in a reduction in the number of schools (Table 2.1). Additionally, with teacher attrition rate remaining relatively low at 3% (Yang, 2016), student teacher recruitment has also been adjusted to the replacement rate. As can be seen earlier in Table 2.1, NIE's student teacher enrolment in 2019 for diplomas in education-related subjects and postgraduate diplomas is 1323. The figure a decade ago in 2010 was 2816 (MOE Singapore, 2020b).With fewer places offered, at least in these programs, student teacher selection has become even more competitive. Moreover, we imagine that the demand for stable civil service jobs will further increase with the uncertainties of a COVID-19-stricken economy.

Certainly, we would be careless not to highlight that Singapore's small physical size contributes to the ease of policy deliberations, decisions, implementation, and monitoring. At the same time, reflecting on Singapore's earlier experiences with a decentralized, less regulated education system that could not serve it well, we can infer that while size may facilitate progress, it is inadequate without a clearly defined vision, attuned stewardship, and nimble policies.

High Levels of Resourcing

Singapore consistently prioritizes social development in its national budget and expenditure. Table 2.2 shows a ten-year comparison of Singapore's expenditure on education. Although the percentage appears to be reducing given the changing needs of the nation state, Singapore remains committed to its long-term fiscal strategy of prioritizing the health and education sectors. In the Budget 2021 statement delivered on 16 February, parliamentarian Mr. Heng Swee Keat stated that one of the key areas to strengthen Singapore's "social compact" is to "invest in education to ensure that every Singaporean has access to opportunities to maximise their potential, regardless of their starting point in life" (Ministry of Finance Singapore, 2021b, p. 22).

In the financial year 2020, Singapore spent SGD 12.6 billion (~USD 9.5 billion) on education out of the total expenditure of SGD 94.1 billion—third highest after

Table 2.2 Ten-year comparison of Singapore's expenditure on education (SGD'000 000)

Financial year	Total *development* expenditure on education	Total *recurrent* expenditure on education	Total expenditure on education (*development* + *recurrent*)	Total government expenditure	Percentage of total expenditure spent on education
2011/2012	1042.5	9697.8	10,740.3	46,563.4	23.1
2012/2013	859.6	9637.3	10,496.9	49,003.9	21.4
2013/2014	973.4	10,664.9	11,638.3	51,727.8	22.5
2014/2015	886	10,712.4	11,598.4	56,648.3	20.5
2015/2016	699	11,235.7	11,934.7	67,447	17.7
2016/2017	656.7	11,812.2	12,468.9	71,044.9	17.6
2017/2018	611.1	12,079.5	12,690.6	73,556.2	17.3
2018/2019	447	12,429	12,876	77,823.9	16.5
2019/2020	791.1	11,932.1	12,723.2	75,337.2	16.9
2020/2021[a]	582	12,048	12,630	94,056	13.4

[a]Preliminary figures at the time of writing

Source Authors' compilation based on data from various government sources (Department of Statistics Singapore, 2021b; Ministry of Finance Singapore, 2021c; Singapore, 2020b)

health which was at SGD 16.7 billion and defence at SGD 13.6 billion. It is estimated that in the financial year 2021, Singapore will spend SGD 13.6 billion on education, maintaining this third position (Ministry of Finance Singapore, 2021c). COVID-19 has understandably shifted the government's allocation of financial resources, but it is clear that education remains a priority for Singapore both in the long and short term.

Financial resources for education in Singapore are allocated to a range of institutions besides NIE. "In the first year of its independence, the Singapore government allotted 59% of the annual education budget to primary education, 27% to secondary education, and 14% to higher education" (Goh & Gopinathan, 2008, p. 17). At present, its education budget distribution includes the MOE headquarters, NIE, schools (special education, primary, secondary, junior colleges, and centralized institutes), institutes of technical education, polytechnics, universities, etc. Given its size and needs, in recent years, NIE spends only a fraction of the total expenditure on education. In the financial year 2019/2020, expenditure on NIE was approximately SGD 105 million[6] out of the total SGD 12.7 billion expenditure on education (MOE Singapore, 2020b), reflecting how teacher education in Singapore is well bolstered by high levels of financial resourcing not only to itself but more importantly, to the wider ecosystem that it is a part of.

In addition to financial resources, Singapore's teacher education is well supported by intellectual resources both internationally and locally. Despite its highly national focus, teacher education in Singapore is not averse to internationalization. In fact, being an immigrant society that is geographically positioned to facilitate exchange between the East and West even before the British presence, internationalization is in the veins of the nation state. Singapore has been drawing upon international resources as an educational development strategy.

> As a colony, 'internationalization'[7] in pre-independent Singapore came in the form of educational borrowing, mostly from the British. Post-1965, with a focus on nation-building, Singapore looked at other international models of teacher preparation and began to adapt these practices. In the present phase, internationalization of teacher education in Singapore is more collaborative. Having achieved high-quality teacher education, the nation state is now itself a model to be benchmarked by other systems in the world.
>
> Nazeer-Ikeda, 2021, p. 198

Several key milestones in Singapore's teacher education illustrate this point. On 1 April 1973, the TTC, the School of Education of the University of Singapore, and the Research Unit of MOE merged to form the Institute of Education (IE). This was the start of centralized and standardized teacher preparation in a singular institution as IE "became the sole independent tertiary teacher education institution in Singapore" (Chen, 2010, p. 51) that provided pre- and in-service education across disciplines. Despite early successes of IE to step up recruitment in that period, it later shifted its focus from quantity to improving the quality of teacher preparation.

A notable influencer of IE in that period was Professor William Taylor, the then Director of the University of London Institute of Education, whose suggestions were incorporated over the years and remain till today. In order to boost the quality of

teacher preparation, Taylor encouraged that IE leverage on the demand for places in its teacher training programs by being more selective of its student intake (Loh & Hu, 2019). Taylor also recommended the incorporation of research in education and the formalization of the teaching practicum, both of which centre on the need to bridge theory and practice.

Taylor pointed out that it was necessary to empower and support Singapore researchers to study the local context. He highlighted that the staff of IE was "forced to draw on the findings of research carried out in the United States and Great Britain rather than those based on the problems and progress of children and schools in Singapore" (Taylor, 1980, p. 1, cited in Placier et al., 2016, p. 33).This was because NIE was focussed on its responsibility of preparing enough teachers for schools in Singapore. Less attention was thus given to research. Research, however, was not prioritized until 1982 when the then Director of IE emphasized that IE faculty should provide answers to problems not based on "intellectual guesswork or from studies conducted elsewhere" (Sim, 2005, p. 105, cited in Placier et al., 2016, p. 33).With Taylor's recommendation and IE Director's institutional direction, more support was given to research programs in IE, increasing engagement of its staff in local and international academic discussions.

Efforts to link theory to practice as recommended by Taylor also informed the formalization and reorganization of the Practicum Curriculum which was implemented in 1986. Even though "the Practicum Curriculum was Australian inspired, its content and implementation took into consideration [Taylor's] earlier recommendations…" (Chen, 2010, p. 68).Consequently, as yet another example of internationalization, "a few Australian academics, such as Professor Cliff Turney of Sydney University and Professor Ken Eltis of Macquarie University were invited" (Chen, 2010, p. 68) in preparation for the launch of the Practicum Curriculum.

Another key milestone for Singapore's education was its universitization which witnessed the move from teacher *training* to teacher *education*, implying a shift of focus from solely classroom management and content delivery to include content mastery. "It denotes degree or postgraduate certification for teaching and is usually associated with the notion of professionalisation" (Sharpe & Gopinathan, 1993, p. 6). Universitization of teacher education alleviates the status of teacher education with academic credibility (Cowen, 2002). Teacher education, in return, increases student enrolment in universities and thus provides social utility (Labaree, 2008).

The universitization of teacher education in Singapore was marked by the merging of IE and the College of Physical Education (CPE) to form NIE in July 1991 and simultaneously, for NIE to be an autonomous institute of the Nanyang Technological University (NTU). Details of this recommendation were presented by the then Minister of State for Education, Dr. Seet Ai Mee, to the then Minister of Education, Dr. Tony Tan, through "the 1990 Report, *Teacher training in the 1990s: Issues and strategies* (generally known as the Seet Ai Mee report)" (Chong & Low, 2010,

p. 134). It adapted the recommendations dated 2 November 1989 by Lord Dainton of Hallam Moors, chancellor of the University of Sheffield (Gopinathan & Ho, 2000; Sharpe & Gopinathan, 1993).

Besides recommending that the merged IE and CPE to be linked to a university, Dainton also recommended that the newly formed institution offered degree courses in education, physical education as well as the performing and visual arts (Dainton of Hallam Moors, 1989). In addition, in order to maintain the theory-to-practice link, Dainton cautioned that "the new Institute or College, whilst being affiliated to a university should be protected from such over-academising of its work… [I]t should have an independent Governing Body with lay and professional members and its resources should be determined by the Ministry of Education" (Dainton of Hallam Moors, 1989, p. 16). The essence of Dainton's recommendations remains applicable. NIE is still a part of NTU, offering a range of degree courses, but has its own governing body (i.e. NIE Council).

Pulling together the key recommendations from Taylor (i.e. strong theory-to-practice link) and Dainton (i.e. universitization for content mastery), there is now little contention that a rigorous teacher education model needs field evidence and intellectual depth. This requires education research. NIE now has comprehensive and detailed evidence of teaching and learning in Singapore schools. This is a result of the financial and intellectual investments poured into research over the years. NIE established the Centre for Research in Pedagogy and Practice (CRPP) in 2003 and the Learning Sciences Laboratory (LSL) in 2005. These research centres were to meet "the need for NIE to become more research-intensive so as to make a contribution to evidence-based education policy and practice" (Gopinathan & Hung, 2010, p. 180). Today, CRPP is managed by NIE's Office of Education Research (OER), together with the Centre for Research in Child Development (CRCD), which was established in 2017. NIE has other research centres including the Multi-centric Education, Research, and Industry STEM Centre (meriSTEM@NIE) and the Science of Learning in Education Centre (SoLEC).

CRPP continues to make an impact with "[i]ts team of researchers [which] conducts rigorous and relevant multi-disciplinary research and development that inform pedagogy and practice in Singapore and internationally, as well as foster collaborative partnerships with key stakeholders such as the Ministry of Education, Academy of Singapore Teachers, and the schools" (NIE, 2020). Furthermore, OER's biennial Redesigning Pedagogy International Conference (RPIC), which was created to be "an Asian platform for the critical discussion of the possibilities for a range of pedagogies" continues to provide "opportunities for practitioners to engage with both national and international researchers in the exploration of more impactful pedagogies" (Gopinathan & Hung, 2010, p. 189). Also noteworthy is NIE's Asia Pacific Journal of Education which was launched in 1996 and has established itself as a leading journal for educational foundation and policy.

Evidently, NIE has a wealth of intellectual resources both locally and internationally. Its culture of internationalization, both "at home" (i.e. based in NIE campus) and "abroad" (through cross-border activities), is well established particularly through

international benchmarking, research, and international collaborations (see Nazeer-Ikeda, 2014, 2021). Over time, teacher preparation and education in Singapore has not only benefited from NIE's comprehensive education evidence-based research, but its research programs have also evolved to become more impactful.

Supportive Communities of Practice

Bolstering the high levels of resourcing, Singapore's teacher education also benefits from its nurturing communities of practice. This starts from the handover of student teachers from NIE to schools, which is cushioned by induction and mentoring support. MOE has in place the Instructional Mentoring Programme (IMP), a methodical approach for School Staff Developers, Senior Teachers, and Lead Teachers "who are keen to grow their fellow teachers through mentoring and build a professional development that nurtures trusting and developmental mentoring relationships" (AST, 2021a). The IMP, like many professional development programs, is guided by the Academy of Singapore Teachers (AST).

AST, formed in 2009, is a reconceptualization of the Teachers' Network which was initiated in 1998 alongside TSLN (Goodwin et al., 2017). It is a division of MOE which "work together [with various institutes and academies] in synergy to foster a stronger culture of professional collaboration and excellence" (MOE Singapore, 2021c). It aims "to build communities of practice for like-minded professionals of subject disciplines, for teachers to come together and learn from one another, developing stronger camaraderie and esprit de corps" (AST, 2021b).

The AST is made up of academies and language centres[8] as well as Subject Chapters.[9] There are currently nine academies and language centres of various concentrations, including the English Language Institute of Singapore (ELIS), MOE Heritage Center (MOEHC) and Professional Development Planning Office (PDPO) (AST, 2021c). Subject Chapters involve "Networked Learning Communities (NLCs) of teachers and teacher leaders from across schools, and Principal Master and Master Teachers in AST" (AST, 2021d). Furthermore, to enhance the practical learning experience, there are currently two Centres for Teaching and Learning Excellence (CTLE) hosted by Yusof Ishak Secondary School (established in 2015) and New Town Primary School (established in 2021). CTLEs provide the platforms for "teacher learning occurs [to occur] within the context of the classroom through the conduct of masterclasses and demonstration classes" (AST, 2021e). They involve Master Teachers, AST, and NIE faculty as well as teachers in the school. AST also facilitates Teacher-Led Workshops (TLWs) which "are conducted by teachers for teachers" (AST, 2021f).

The AST thus sets up and supports purposeful communities that encourage peer sharing and learning. Its work spans a wide range, from pedagogical to subject mastery, and even includes teacher well-being and professional recognition—all of which extend to teachers at different stages of their careers. MOE, including AST, uses the One Portal All Learners 2.0 (OPAL) system as a digital platform for its staff to

design and track their own learning. Singapore teachers' professional development is evidently systematic with various processes in place. More importantly, it is systemic, with peer-to-peer teacher-led communities of practice, encouraging teachers to be involved in their own professional growth.

Even though the path of every teacher differs, they share the same growth model. With the tagline "Every Teacher, A Gem", the Teacher Growth Model (TGM) spells out five desired outcomes for teachers throughout their professional journey—the ethical educator, the competent professional, the collaborative learner, the transformational leader, and the community builder (AST, 2021g). Target skills and competencies are spelled out within each desired outcome so that teachers can share the same goals while examining their learning needs. This ties in with the bespoke professional development system that we discussed earlier.

In addition to support from MOE-affiliated organizations, students in Singapore also benefit from ethnic-based self-help groups. These are the Council for the Development of Singapore Malay/Muslim Community (Yayasan MENDAKI), the Singapore Indian Development Association (SINDA), the Chinese Development Assistance Council (CDAC) and the Eurasian Association (EA). Each of these groups has a range of education initiatives that are tailored to support members of the community, particularly students from less privileged households. These include bursaries, scholarships, and awards, as well as targeted workshops for parents and students.

A noteworthy initiative includes the affordable tutorial program organized to help students attain better academic results. This is not only organized by each self-help group but also jointly under the Collaborative Tuition Programme (CTP). The MENDAKI Tuition Scheme (MTS), for example, is "open to all primary and secondary school Muslim students" with classes "conducted in more than 50 schools around the island" (MENDAKI, 2021a). MENDAKI also participates in the CTP, a scheme jointly organized with the CDAC, EA, and SINDA. CTP centres offer classes to students of all races and religion, with each self-help group granting fee subsidies to their respective students (see MENDAKI, 2021b).

Discussion

Almost six decades since Singapore attained independence, the hand of the state remains visible. Education and teacher education continue to play important roles in Singapore's human capital development strategies. The achievements of its students in international assessments, reaffirmed by the nation state's sustained economic growth and high standard of living, create an impression that Singapore's education and teacher education policies are irrefutably successful. This further legitimizes the developmental state and its involvement in education to facilitate sociopolitical alignment.

NIE as Singapore's sole teacher preparation institution, while deserving of admiration on its own, has accomplished beyond its reach because it thrives within an ecosystem characterized by attuned stewardship with nimble policies, high levels of

resourcing, and supportive communities of practice at the institutional, national, and international levels. This ecosystem, which places teachers at its core, explains the achievements of Singapore's teacher education. It has served Singapore well through industrialization and into globalization. Yet, some uncertainties loom over the developmental state as we enter a post-COVID-19 world with evolving megatrends of digitalization, demographic changes, and climate change.

Sustainability of the Developmental State

The success of Singapore as a developmental state stemmed from its fragility as a plural society (Siddique, cited in Gopinathan & Sharpe). Such societies "are obsessed with the marketplace because it is the only common ground on which all sections of society can agree" (Gopinathan & Sharpe, 2004, p. 122). This was particularly true for Singapore. Compounded by societal vulnerabilities post-World War II, post-colonialism and after 1965, post-Malaysia, the people needed a common goal, and the government needed to show results. Economic growth, attributed to intelligent governance, was sufficiently tangible to satisfy both sides.

While the grip of the state has somewhat loosened over the years, recent developments of COVID-19 have brought up familiar vulnerabilities. Left in a situation beyond individual control, populations look towards governments to take steps to control the pandemic within nation states. Singapore was no different. Swift steps were taken to contain the spread of the virus. Bold fiscal measures were employed to cushion the economic contraction. In education, quick decisions were made to close schools when necessary. At short notice, teachers and students were placed on home-based learning. Besides the obvious need for technological infrastructure and systems to support this shift, it also involved a steep learning curve of skills by all parties involved. Certainly, this included teachers and students, but also inevitably, home support systems as parents took on remote work while assisting in home-based learning. Even though the idea that schools is an equalizing field may at times be a misplaced confidence, "the absence of a physical classroom education [means that] the effectiveness of learning has depended on the home environment and levels of parental engagement. Students from disadvantaged backgrounds, with a less conducive home learning environment, have been exposed to a greater risk of falling behind" (OECD, 2021, p. 15).

COVID-19 came at a time of existing megatrends of digitalization, demographic changes, and climate change. As it is, the Fourth Industrial Revolution disrupted the world with technological breakthroughs including "artificial intelligence (AI), robotics, the internet of things (IoT), autonomous vehicles, 3D printing, nanotechnology, biotechnology, materials science, energy storage and quantum computing... build[ing] on and amplify[ing] each other in a fusion of technologies across the physical, digital and biological worlds" (Schwab, 2016, p. 1). Furthermore, demographic changes have accelerated with ageing populations and international migration swooping in to fill in the gaps, including in Singapore. Not forgetting, all

these are happening when climate change is causing market and regulatory changes, demanding workers with "green skills" (OECD, 2021, p. 14). Given these circumstances, we need to reflect on two important questions—*can the developmental state sustain its ability to address the challenges that its people are facing?* and *if so, how can education and teacher education continue to fulfil their roles in a developmental state?*

Given the acute uncertainties, we envision that the developmental state will continue to be the dependable leaning block for its people in the near future. Singapore in particular has gained stability from the government's reliability in not only addressing various challenges but also in pushing through growth and maintaining stability. The retention of public approval in the long term, however, is less certain. With digital and social media as platforms where information, misinformation, and alternative opinions can be shared with ease, public trust is harder to be earned than before. Education thus continues to play indispensable roles in Singapore's development policies, and these inevitably have consequences on teacher preparation and professional development.

Firstly, education will remain central to human capital development strategies. The nation state's reliance on its human capital inevitably places the weight of Singapore's survival and success on the shoulders of its young. This is thrown into sharper relief with its ageing population. However, education as preparation for employment should not be taken as a natural progression. In other words, academic achievements do not necessarily translate to labour market preparedness. The labour market of the digital economy is markedly different from the knowledge economy we were familiar with. Emphasizing on dispositions and innovations, academic knowledge will no longer be sufficient. COVID-19 has also emphasized the importance of a growth mindset, where learning should take place whenever demanded.

Secondly, the role of education for social cohesion will grow in importance. Singapore's increasingly diverse demography now extends beyond the Chinese, Malay, Indian, and Eurasian ethnic groups. With persisting challenges of an ageing population and a low fertility rate, it is likely that Singapore's immigrant population will grow albeit at a slower pace than a decade ago. With this comes the need for deeper intercultural awareness and acceptance, perhaps even a need to reconsider the categorization of ethnicities. Furthermore, an inclusive education system should also embrace differences beyond ethnicities to better include those with different learning needs. Certainly, this includes students with learning disabilities. There is also, however, a growing need to pay more attention to students who struggle with mental health issues.

Implications for Teacher Education

Some of the aforementioned issues have been acknowledged by MOE. MOE has in place the "Framework for 21st Century Competencies and Student Outcomes" to better prepare students for the future with core values and competencies (see

MOE Singapore, 2021f). MOE has also revised the scoring system of the Primary School Leaving Examinations (PSLE) "to shift away from an over-emphasis on academic results, and provide our students with more flexibility and space to develop their strengths and interests throughout their education" (MOE Singapore, 2021g). Additionally, MOE has modified the CCE curriculum to prepare "students to navigate the complexities of today's fast-changing social paradigm [including strengthening of mental health and cyber wellness as well as discussions on contemporary issues]" (MOE Singapore, 2021h) by anchoring students with "character and values, and citizenship" (MOE Singapore, 2020a).

Amidst this slew of reforms, some blind spots remain. The depth of intercultural acceptance among students remains superficial. Are commemorative events such as International Friendship Day and Racial Harmony Day sufficient to deepen understanding of culture as a complex concept? The deeply rooted examination-oriented culture also persists, with pressure placed upon students to perform in perceived high-stake examinations. Would swapping the PSLE aggregate score for Achievement Levels (as in the revised scoring system) sufficiently reduce the emphasis on academic results? Furthermore, while in totality Singapore stunners do well, ethnic-based differences in student achievements remain unresolved. Malay students in particular continue to perform behind their Chinese and Indian peers in the English Language, Mathematics and Science (MOE Singapore, 2020b). The influence of household socio-economic status on student achievements also remains inadequately tackled. These symptoms are not necessarily new but have remained unresolved and perhaps even intensified despite initiatives over the years.

The solution to the dynamic challenges facing Singapore's education system is perhaps not *more* initiatives and fine-tuning of existing policies but bold steps to reform sections of the system that can no longer sufficiently enable education to fulfil its roles in Singapore's development policies. As an example, the Enhanced Partnership Model between MOE, NIE, and Singapore schools, while justifiably praised for efficiently aligning policy, theory and practice, could be reviewed. The domination of one teacher preparation model facilitates the circulation of knowledge and experiences but also shields the system from alternative perspectives and approaches, endangering it to insularism.

Education reforms inevitably have consequences on pre- and in-service teacher education. As it is, COVID-19 alongside megatrends of digitalization, demographic changes, and climate change emphasize the need for teachers to have among others, greater digital literacy, greater awareness of mental health issues, skills to partner with parents for students' learning, ability to include differently abled students, inclination to develop and impart green skills, as well as skills in intercultural engagement for social cohesion within the school setting. It is easy to imagine that these can be overwhelming. There is thus a need to re-examine and reframe existing education and teacher education strategies in Singapore. By prioritizing and streamlining education policies, education and teacher education in Singapore can remain relevant and continue to fulfil the primary purpose of preparing students for participation in the nation state's economic, social, and political communities.

Conclusion

Even though Singapore is unique in many aspects, it offers some transferable insights for the world. By investing and prioritizing human capital development, particularly in education and teacher education, Singapore has sustained economic growth and attained social as well as political stability. Moving forward, however, would this be sufficient to meet the needs of Singapore's evolving population in a world that is ever changing? Should Singapore's education policies continue to stay nimble and attentive to the needs of its population, the nation state would be able to navigate through the challenges and uncertainties of the present and the future.

Notes

1. Education policies in Singapore are fine-tuned on a regular basis. As such, while we strive to present the current policies at the time of writing this chapter, readers are advised to look up official sources for updates.
2. Singapore "became a separate Crown Colony in 1946, acquired the first measure of self-government in 1955 and internal autonomy in 1959. In 1963 she achieved independence as part of the new Federation of Malaysia but was expelled after two troubled years to become a fully independent nation [in 1965]" (Turnbull, 1989, p. xii).
3. Launched in 1997, and reviewed twice since (in 2007 and 2017), NE's "intent [is] to instil national identity and the spirit of togetherness in our young" (MOE Singapore, 2021a). It is anchored in four citizenship dispositions—a sense of belonging, a sense of reality, a sense of hope and the will to act.
4. Minor adjustments can be seen between the 2019 and 2020 Education Statistics Digests but they do not significantly affect the discussion of this chapter.
5. The 100 hours is a guideline and not mandatory.
6. Preliminary figure at the time of writing.
7. Internationalization of teacher education "refers to a process that incorporates transnational elements (i.e. international, intercultural and global dimensions) into teacher preparation in order to directly and indirectly, through individuals and institutions, contribute to national development" (Nazeer-Ikeda, 2021, p. 234).
8. These include the English Language Institute of Singapore (ELIS), Physical Education & Sports Teacher Academy (PESTA), Singapore Teachers' Academy for the aRts (STAR), Malay Language Centre of Singapore (MLCS), Umar Pulavar Tamil Language Centre (UPTLC/PDTL), Singapore Centre for Chinese Language (SCCL), MOE Heritage Centre (MOEHC), Opportunities for Lives to be ignited with vitality and exuberance (Olive), and Professional Development Planning Office (PDPO) (see AST, 2021c).
9. "All teachers are members of the Subject-domain Subject Chapters for the subject(s) they teach, and members of the CCE and Learner Profile domains" (AST, 2021d).

References

AST. (2021a). *Instructional mentoring*. Retrieved June 9, 2021 from https://academyofsingaporeteachers.moe.edu.sg/programmes-publications/professional-development-programmes/instructional-mentoring-programme

AST. (2021b). *About us*. Retrieved June 9, 2021 from https://academyofsingaporeteachers.moe.edu.sg/about-us

AST. (2021c). *Academies and language centres*. Retrieved June 9, 2021 from https://academyofsingaporeteachers.moe.edu.sg/about-us/academies-and-learning-centres

AST. (2021d). *Office of subject chapters*. Retrieved June 9, 2021 from https://academyofsingaporeteachers.moe.edu.sg/about-us/office-of-subject-chapters

AST. (2021e). *Centre for teaching and learning excellence*. Retrieved June 9, 2021 from https://academyofsingaporeteachers.moe.edu.sg/professional-excellence/centre-for-teaching-and-learning-excellence

AST. (2021f). *Teacher-led workshops*. Retrieved June 9, 2021 from https://academyofsingaporeteachers.moe.edu.sg/programmes-publications/professional-development-programmes/teacher-led-workshops

AST. (2021g). *Teacher growth model*. Retrieved June 9, 2021 from https://academyofsingaporeteachers.moe.edu.sg/professional-excellence/teacher-growth-model

Barber, M., & Mourshed, M. (2007). *How the world's best-performing school systems come out on top*. McKinsey & Company.

Castells, M. (1988). *The developmental city-state in an open world economy: The Singapore experience*. University of California.

Chang, A. C. S., & Kho, E. M. (2010). The expansionist years: 1958–1970. In A. Y. Chen & S. L. Koay (Eds.), *Transforming teaching, inspiring learning: 60 years of teacher education in Singapore* (1950–2010) (pp. 15–28). National Institute of Education.

Chen, A. Y. (2010). Introduction to the institute of education: 1973–1990. In A. Y. Chen & S. L. Koay (Eds.), *Transforming teaching, inspiring learning: 60 years of teacher education in Singapore (1950–2010)* (pp. 51–56). National Institute of Education.

Chen, A. Y., Lim, C. P., & Gopinathan, S. (2003). The recruitment and preparation of teachers. In J. P. Keeves & R. Watanabe (Eds.), *International handbook of educational research in the Asia-Pacific region* (pp. 899–911). Kluwer Academic Publisher.

Chong, S., & Gopinathan, S. (2008). Teacher education in Singapore: Charting new directions. In T. O'Donoghue & C. Whitehead (Eds.), *Teacher education in the English-speaking world: Past, present, and future* (pp. 113–124). Information Age Publishing (IAP).

Chong, S., & Low, E. L. (2010). "Universitising" of initial teacher education. In A. Y. Chen & S. L. Koay (Eds.), *Transforming teaching, inspiring learning: 60 years of teacher education in Singapore (1950–2010)* (pp. 133–145). National Institute of Education.

Cowen, R. (2002). Socrates was right? Teacher education systems and the state. In E. Thomas (Ed.), *Teacher education: Dilemmas and prospects* (pp. 3–12). Kogan.

Dainton of Hallam Moors. (1989). *Higher education in Singapore*. National Institute of Education Library.

Davie, S. (2014, October 5). Ministry scales down recruitment of teachers. *The straits times*. Retrieved October 5, 2014 from www.gov.sg/~/media/gov/files/media/st20141005moe0f1c.pdf

Department of Statistics Singapore. (2019). *Singapore in figures, 2019*. Ministry of Trade and Industry.

Department of Statistics Singapore. (2021a). *Climate and air quality*. Retrieved May 15, 2021 https://www.singstat.gov.sg/publications/reference/ebook/society/climate-and-air-quality

Department of Statistics Singapore. (2021b). *Government development expenditure by sector, annual*. Retrieved June 6, 2021 from https://www.tablebuilder.singstat.gov.sg/publicfacing/createDataTable.action

Doraisamy, P. S. (1969). *150 years of education in Singapore*. TTC Publications Board.

Goh, C. B., & Gopinathan, S. (2008). The development of education in Singapore since 1965. In S. K. Lee, C. B. Goh, B. Fredriksen, & J. P. Tan (Eds.), *Toward a better future: Education and training for economic development in Singapore since 1965* (pp. 12–38). The World Bank.

Goodwin, A. L., Low, E. L., & Darling-Hammond, L. (2017). *Empowered educators in Singapore*. Jossey-Bass.

Gopinathan, S. (2007). Globalization, the Singapore developmental state and education policy: A thesis revisited. Reprinted in S. Gopinathan (2013), *Education and the nation state: The selected works of S. Gopinathan*. Routledge.

Gopinathan, S., & Ho, W. K. (2000). Teacher education in Singapore. In P. Moriss & J. Williamson (Eds.), *Trends and tensions in teacher education in the Asia Pacific region* (pp. 199–225). Falmer Press.

Gopinathan, S., & Hung, D. (2010). Research in the National Institute of Education since 1991. In A. Y. Chen & S. L. Koay (Eds.), *Transforming teaching, inspiring learning: 60 years of teacher education in Singapore (1950–2010)* (pp. 179–190). National Institute of Education.

Gopinathan, S., & Sharpe, L. (2004). New bearings for citizenship education in Singapore. Reprinted in S. Gopinathan (2013), *Education and the nation state: The selected works of S. Gopinathan*. Routledge.

Kho, E. M. (2010). Post-war teacher training: The colonial experience. In A. Y. Chen & S. L. Koay (Eds.), *Transforming teaching, inspiring learning: 60 years of teacher education in Singapore (1950–2010)* (pp. 5–14). National Institute of Education.

Labaree, D. F. (2008). An uneasy relationship: The history of teacher education in the university. In M. Cochran-Smith, S. F. Nemser, & J. McIntyre (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (pp. 290–306). Routledge.

Lee, W. O. (2013). The development of a future-oriented citizenship curriculum in Singapore: Convergence of character and citizenship education and curriculum 2015. In Z. Deng, S. Gopinathan, & C. K. Lee (Eds.), *Globalization and the Singapore curriculum* (pp. 241–260). Springer.

Loh, J., & Hu, G. (2019). Teacher education in Singapore. In G. Noblit (Ed.), *Oxford research encyclopaedia of education*. Oxford University Press.

MENDAKI. (2021a). *MENDAKI tuition scheme*. Retrieved July 29, 2021 from https://www.mendaki.org.sg/tuition_packages/mendaki-tuition-scheme-mts

MENDAKI. (2021b). *Collaborative tuition programme*. Retrieved July 29, 2021 from https://www.mendaki.org.sg/tuition_packages/collaborative-tuition-programme-ctp

Ministry of Finance Singapore. (2021a). *An interim assessment of the impact of key COVID-19 budget measures*. Retrieved July 19, 2021 from https://www.mof.gov.sg/docs/default-source/default-document-library/news-and-publications/featured-reports/interim-assessment---covid-19-budget-measures-(19-feb-2021).pdf

Ministry of Finance Singapore. (2021b). *Budget 2021: Emerging stronger together*. Retrieved May 29, 2021 from https://www.mof.gov.sg/docs/librariesprovider3/budget2021/download/pdf/fy2021_budget_statement.pdf

Ministry of Finance Singapore. (2021c). *Analysis of revenue and expenditure: Financial year 2021*. Retrieved June 5, 2021 from https://www.mof.gov.sg/docs/librariesprovider3/budget2021/download/pdf/fy2021_analysis_of_revenue_and_expenditure.pdf

MOE Singapore. (2019a). *2019 education statistics digest*. Ministry of Education.

MOE Singapore. (2019b, June 19). *Singapore's teaching force is passionate and highly-skilled: OECD TALIS 2018 study*. Retrieved January 17, 2020 from www.moe.gov.sg/news/press-releases/singapores-teaching-force-is-passionate-and-highly-skilled-oecd-talis-2018-study

MOE Singapore. (2019c). *Remuneration and benefits for General Education Officer (GEO)*. Retrieved from www.moe.gov.sg/careers/teach/remuneration-benefits/geo

MOE Singapore. (2020a). *MOE FY2020 committee of supply debate response by Minister for Education Ong Ye Kung*. Retrieved June 8, 2021 from https://www.moe.gov.sg/news/speeches/20200304-moe-fy2020-committee-of-supply-debate-response-by-minister-for-education-ong-ye-kung

MOE Singapore. (2020b). *2020 education statistics digest*. Ministry of Education.
MOE Singapore. (2020c). *Learn for life: Ready for the future.* Ministry of Education.
MOE Singapore. (2021a). *National education.* Retrieved June 8, 2021 from https://www.moe.gov.sg/programmes/national-education
MOE Singapore. (2021b). *Schools division.* Retrieved July 21, 2021 from https://www.moe.gov.sg/about-us/organisation-structure/sd
MOE Singapore. (2021c). *Professional development and career tracks.* Retrieved June 8, 2021 from https://www.moe.gov.sg/careers/become-teachers/pri-sec-jc-ci/professional-development
MOE Singapore. (2021d). *Professional development opportunities.* Retrieved June 8, 2021 from https://www.moe.gov.sg/education-in-sg/our-teachers
MOE Singapore. (2021e). *School mergers.* Retrieved May 29, 2021 from https://www.moe.gov.sg/news/press-releases/20210407-school-mergers
MOE Singapore. (2021f). *21st century competencies.* Retrieved July30, 2021 from https://www.moe.gov.sg/education-in-sg/21st-century-competencies
MOE Singapore. (2021g). *Updates to PSLE 2021 scoring system—enabling students to progress, regardless of starting points.* Retrieved July30, 2021 from https://www.moe.gov.sg/news/press-releases/20190725-updates-to-psle-2021-scoring-system-enabling-students-to-progress-regardless-of-starting-points
MOE Singapore. (2021h). *Character and citizenship education (CCE 2021).* Retrieved June 8, 2021 from https://www.moe.gov.sg/microsites/cos2020/refreshing-our-curriculum/cce2021.html
National , Center, on Education and the Economy. (2016). *Singapore: A teaching model for the 21st century*. National Center on Education and the Economy.
Nazeer-Ikeda, R. Z. (2014). Reforming teacher education through localization-internationalization: Analyzing the imperatives in Singapore. In A. W. Wiseman & E. Anderson (Eds.), Annual review of comparative and international education 2014 (pp. 169–200). Emerald.
Nazeer-Ikeda, R. Z. (2021). *Internationalization of teacher education and the nation state: Rethinking nationalization in Singapore.* Routledge Critical Studies in Asian Education Series. Routledge.
NIE. (2009). *A teacher education model for the 21st century: A report by the national institute of education, Singapore*. National Institute of Education.
NIE. (2020). *Centre for research in pedagogy & practice.* Retrieved January 17, 2020 from https://www.nie.edu.sg/research/research-offices/office-of-education-research/centre-for-research-in-pedagogy-and-practice-crpp
NIE. (2021). *Practicum structure.* Retrieved May 29, 2021 from https://nie.edu.sg/teacher-education/practicum
NTU. (2021). *Enrolment by college AY2020–21.* Retrieved May 29, 2021 from https://www.ntu.edu.sg/about-us/facts-figures/enrolment-by-college
OECD. (2014). *Lessons from PISA for Korea: Strong performers in education.* OECD Publishing.
OECD. (2016). *PISA 2015 high performers.* Retrieved May 29, 2021 from https://www.oecd.org/pisa/PISA-2015-singapore.pdf
OECD. (2018). *PISA 2015: Results in focus.* Retrieved May 29, 2021 from https://www.oecd.org/pisa/pisa-2015-results-in-focus.pdf
OECD. (2019). *Results from TALIS 2018: Country note (Singapore).* OECD Publishing.
OECD. (2021). *Towards a skills strategy for Southeast Asia: Skills for post-COVID recovery and growth.* Retrieved July 22, 2021 from https://read.oecd-ilibrary.org/education/towards-a-skills-strategy-for-southeast-asia_6db0907f-en#page1
Pereira, A. A. (2008). Whither the developmental state? Explaining Singapore's continued developmentalism. *Third World Quarterly, 29*(6), 1189–1203.
Placier, P. L., Letseka, M., Seroto, J., Loh, J., Motecinos, C., Vásquez, N., & Tirri, K. (2016). The history of initial teacher preparation in international contexts. In J. Loughran & M. L. Hamilton (Eds.), *International handbook of teacher education* (pp. 23–68). Springer.
Schwab, K. (2016). *The fourth industrial revolution*. World Economic Forum.

Sharpe, L., & Gopinathan, S. (1993). Universitisation and the reform of teacher education: The case of Britain and Singapore. *Research in Education, 50*(1), 5–16.

Sieber, P., & Mantel, C. (2012). The internationalization of teacher education: An introduction. *Prospects, 42*(1), 5–17.

Sim, J.B.-Y. (2005). Citizenship education and social studies in Singapore: A national agenda. *International Journal of Citizenship and Teacher Education, 1*(1), 58–73.

Tan, J. (2019, June 2). Commentary: Teachers love their jobs and feel valued but face immense challenges. *ChannelNews Asia.* Retrieved June 4, 2021 from https://www.channelnewsasia.com/news/commentary/singapore-teachers-challenges-love-their-jobs-feel-valued-parent-11579006

Teng, A. (2019a, December 4). Pisa 2018: Singapore slips to second place behind China but still chalks up high scores. *The straits times.* Retrieved December 4, 2019 from https://www.straitstimes.com/singapore/education/pisa-2018-singapore-slips-to-second-place-behind-china-but-still-chalks-up-high

Teng, A. (2019b, June 19). Singapore teachers work fewer hours than before, but teach more: Global survey. *The straits times.* Retrieved January 17, 2020 from https://www.straitstimes.com/singapore/education/singapore-teachers-work-fewer-hours- than-before-but-teach-more-global-survey

Teng, A. (2020, March 4). *Parliament: Teachers to get skills future road map and more support to hone their skills.* Retrieved June 8, 2021 from https://www.straitstimes.com/politics/parliament-teachers-to-get-skillsfuture-road-map-and-more-support-to-hone-their-skills

Turnbull, C. M. (1989). *A history of Singapore: 1819–1988*. Oxford University Press.

UNESCO Institute of Statistics. (2016). *The world needs almost 69 million new teachers to reach the 2030 education goals.* UIS Fact Sheet, No. 39. Retrieved December 26, 2019 from https://unesdoc.unesco.org/ark:/48223/pf0000246124

World Bank. (2019). *Country overview—Singapore.* Retrieved December 8, 2019 from www.worldbank.org/en/country/singapore/overview

World Bank. (2020). *Singapore: Human capital index 2020.* Retrieved May 29, 2021 from https://databank.worldbank.org/data/download/hci/HCI_2pager_SGP.pdf?cid=GGH_e_hcpexternal_en_ext

World Bank. (2021). *The human capital project*. Retrieved May 29, 2021 from https://www.worldbank.org/en/publication/human-capital

Yang, C. (2016, October 3). 5000 teachers leave service over five years. *The straits times*. Retrieved December 27, 2019 from www.straitstimes.com/singapore/education/5000-teachers-leave-service-over-five-years

Chapter 3
History of the Present: Practices, Development, and Challenges of Teacher Education in Macao

Sou Kuan Vong and Wai Kun Cheong

Abstract The development of contemporary teacher education in Macao has been dynamic and unique, and can be dated back to the late 1930s. It was mainly affected by the social and political changes in Mainland China, particularly the Guangdong Province. Since then, teacher education has developed, though in a nonlinear mode, accompanied by a series of political changes and educational reforms in Macao, especially prior to, and after, the political handover to the People's Republic of China in 1999. Owing to this historical context, teacher education in Macao has shared three distinctive features. First, there are diverse routes of pre-service teacher preparation, including different types, formats, and programmes provided by educational institutions recognized by the local government either established in Macao or outside. Second, it has been shaped, to a large extent, by the social and political developments in Macao. Third, it has been strongly influenced by regional/national policy and by the intense pursuit of repositioning Macao in the global arena. This chapter elaborates on these features and further discusses the current practices, future trends, and challenges of teacher education in Macao, especially taking into account the recent establishment of the Guangdong–Hong Kong–Macao Greater Bay Area and the emergence of neoliberal policies across all fields of education.

Keywords Macao · Teacher education · Practices · Development · Challenges

Introduction

The development of contemporary teacher education in Macao has been dynamic and unique. To a large extent, it has been influenced by local history, namely the social developments, political changes, economic growth, and educational reforms in Macao as well as the history of the neighbouring areas, particularly the Guangdong Province of Mainland China. This chapter aims to review the onset and growth of teacher education in Macao and analyse how history has played a significant

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role in shaping the nonlinear trajectory of teacher education development from the 1930s until today, especially around the political handover of Macao to the People's Republic of China (PRC) in 1999. Furthermore, the unique features that characterize the current practices of teacher education in Macao are also introduced, including the diverse routes of, and yet insufficient choices of teacher education programmes (i.e. programmes in different formats, for various specializations of school subjects, for different educational levels, offered by either local or non-local recognized institutions), the incongruent interpretations regarding teacher education between different institutions, the programme components that have been strongly influenced by regional/national developments, and the compromises that have resulted from the heated global climate of competition. The chapter ends with a discussion on the future trends and challenges of teacher education in Macao, including the professionalization of teacher education in the territory, and the need to reflect on the meaning and mode of teachers' professional development, especially taking into account the recent establishment of the Guangdong–Hong Kong–Macao Greater Bay Area and the emergence of neoliberal policies across all fields of education. Whereas the case of Macao has been unique and strongly influenced by the local, regional, and national history, the authors believe that the experiences will be of great interest. Furthermore, this chapter adopts a historical lens to examine the development of teacher education in Macao. The authors argue that in this ever globalizing era, we should not lose sight of the negotiations between the local and global discourses because each region is highly rooted in its historical and social context. Only in this way, can we develop more appropriate and contextualized policy to meet the needs of local society.

Social Context and Educational Development in Macao

Macao, officially known as the Macao Special Administrative Region (MSAR) of China, is located on the west shore of the Pearl River Delta, adjacent to the Guangdong Province of Mainland China and around sixty kilometres away from Hong Kong. At the end of 2019, Macao was identified as the region with the highest population density in the world, where the total population had reached 679,600, and the total land area had expanded to 32.9 km^2 mainly due to land reclamation (Direcção dos Serviços de Estatística e Censos [DSEC], 2020a, b). Since the early 2000s, the MSAR government has identified gaming and tourism industries as the leading industries in Macao (MSAR Government, 2001), which have accounted for more than 50% of the gross domestic product (MOP 434.7 billion) of the territory in 2019 (DSEC, 2020a, b). Owing to its tremendous investment in gaming industry and its economic development, Macao has been widely known as the "Las Vegas of the East" over the past two decades. To a certain extent, the blossoming of the gaming industry in Macao has provoked tensions between the educational and the economic developments in the territory. For instance, on the positive side, the economic prosperity in Macao since the 2000s has allowed the MSAR government to enhance its financial investment in education (Lo, 2009), including teacher education. On the negative side, particularly

in the early years, such rapid economic development has encouraged high school graduates and even university students to discontinue their studies for the high-salaried employment in casinos.

The educational landscape in Macao is very distinctive, in which private schools have played a significant role in providing basic education, similar to what Vong and Wong (2010) have named as "big market, small government" (p. 62). To a great extent, this is due to the fact that during the 150 years of colonization, the Macao–Portuguese colonial government (the governing body prior to the political handover) adopted a non-interventionist approach in many areas, including the field of education. Owing to the unsupportive attitude of the colonial administration towards education for the Chinese community, many non-governmental and private sectors (e.g. religious groups, pro-China organizations, charitable associations, labour unions, etc.) took responsibility for providing education for the general public. To date, the situation remains structurally unchanged; for instance, in the academic year 2019/2020, among all the schools under the non-tertiary education system,[1] 87% were private schools operated by non-governmental sectors (Direcção dos Serviços de Educação e Juventude [DSEJ], 2020a, b), which have relatively higher degree of autonomy compared to public schools.

The signing of the *Joint Declaration of the Government of the People's Republic of China and the Government of the Portuguese Republic on the Question of Macau* (hereafter referred to as the *Sino-Portuguese Joint Declaration*) in 1987 was a significant turning point in the contemporary history of Macao, which signified the commencement of the 12-year transitional period (1987–1999) prior to the official handover of sovereignty from Portugal to China on 20 December 1999. Throughout this period, the Macao–Portuguese government took a more active role and formulated a large amount of legislation, in order to exert its political influence and ensure a smooth political transition, particularly in the field of education. For example, the first comprehensive Education Law in Macao—the *Macao Education System* (Law No. 11/91/M)—was promulgated in 1991. In fact, this was also the first time the idea of "job training" for teachers was brought up by the Macao–Portuguese government: "teachers and educators have the right and responsibility for job training, where the administrative authorities have to ensure the necessary conditions and pathways for teachers and educators to receive training" (Macao–Portuguese Government, 1991, p. 3698). In terms of tertiary education, the Macao–Portuguese government purchased the only private university in Macao in 1988, the University of East Asia, which was officially renamed as the University of Macau in 1991, becoming the first public comprehensive university in the territory and signifying the beginning of contemporary higher education development in Macao (Bray et al., 2002).

[1] Education in Macao is classified into tertiary education and non-tertiary education. Tertiary education refers to any education that is more advanced than secondary level and takes place in a university or a higher education institution. Non-tertiary education refers to any education that is outside the scope of university education or higher education, which can be further classified into formal education (including kindergarten education, primary education, secondary education, vocational and technical education, and special education) and continuing education (including family education, recurrent education, community education, and vocational training).

After the political handover in 1999, the *Basic Law of the Macao Special Administrative Region* (hereafter referred to as the *Basic Law*) came into effect. Based on this constitutional document, Macao follows the principle of "one country, two systems": whereas Macao is directly under the authority of the Chinese government, it is entitled to retain its own economic, legal, sociocultural, and administrative systems. With such advantage endowed by the *Basic Law*, the MSAR government, unlike the previous colonial government, has actively initiated a series of educational reforms and interventions since the political handover. Particularly, the MSAR government designated the Education and Youth Affairs Bureau (DSEJ)[2] as the official department for coordinating and monitoring the general educational activities in both public and private schools under the non-tertiary education system (Administrative Regulation No. 6/1999; MSAR Government, 1999). In 2006, the *Fundamental Law of Non-tertiary Education* (Law No. 9/2006; hereafter referred to as the *Fundamental Law*) was promulgated to replace the *Macao Education System* (Law No. 11/91/M), in order to further normalize the subsidization, curriculum and instruction, assessment, human resources, and school management that are within the scope of non-tertiary education (MSAR Government, 2006). In fact, this was the first time the idea of "professional development" for teachers was introduced by the MSAR government (MSAR Government, 2006, p. 1551), which placed more emphasis on autonomous learning, lifelong education, and sustainable development among teachers compared to "job training" (Deng, 2014; Zhang, 2015). With the *Fundamental Law* serving as a guiding principle, the MSAR government formulated a series of legislation in the succeeding years that further refines each area of the non-tertiary education in Macao. Particularly, the *System Framework for Private School Teaching Staff of Non-tertiary Education* (Law No. 3/2012; hereafter referred to as the *System Framework*; MSAR Government, 2012) was published, specifying the job entry requirements, the promotion system, evaluation scheme, remunerations and benefits, and professional development requirements for teachers working in private schools in Macao.

Whereas the MSAR government has been actively engaged in legislation and regulations, in recent years, the educational development in Macao has also been influenced by two major factors. First, with the recent development of the Guangdong–Hong Kong–Macao Greater Bay Area (hereafter referred to as the Greater Bay Area),[3] Macao has become more closely connected to the nation/motherland (China), which certainly has crucial implications for the missions and objectives of education in Macao, especially in view of the need to serve and comply with

[2] In February 2021, the DSEJ was merged with the Higher Education Bureau (official department for coordinating, assisting, and developing the tertiary education in Macao) and was renamed as the Education and Youth Development Bureau (Direcção dos Serviços de Educação e de Desenvolvimento da Juventude, DSEDJ).

[3] The Guangdong–Hong Kong–Macao Greater Bay Area refers to the composition of two special administrative regions of China (i.e., Hong Kong and Macao) and nine municipalities in the Guangdong Province of Mainland China. Its main objectives are to facilitate the collaboration between Guangdong, Hong Kong, and Macao, in order to stimulate regional economic development, and to establish an international first-class bay area ideal for living, working, and travelling. The development of this area represents a major strategic plan of China in recent years.

national goals. Second, with the irreversible trend of globalization, alongside with the intense pursuit of repositioning Macao into the global arena, the educational landscape in Macao has also significantly shifted. In fact, the embracing of competition has become increasingly evident, particularly in the field of higher education in Macao, where higher education institutions have been actively engaging in global university rankings (Vong & Yu, 2018). Overall, the above-mentioned factors not only have played a crucial role in the recent educational development in Macao in general, but also specifically have had a noticeable impact on teacher education in Macao.

Historical Development of Teacher Education in Macao

As stated earlier, the development of teacher education was heavily influenced by historical factors. Since its first introduction in 1997, teacher education in Macao was defined by the Macao–Portuguese government and was classified into four types, as follows:(1) "initial or pre-service education" that offers professional qualifications for those who have not started working as a teacher (mostly in the form of Bachelor's degree programmes today); (2) "in-service education" that offers professional qualifications for those who have already worked as a teacher in a kindergarten, primary or secondary school and yet without appropriate qualifications; (3) "continuing education" that aims to refresh or deepen the knowledge and skills among in-service teachers, which is also known as professional development; and (4) "specialized education" that enables teachers to have specific skills and take specific work positions within the education system such as special education, school leadership, and many others (Macao–Portuguese Government, 1997, p. 1064). For the purposes of this chapter, only pre-service education, in-service education, and continuing education (professional development) are covered. In addition, "teacher training" and "teacher education" are similar yet different terms used in this chapter. The former refers to the kind of training with specific purposes, for instance, to equip teachers with some concrete skills or competencies within a relatively limited scope in both content and time. The latter refers to the kind of preparation that aims at not merely achieving practical skills or competencies, but also acquiring more holistic and theoretical perspectives, attitudes, and values regarding all educational issues and practices (Mulenga, 2020).

The initiation of teacher education in Macao was relatively late: whereas normal education and teacher education had already been developed in the USA and across many European countries prior to the nineteenth century (Labaree, 2008), they only occurred in Mainland China in the early twentieth century, and the emergence of teacher training in Macao was even more recent, around the mid-twentieth century (Lau, 2009). In fact, the Guangdong Province was the first teacher education site in Mainland China, where the first teacher training schools of the country were founded. Since Macao is located adjacent to the Guangdong Province, the educational development in Macao also benefited from the teacher education in the Guangdong

Province. Specifically, before the 1930s, due to the lack of formal teacher education in Macao and the minimal educational intervention from the colonial government, nearly all teachers who possessed professional qualifications were graduates from the teacher training schools of Guangdong Province.

In the following paragraphs, the development of teacher education in Macao since the 1930s will be introduced and discussed. Five phases are identified in chronological sequence with the prominent discourses of the period. Each phase represents a significant milestone or turning point, accompanying the social, political, and educational developments.

Phase 1: Meeting the External–Local Needs: Start-up by a Non-local Secondary School

During the Second Sino-Japanese War (1937–1945), due to the declaration of neutrality made by the Portuguese colonial government, there was a significant population influx from nearby regions of Mainland China. Macao then had become a "refugee centre". During the years 1936 and 1940, the student population in Macao increased from 8000 to 30,000 (almost a fourfold increase), and a minimum of twenty secondary and primary schools had also moved from Mainland China to Macao (Lau, 1996). The expansion population and significant upsurge in student population and schools drew the attention of the general public regarding the need for training local high-quality teachers, and the need for developing local formal teacher education in order to meet the needs of society.

In 1938, the Xie He Women's College (協和女子中學) moved from Guangdong Province to Macao. As a secondary school originating in Mainland China, it simultaneously offered kindergarten teacher training programmes for junior high school graduates in Macao. In fact, the founding of these programmes signified the beginning of teacher education in Macao. Between 1938 and 1945, the Xie He Women's College cultivated the first group of local teaching professionals who mostly worked as kindergarten teachers after graduation. Despite the short history, these programmes made significant contributions to the development of teacher education in Macao (Lau, 2009) by providing the exemplary "blueprints" for the organization of teacher education programmes in later years.

Following the establishment of teacher training programmes by the Xie He Women's College, another secondary school from Mainland China and four higher education institutions (originating in either Mainland China or Hong Kong) also moved to Macao and offered teacher training courses. Nevertheless, due to insufficient student enrolment, these programmes only lasted for a short period of time, thereby making relatively small contributions to educational development in Macao.

Phase 2: Responding to the Local and Regional Needs: Initiative Taken by Local Secondary Schools

In 1951, the Saint Joseph College (Colégio de São José, 聖若瑟中學), a local secondary school run by the Macao Catholic Diocese, established a one-year programme, with the main objective to train sufficient numbers of teachers for its own kindergarten section. Given the short duration and simplicity of the programme,

it was named the Simple Teacher Training Programme, for which female junior high school graduates were eligible to apply. This programme indeed represented the earliest teacher training course founded by a local secondary school in Macao. However, considering the need to ensure quality among kindergarten teachers, the programme duration was extended to two years in 1952. Moreover, in 1965, to guarantee the cultural and academic levels among applicants and future teachers, an additional one-year programme was founded, where the enrolment was only open to senior high school graduates. In 1987, this programme was developed into an evening programme, thus becoming more convenient for in-service teachers who had not obtained teaching qualifications and for those individuals who would like to join the teaching profession to receive training during their spare time. Since the 1950s, the teacher training programmes offered by the Saint Joseph College (hereafter referred to as the SJC) and a few other local secondary schools cultivated many skills in the teaching profession. Nonetheless, a majority of the teachers chose to return to their places of origin (mostly Hong Kong) instead of working in Macao, mainly due to the undesirable working conditions and unappealing remuneration during this period.

Phase 3: Answering the Long-Standing Teacher Quality Issue: Establishing the First University-Based Programme by Non-local University

The year 1985 was a crucial milestone in contemporary teacher education in Macao, where the Chinese Educators' Association of Macao (CEAM; non-governmental association that advocates for the advancement of education in Macao) made significant contributions for local teachers. With the support of the Macao Education Department (later named the DSEJ, and nowadays renamed as the DSEDJ), the CEAM invited the South China Normal University (hereafter referred to as the SCNU) to co-establish a series of degree-awarding programmes for in-service teachers in Macao in order to upgrade their teaching qualifications, which on the one hand represented a cross-border cooperation between Macao and Mainland China, and on the other signified an unprecedented collaboration between public and private sectors in educational issues. These programmes, though run by an external higher education institution, could be deemed as the earliest university-based teacher education programmes in Macao. Eight years later, there appeared a fourfold increase in the percentage of teachers in Macao who had obtained professional qualifications, with a large proportion of them being graduates of this university (Lau, 2009).

Phase 4: Localizing Higher Education and Localizing Teacher Education: Constructing Local University-Based Teacher Education Programmes

During the political transition period, the Macao–Portuguese government took a more active stance in education and in teacher education, which is reflected by the diploma programmes for in-service teachers founded by the first local private university—the University of East Asia, following the official request of the government towards the end of that year. After the University of East Asia was acquired by the government in 1988, it was renamed as the University of Macau (hereafter referred to as the UM), where the Faculty of Education was established. The programmes

of the University of East Asia and the UM represented the earliest university-based teacher education programmes founded by local higher education institutions in Macao, and they signified the fundamental shift from "teacher training" to "teacher education", which emphasizes the acquisition of the full range of both practical and theoretical knowledge during teacher preparation (Mulenga, 2020). Since 1991, the Faculty of Education of UM has developed a series of bachelor's degree programmes and postgraduate certificate programmes, offered to either pre-service or in-service teachers. Since then, teacher education programmes and courses in Macao have continued to expand, with various specializations (e.g. music education, computer education, physical education, etc.) for different educational levels (e.g. early childhood education, primary education, secondary education, etc.), delivered in diverse programme formats (e.g. diploma/certificate programmes, bachelor's and master's degree programmes, etc.), mainly organized by higher education institutions in Macao as university-based programmes, including the UM, the Macao Polytechnic Institute (hereafter referred to as the MPI), and the Macau Inter-University Institute (later named as the University of Saint Joseph [USJ]).

Phase 5: "Professionalizing" Teaching Education: Redistributing the Roles of Teacher Education

Along with the expansion of teacher education programmes and courses in Macao, the academic qualification of teachers in Macao has also seen an overall improvement. For example, in the academic year 2011/2012, among the 5664 school teachers working in the non-tertiary education system in Macao, 4603 (81.3%) have obtained a bachelor's degree or above (DSEJ, 2020a, b). However, according to the life cycle of the teaching profession, professional growth and continuous learning, which allow teachers to constantly reflect on and enhance their skills and practices, are equally important as pre-service teacher education (e.g. Steffy & Wolfe, 2001). In line with this perspective, the notion of professional development has emerged as an important issue in Macao in recent years. Specifically, after the promulgation of the *System Framework* (Law No. 3/2012), the first comprehensive legislation regulating private school teachers in Macao, all teachers must take part in professional development activities by receiving a certain amount of hours of professional training at each stage of their teaching career (six stages in total), where 30–70% must be training courses or activities organized by the DSEJ (MSAR Government, 2018). The *System Framework* also encourages the organization of school-based training, as well as off-the-job training that allows teachers to temporarily leave their work to focus on personal and professional enhancement (similar to the practices of sabbatical leave in higher education). The professional development activities are partially subsidized by the DSEJ. On the one hand, it aims to attract more new talent to enter the teaching profession. On the other, it encourages in-service teachers to continue enhancing their knowledge, skills, and practices. Overall, the *System Framework* has designated a clear career path for the teaching profession in Macao, and at the same time, has redistributed the roles of diverse stakeholders in their provision of teacher education. For instance, whereas the UM, the SCNU, the USJ, and the MPI are mainly responsible for providing certification courses for pre-service and in-service teachers,

those professional development courses and activities are principally organized by the DSEJ, the City University of Macau, and other local and external educational institutions.

Concluding Remark: Fluidity in Teacher Education in Macao

As shown above, the development of teacher education in Macao has followed a nonlinear trajectory, largely influenced along the way by social developments, political changes, and educational reforms. First, the establishment of the earliest teacher training programmes in Macao, namely the programmes offered by the Xie He Women's College, was a timely response to the increase in population, particularly student population, and the local need for teachers. Nevertheless, without further development or expansion, these programmes had to be suspended due to the sharp decline in population in Macao after 1945 (the final year of the Second Sino-Japanese War). From the late 1940s until the 1970s, the population in Macao has increased again, and four non-local universities have attempted to run teacher training courses. However, since the number of students enrolled were insufficient, and higher education in Macao was still underdeveloped, these programmes were somewhat transient and have exerted little influence. In fact, during this period, teacher training programmes in Macao were mostly developed by local secondary schools rather than higher education institutions. Unfortunately, most of these graduates chose not to work as teachers in Macao owing to the undesirable work conditions and unappealing remuneration. In 1985, the first university-based teacher education programmes emerged in Macao, but again, these programmes were not developed by any local universities, mainly due to the undeveloped nature of higher education in Macao and the limited investment by the colonial government. Only after the signing of the *Sino-Portuguese Joint Declaration* in 1987, there appeared the first university-based teacher education programmes organized by a local university, and these also represented the fundamental shift of notion from "teacher training" to "teacher education" in Macao. In fact, owing to the investment in education by both the Macao–Portuguese and the MSAR governments, and the contemporary higher education development in Macao over the past two decades, teacher education has been mainly executed by local higher education institutions, whereas the teacher training programmes offered by local secondary schools have been gradually discontinued. To date, with the increasingly strong emphasis on professional development, partly as a result of the normalization and legislation for education by the MSAR government, the continuing education programmes for in-service teachers, mainly organized by the DSEJ and other local and external educational institutions, have been considered as important as the certification programmes offered by higher education institutions.

Distinctive Features and Current Practices of Teacher Education in Macao

In this section, the distinctive features and current status of teacher education in Macao are described, including the diversity among teacher education programmes, the incongruent interpretations regarding teacher education between different institutions, the components in teacher education programmes that have resulted from national developments in recent years, and the changing role of teacher education that has been largely caused by the neoliberal climate of competition. In effect, current practices have demonstrated how history can leave its footprint on contemporary teacher education development.

Multiple Routes But Insufficient Choices of Teacher Education Programmes

As described above, over the last decades, there have been various pre-service and in-service teacher education programmes and courses in Macao. Prior to the political handover of Macao, the programmes and courses were mainly organized by local and non-local (mainly the Guangdong Province of Mainland China) secondary schools. After the political handover, with the importance of teachers' quality being increasingly recognized by both the MSAR government and the general public, the majority of teacher education programmes that offer professional qualifications for teachers have been offered by either local or non-local higher education institutions. In fact, except for school-based professional development training, all pre-service and in-service training programmes organized by secondary schools have now been discontinued. In other words, to obtain professional qualifications nowadays, the completion of a university-based programme, in the form of either bachelor's degree programme or postgraduate diploma/certificate programme, is required. Generally speaking, bachelor's degree programmes are daytime programmes targeted at those who have not started working as a teacher, whereas postgraduate diploma/certificate programmes are mostly delivered in the evening and during weekends, in order to accommodate the time schedules of those who have already worked as a teacher and those who would like to join the teaching profession in future. There is an induction/practicum period embedded in both types of programmes that allows students to gain hands-on teaching experience in a school setting, although the length of induction/practicum period varies across different programmes and across different institutions (Dai, 2011; Vong & Wong, 2009).

Despite the great number of teacher education programmes offered by diverse local universities, there is still a lack of programmes specializing in non-literacy-based subjects and disciplines taught in secondary schools (e.g. history, geography, chemistry, etc.). Teachers who are currently qualified and specialized in these school subjects and disciplines have been mostly educated in Taiwan and more lately in Mainland China (e.g. Vong et al., 2020). In other words, there is a reliance on external resources, particularly for specialized subjects including history, geography, and so forth.

Coexisting Institutions Without a Congruent Interpretation of Teacher Education

Currently, four major institutions are responsible for pre-service and in-service teacher education in Macao, namely the SCNU, the UM, the USJ, and the MPI. Whereas the SCNU offers postgraduate diploma programmes for those bachelor's degree holders who would like to enter the teaching profession in a kindergarten, primary, or secondary school, the UM and the USJ both offer bachelor's degree programmes and similar postgraduate diploma programmes as the SCNU. Regarding the MPI, a number of bachelor's degree programmes for teacher education in specialized subjects are offered, including music education, arts education, computer education, physical education, and Portuguese education. Despite the variety, several scholars have commented on the lack of coordination and communication between different institutions that offer teacher education programmes in Macao. For example, the resemblance between some of the aforementioned programmes offered by the institutions might have led to overlap or misallocation of limited resources. Moreover, due to their lack of communication, there has been incongruent understanding about teacher education among the four institutions. Specifically, there have been inconsistencies when defining the core subjects in their teacher education programmes. For example, while some institutions have placed strong emphasis on the "Sociology of Education", others have considered this subject less important, adjusting or deleting the subject without adequate consideration (Huang, 2018). Likewise, the length of the induction/practicum period varies across different teacher education programmes, which again indicates the lack of a formalized teacher induction system (Vong & Wong, 2009). Given the importance of induction within a teacher education programme, it is vital to establish a formal mechanism that ensures students from different teacher education programmes can obtain fair and equal support throughout their induction experience. Likewise, without coordination and congruent understanding about teacher education, the diversified coexisting teacher education programmes provided by various institutions will possibly lead to different outcomes and a discrepancy in quality.

Impact From Regional/National Policies and Developments

With the sovereignty of Macao officially returned to China in 1999, there has appeared an urgent need to establish the Chinese cultural identity among citizens and to maintain the social harmony of the region as a "new form of civic virtue to enhance and maximize social stability and economic prosperity" (Vong, 2016, p. 82). Certainly, these national goals have had significant implications for the educational landscape and development in Macao, including the components involved in teacher education programmes. In particular, to ensure that teachers are capable of using Mandarin (official language in the PRC) as one of their languages of instruction, or even able to teach Mandarin classes in a school setting, there have been Mandarin courses (elective courses) incorporated in teacher education programmes, especially for students enrolled in the bachelor's degree programme in secondary education specializing in Chinese teaching. In fact, since the early 2000s, the DSEJ has also been organizing certificate programmes and training workshops in Mandarin for in-service teachers

on a regular basis, which can be counted as their professional development activities, and these teachers are encouraged to take part in formal language testing upon their completion of the training (DSEJ, 2020a, b). Overall, there has been a clear attempt to enhance the capacity and usage of Mandarin among teachers in Macao. Undoubtedly, this language promotion serves as a crucial means to establish the Chinese cultural identity among current and future generations of students.

Besides the inclusion of Mandarin courses into teacher education, the DSEJ has also been offering other professional development training programmes that aim to enhance the knowledge of the *Basic Law* and encourage patriotism among teachers (DSEJ, 2020a, b), in order for them to incorporate such knowledge into their teaching practices and materials more effectively. Furthermore, since 2004, with the support from the Ministry of Education of Mainland China, the DSEJ has been organizing short-term training programmes periodically, where teachers in Macao are sent to Mainland China for a short period of time to enrich their teaching experience and to exchange ideas and knowledge with those teachers and professionals in Mainland China. On the one hand, this represents the support in educational issues provided by the country. On the other, it also implies that the qualifications of teachers in Macao will be gradually enhanced, their professional views will be broadened, and the development of teacher education will become more mature along with national support. In recent years, the establishment of the Greater Bay Area has significantly strengthened the connection between Macao and its motherland (China). It is anticipated that teacher education in Macao will not only continue receiving external support and resources, but will also start contributing to the construction of the Greater Bay Area, especially in terms of teacher education development. This "give and take" notion will be discussed in detail in the following section.

Dwelling in the Global Neoliberal Higher Education Movement

The emergence of the earlier forms of teacher training and teacher education in Macao was principally affiliated with secondary schools and higher education institutions as subsidiary programmes (Lau, 2009). Currently, all programmes of teacher education are university-based and have government recognition. However, throughout the decades, there have not been any independent normal schools or normal institutions in Macao that entirely specialize in cultivating teachers. This situation has been somewhat different from the teacher education development in other regions and countries, including the USA and Mainland China, where teacher education may take place in either independent normal schools that are only specialized in teacher education, or in general comprehensive universities that encompass multiple faculties or schools of different fields (Labaree, 2008; Shi & Englert, 2008).

Being an integral part of the university, teacher education has also suffered tremendous changes with the neoliberal global movement in the field of higher education, specifically the impact of global competition and competitiveness (Lau & Yuen, 2014; Springer et al., 2016). Essentially, teacher education plays dual roles in both non-tertiary and tertiary education systems in Macao. On the one hand, it is responsible for cultivating qualified teachers for kindergartens, primary and secondary schools, as an important safeguard for the quality of non-tertiary education in Macao. On the other,

university-based teacher education programmes are also accountable for producing academic research, knowledge production, and dissemination in the higher education arena (Vong, 2014). However, in recent decades, the trend of globalization and the emergence of neoliberal policies have substantially changed the ecology of learning and knowledge production among higher education institutions in Macao. Specifically, global university rankings have strongly promoted interinstitutional competition at local, national, and global levels, and therefore have encouraged higher education institutions to allocate more resources to conduct output-oriented research and to boost their publications (Vong & Yu, 2018). Eventually, the dual roles of teacher education may become more imbalanced. That is, although the research outcomes and publications have been increasing, the remaining resources for actual teacher preparation may be reduced, the quality of teacher educators may be compromised, and the long-term development of teacher education in Macao may also be hindered.

Future Trends and Challenges

In view of the past history and the current status of teacher education in Macao, a series of future trends and potential challenges can be foreseen. At the local level, it is anticipated that the educational levels among future teachers in Macao will be enhanced; however the issue of the mode of teacher professional development, as well as the standardization of quality between different teacher education programmes, will need to be constantly revisited. At the regional level, as the territory gradually becomes more integrated into the Greater Bay Area, it is likely that teacher education in Macao will begin making external contributions, and Macao may even develop into a new academic hub or possibly a teacher education hub. At the global level, teacher education in Macao will face the universal challenges that most university-based teacher education system encounters, and will need to find a way to maintain the balance between university rankings and teacher cultivation. In the following paragraphs, these trends and challenges are described in detail, together with some brief suggestions.

Different Qualities?—The Gap Between Professionalization and Standardization

In the current *System Framework*, a life-cycle career development, which emphasizes professional growth and continuous learning, is designated for the teaching profession, including pre-service, induction, and in-service teacher education, as well as professional development activities (e.g. Bayer et al., 2009; Fessler & Christensen, 1992; Steffy & Wolfe, 2001). This life-cycle career development has contributed to further professionalize the teaching profession in Macao, and at the same time to foster the quality of non-tertiary education in the territory. In the academic year 2019/2020, among the 7284 school teachers working in the non-tertiary education system in Macao, 6902 (94.8%) hold a bachelor's degree or above, and 1230 (16.7%) possess a master's degree or above (DSEJ, 2020a, b). Nonetheless, despite

the enhancement of their educational levels, there remains a major challenge in ensuring the quality of future teachers. The diverse choices of teacher education programmes offered by different higher education institutions have made it difficult to guarantee standardization of quality, especially when these institutions have shown a lack of coordination, incongruent understanding regarding teacher education, and have made inconsistent arrangements in their education components (e.g. different core subjects identified by different institutions, different lengths of induction period requested by different institutions, etc.). Therefore, when considering the diversity of teacher education programmes in Macao as a unique feature and advantage, it is important to ensure that adequate communication between different institutions takes place, and that the qualifications of graduates from different institutions should be comparable (or at least the discrepancies should be reasonably reduced). Essentially, this is an important first step to ensure the rights of all teachers to pursue their life-cycle career development.

Countable or Accountable Professional Development?—The Importance of Both Competencies and Reflective Practices

Although the idea of professional development has been introduced in the *Fundamental Law* and has been further specified in the *System Framework*, most teachers mainly participate in professional development programmes and activities due to external forces and requirements. In particular, in-service teachers are obliged to receive a certain amount of hours of professional training at each stage of their teaching career path (six stages in total, with the requirements of per-stage training hours ranging from 90 to 210), where 30–70% must be training courses or activities organized by the DSEJ (MSAR Government, 2018). Their participation is directly linked to their performance evaluations and career stage promotion. Moreover, the majority of these training activities are financially subsidized by the DSEJ. Over time, the explicit requirements of training hours and the monetary incentives have become the major source of incentive for teachers to register for and participate in professional training. In other words, the genuine intrinsic motivation for teachers to become engaged in lifelong autonomous learning may be reduced, and teachers may eventually become passive learners themselves (Liu et al., 2019). This phenomenon is undesirable since it will not only preclude teachers from enhancing their professional identities and consolidating their professional values, but may also hinder the development of autonomous learning among their students (Reinders & Balcikanli, 2011). Therefore, in addition to the fulfilment of training hours, it is critical to emphasize the core values and beliefs, as well as the genuine meaning and necessity of lifelong learning, in all types and levels of teacher education programmes, including pre-service, in-service, and professional development programmes.

Currently, most professional development programmes have largely focussed on subject knowledge and pedagogical skills that are required from teachers in their day-to-day practices (DSEJ, 2020a, b). Nonetheless, these programmes have placed little emphasis on the core values and beliefs that are also fundamental to the teaching profession (e.g. commitment to the profession, pursuit of continuous learning, etc.). For instance, among the professional development activities held by the DSEJ over

the past two years (2019–2020), the majority have focussed on enhancing knowledge, skills, and competencies, while less than one per cent could be identified as helping teachers to reflect on their personal stories, professional growth and professional identities, values, and beliefs (DSEJ, 2020a, b). Given the significant roles and functions of these elements along the entire teaching career path, especially in reminding teachers of their original mission, enhancing their intrinsic learning motivation, and encouraging them to stay within the profession (Chong & Cheah, 2009; Giovannelli, 2003; Ng, 2019), it is crucial for teacher education programmes in future to enhance the weight of reflective practices, in order for teachers to build or strengthen their value system and professional identities, and to pursue lifelong learning as well as long-term career development.

Integration and Contribution?—A Possible Shift from "Taking" to "Giving"

To a large extent, the educational landscape in Macao has been influenced by the political handover in 1999 and more recently by the establishment of the Greater Bay Area, which has further strengthened the connection between Macao and Mainland China. All these political and economic changes have also urged teacher education in Macao to develop in a new direction. In particular, whereas the onset and earlier development of teacher education in Macao has always relied on the support and supplies from neighbouring areas, especially the Guangdong Province and Hong Kong, the recent development of the Greater Bay Area has emphasized the complementary and reciprocal relationship, as well as mutual cooperation between these regions (Jiang & Wang, 2014). Inevitably, for those specialized teacher education programmes that Macao has insufficient conditions to offer (e.g. history education, geography education, etc.), external resources from Mainland China, Taiwan, and other areas will still be relied upon. However, instead of receiving one-way support from these areas, the accountability of teacher education in Macao to start making external contributions has become clear. As mentioned above, since 2004, the Ministry of Education of Mainland China has been supporting the DSEJ to organize short-term training programmes periodically, where teachers in Macao are invited to institutions in Mainland China for enriching their teaching experience and for exchanging ideas and knowledge with those professionals in Mainland China. These exchange activities and programmes will likely be continued in future, but more importantly, the knowledge and experience shared by teachers and professionals in Macao should be increased as the contemporary teacher education of the territory keeps advancing. Specifically, the openness and embracement of diversity in Macao, which has largely resulted from the prior western colonization and rule, may serve as an important reference when attempting to expand and internationalize teacher education in the entire Greater Bay Area. In fact, the implementation of capitalism (as opposed to socialism with Chinese characteristics that has been employed in Mainland China since the economic reform), which has been explicitly entitled by the *Basic Law* over the past two decades and has created ample opportunities for Macao to move towards internationalization, will potentially make contributions to the policies and practices of teacher education in the Greater Bay Area, thereby facilitating the long-term regional development not only in education, but also in other domains such as

economic development (Shi, 2020). Certainly, the contributions towards the neighbouring areas should not be considered as an end point itself. It is anticipated that in future, contemporary teacher education in Macao will not only serve local and regional needs, but as it keeps advancing will also become able to cultivate talents and disseminate knowledge for both the nation and worldwide. Therefore, it is time to consider developing Macao into a new academic hub for teacher education, in order to cater for all future trends and challenges.

Multitasking?—Serving the Locals while Playing in the Global Arena

Since pre-service and in-service teacher education programmes in Macao are nowadays incorporated in higher education institutions, during the irreversible trend of globalization and with the heated climate of neoliberalism, the implications of global university rankings for contemporary teacher education development have become obvious. That is, whether a teacher education programme can be deemed as high quality will mainly depend on the position of the university or institution on the ranking list, which can be promoted by meeting the demands and needs of the market today, especially through conducting output-oriented research and generating huge amounts of publications (Vong & Yu, 2018). In fact, such an embracing of competition and pursuit of survival in the market may directly weaken the collaboration between different institutions in Macao, causing the lack of coordination described above. Unfortunately, this market-oriented approach will also lead to reduced attention to the actual quality of education that is directly offered to pre-service and in-service teachers. In other words, the quality of teacher education programmes is nowadays linked to factors that have not been the traditional focus of teacher education. In fact, this situation is similar to the recent development of teacher education in Mainland China, where it is heading "towards an environment influenced by market drivers", and hence, "the system of Chinese teacher education is no longer what it used to be" (Shi & Englert, 2008, p. 356). In view of the tension between the accountability of maintaining a high university ranking and the quality assurance of teacher education programmes, teacher educators need to be constantly aware of their unique and influential role. On the one hand, they have to acknowledge that teacher education in Macao will continue operating in the university-based system. In order to survive in this system, they must be, to certain extent, involved in the arena of global university rankings. Nevertheless, on the other, they must always remember that the mission of teacher education is to cultivate qualified teachers for the future, and this mission should always be advocated for and given priority.

References

Bayer, M., Brinkkjaer, U., Plauborg, H., & Rolls, S. (2009). *Teachers' career trajectories and work lives*. Springer.

Bray, M., Butler, R., Hui, P., Kwo, O., & Mang, E. (2002). *Higher education in Macau: Growth and strategic development*. Comparative Education Research Centre, University of Hong Kong.

Chong, S., & Cheah, H. M. (2009). A values, skills and knowledge framework for initial teacher preparation programmes. *Australian Journal of Teacher Education, 34*, 1–17.

Dai, B. S. (2011). School music education and music teacher education in Macao. *Journal of Xinghai Conservatory of Music, 3*, 151–156.

Deng, Y. Q. (2014). A new trend of teacher professional development in Macao: Analysis based on the law system framework for private school teaching staff of non-tertiary Education. *Meitan Higher Education, 32*, 62–67.

Direcção dos Serviços de Educação e Juventude. (2020). *Educational statistic*. Retrieved from http://m.dsej.gov.mo/webdsejspace/internet/Inter_main_page.jsp?id=8525

Direcção dos Serviços de Educação e Juventude. (2020). *Training programmes of education*. Retrieved from https://portal.dsedj.gov.mo/www/portalspace/discuz/dsej_getcontent_page.php?con=efunc_activeteachernews_page.php

Direcção dos Serviços de Estatística e Censos. (2020). *Demographic statistics*. Retrieved from https://www.dsec.gov.mo/getAttachment/8768cc29-9f17-4856-bb73-a068e5ff3529/C_DEM_PUB_2019_Y.aspx

Direcção dos Serviços de Estatística e Censos. (2020). *Gross domestic product*. Retrieved from https://www.dsec.gov.mo/getAttachment/d026d309-503b-4a90-9789-a06137006823/C_PIB_PUB_2019_Y.aspx

Fessler, R., & Christensen, J. (1992). *The teacher career cycle: Understanding and guiding the professional development of teachers*. Allyn & Bacon.

Giovannelli, M. (2003). Relationship between reflective disposition toward teaching and effective teaching. *Journal of Educational Research, 96*, 293–309.

Huang, S. J. (2018). The development of sociology of education in Macao from the perspective of teacher education. *Journal of Educational Science of Hunan Normal University, 17*, 40–47.

Jiang, D. Y., & Wang, Z. X. (2014). Regional teacher training cooperation: Practice and theoretical prospect of Guangdong and Macao. *Teacher Education Forum, 27*, 22–26.

Labaree, D. F. (2008). An uneasy relationship: The history of teacher education in the university. In M. Cochran-Smith, S. Feiman-Nemser, D. J. McIntyre, & K. E. Demers (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (pp. 290–306). Routledge & Association of Teacher Educators.

Lau, C. M. D., & Yuen, P. K. (2014). The globalization of public higher education in Macau. *The Asia-Pacific Education Researcher, 23*, 117–124.

Lau, S. P. (1996). Macao education during World War II. In *Selected essays on education, in celebration of the 75th anniversary of the Macao Chinese Educators' Association* (p. 7). Chinese Educators' Association of Macao.

Lau, S. P. (2009). Post-secondary professional and vocational education in Macao. In S. S. L. Ieong & V. L. C. Lei (Trans.), *A history of education in Macao* (pp. 281–340). Faculty of Education, University of Macau.

Liu, W. S., Li, X. W., & Zou, Y. M. (2019). The formation of teachers' intrinsic motivation in professional development. *Integrative Psychological and Behavioral Science, 53*, 418–430.

Lo, S. (2009). Casino capitalism and its legitimacy impact on the politico-administrative state in Macau. *Journal of Current Chinese Affairs, 38*, 19–47.

Macao Special Administrative Region Government. (1999). *Organization, functional authority and operation of government departments and entities (administrative regulation no. 6/1999)*. Retrieved from https://bo.io.gov.mo/bo/i/1999/01/regadm06.asp

Macao Special Administrative Region Government. (2001). *Policy address for the fiscal year 2002*. Retrieved from https://www.gov.mo/zh-hant/wp-content/uploads/sites/4/2017/11/cn2002_policy.pdf

Macao Special Administrative Region Government. (2006). *Fundamental law of non-tertiary education (law no. 9/2006)*. Retrieved from https://bo.io.gov.mo/bo/i/2006/52/lei09.asp

Macao Special Administrative Region Government. (2012). *System framework for private school teaching staff of non-tertiary education (law no. 3/2012)*. Retrieved from https://bo.io.gov.mo/bo/i/2012/12/lei03.asp

Macao Special Administrative Region Government. (2018). *Approval criteria for the hours of professional development activities among teaching staff (dispatch of the Secretariat for Social Affairs and Culture no. 88/2018)*. Retrieved from https://bo.io.gov.mo/bo/i/2018/29/despsasc.asp

Macao-Portuguese Government. (1991). *Macao education system (law no. 11/91/M)*. Retrieved from https://images.io.gov.mo/bo/i/91/34/lei-11-91.pdf

Macao-Portuguese Government. (1997). *Decree-law no. 41/97/M*. Retrieved from https://bo.io.gov.mo/bo/i/97/38/declei41.asp

Mulenga, I. M. (2020). Teacher education versus teacher training: Epistemic practices and appropriate application of both terminologies. *Journal of Lexicography and Terminology, 4*, 105–126.

Ng, C. (2019). Teachers' professional selves and motivation for continuous professional learning amid education reforms. *Asia-Pacific Journal of Teacher Education, 47*, 118–136.

Reinders, H., & Balcikanli, C. (2011). Learning to foster autonomy: The role of teacher education materials. *Studies in Self-Access Learning Journal, 2*, 15–25.

Shi, Y. D. (2020). An analysis of teacher education development in the Guangdong-Hong Kong-Macau Greater Bay Area from a comparative perspective. *Journal of Guangdong Polytechnic Normal University, 1*, 25–31.

Shi, X. G., & Englert, P. A. J. (2008). Reform of teacher education in China. *Journal of Education for Teaching, 34*, 347–359.

Springer, S., Birch, K., & MacLeavy, J. (2016). *The handbook of neoliberalism*. Routledge.

Steffy, B. E., & Wolfe, M. P. (2001). A life-cycle model for career teachers. *Kappa Delta Pi Record, 38*, 16–19.

Vong, S. K. (2014). An archaeological and genealogical study of Macao teacher education policy. *Journal of South China Normal University (social Science Edition), 6*, 50–56.

Vong, S. K. (2016). Harmonizing a melody?! A critical study of moral and civic education policy of the non-tertiary education system in Macao. *Asian Education and Development Studies, 5*, 71–93.

Vong, S. K., & Wong, M. (2009). Towards a formalised teacher induction system: The Macau experience. *Research in Comparative and International Education, 4*, 34–41.

Vong, S. K., & Wong, M. W. (2010). Made in Macao: How history, politics and teachers frame curriculum practice. *Curriculum and Instruction Quarterly, 13*, 61–109.

Vong, S. K., & Yu, W. M. (2018). Is teacher education at risk? A tale of two cities—Hong Kong and Macau. *Compare: A Journal of Comparative and International Education, 48*, 785–800.

Vong, S. K., Cheong, W. K., Deng, S. J., & Sit, C. M. (2020). Desenvolvimentos e Tendências do Ensino de História no Systema Educacional de Macau. (Developments and trends of history teaching in the Macao education system). In A. Bueno, E. Crema, & J. M. Neto (Eds.), *Ensino de História e Diálogos Transversais [History teaching and transversal (cross) dialogues]* (pp. 14–24). Sobre Ontens/UERJ.

Zhang, H. F. (2015). Study of the advance of teacher education in Macau. *Teacher Education Research, 27*, 52–59.

Chapter 4
Teacher Education System in Myanmar

Yoshitaka Tanaka

Abstract Myanmar 's teacher education is currently administered by the Department of Higher Education (DHE) of the Ministry of Education (MOE) and consists of twenty-five Education Colleges (ECs), two Universities of Education (UOE), and the University for the Development of the National Races of the Union (UDNR). EC trains primary and middle school teachers and UOE and UDNR train high school teachers. Teacher education in Myanmar began during the British colonial era. In the 1800s, missionaries established Normal Schools that provided only ad hoc short-term training. After demand for children's education rapidly increased in the 1900s, a Teacher's Training College (TTC) was established in Rangoon in 1931 which provided systematic training courses for the first time. Following Myanmar's independence in 1948, some Teacher's Training Colleges (TTC) and Teacher's Training Schools (TTS) were established in various areas. TTCs were schools for training middle school teachers, and TTSs were for training primary school teachers. This system lasted for approximately 50 years through both socialist and military regimes. It was in 1998 that the foundation of the current teacher education system was laid. In this year, the wide scale education program called the Education Promotion Program (EPP) was implemented and ECs were established in various areas nationwide. However, the limits of teacher education through ECs have been pointed out in recent years. Under the new government led by Aung San Suu Kyi which took power in 2016, a dynamic reform of teacher education began and is currently in progress.

Keywords Teacher education · Education college · Teacher's training college · Teacher's training school · Education promotion program · University of education · Normal school · Missionary

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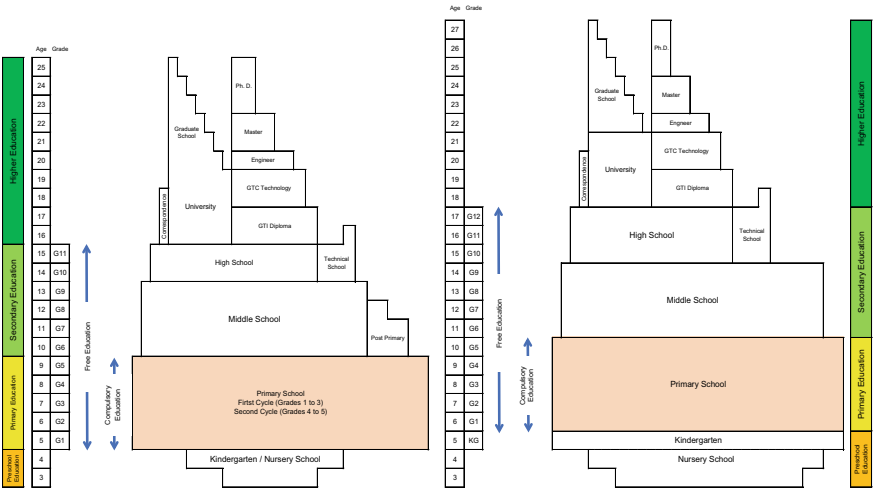
Introduction

In Myanmar, large-scale education reform has been underway since 2011 when Thein Sein took power as the first civilian leader in 50 years. He believed that the expansion of education, which had not been given much importance under the military government, was necessary for the future development of the nation. This new regime carried out a comprehensive education reform including education-related laws, education and school system, curriculum, teaching and learning methodologies, teacher education, and so on. This reform is now continuing under the new government led by Aung San Suu Kyi, the leader of the National League for Democracy (NLD).

Currently the National Education Law (NEL) and the Basic Education Law (BEL) are in effect having been enacted in 2015 and 2019, respectively. According to these laws, the education and school system will be changed from the current 5 (primary education), 4 (lower secondary education), 2 (upper secondary education) to KG (kindergarten), 5 (primary education), 4 (lower secondary education), 3 (upper secondary education) by 2028. Based on this change, school curriculum and teacher education will be reformed.

For a long time, it was believed that teachers, especially primary and lower secondary school teachers, did not need high abilities or knowledge. Therefore, teacher education was not positioned as a higher education subject but as a vocational school subject pursued after graduating from high school. However, under the current education reform, teacher education is positioned as a higher education subject for the first time in the history of education in Myanmar. As a result, teacher education currently is under the jurisdiction of the Department of Higher Education (DHE) of the Ministry of Education (MOE).



Note The new school system (right) will be completed by 2028. Because it is now transition period, the current system is in between the old and new systems. *Source* Created by Author through the interview of Myanmar's MOE

An Overview of the Historical Transition of Myanmar's Teacher Education System

Myanmar's teacher education was started during the British colonial era. Since then, teacher education has changed dramatically under Japanese Fascism, independence, and socialist and military regimes. In this section, the historical transition of Myanmar's teacher education will be discussed.

Beginning of Teacher Education During the British Colonial Era

The origins of Myanmar's teacher education are the "Normal Schools" which were run by various missionaries from western countries. These schools were originally established to introduce Christianity and to train pastors but over time gradually began training teachers instead. According to the "Report on the Administration of the Province of Pegu[1] for the Year 1855–1856", there were Normal Schools built by the American Baptist Church Missionaries in Rangoon (currently known as Yangon), Bassein (currently known as Pathein), Henzada (currently known as Henthada), and Prome (currently known as Pyay). These schools were private organizations and trained local teachers for the vernacular schools.[2]

In 1874, the Burmese government (currently known as the Myanmar government) established a Governmental Normal School in Rangoon followed by schools in Akyab (currently known as Sittwe) and Moulmein (currently known as Mawlamyaing). Until 1911, there were five Governmental Normal Schools and seven Government Supporting Normal Schools nationwide[3]which trained 500 students annually. In 1912, Elementary Training Classes (E.T.C) were started in the Governmental Normal Schools which specialize in training primary teachers of Vernacular Schools.

[1] Pugu is currently known as Bago.

[2] In that time, there were three types of schools: English Schools, Anglo-Vernacular Schools, and Vernacular Schools. English Schools built by Europeans were for children of the European people staying in Burma (Myanmar). The Anglo-Vernacular Schools built by the missionaries were for academically talented Burmese children and for the children of the missionaries. Vernacular Schools, including the monastic schools, were for local Burmese children.

[3] Government Supporting Normal Schools were Normal Schools owned by private organizations or persons that were partially supported by the government, especially financially.

In 1921, Rangoon University (currently known as Yangon University) started a course called a "Diploma in Teaching", which provided a 1-year training course for students. In the following year, a Faculty of Education was established at the university. Because this course was positioned as a graduate-level course, one level higher than the Normal School courses, students could become high school teachers after completion of this course. However, there were only a few students in this course because at that time anyone who graduated from university was eligible to become a teacher. In addition, students had to do teaching practice for one year as part of this course. This kept students away. Rangoon University also started another course called the "Extension Course" for incumbent teachers in 1928. This course offered only short-term training for middle school teachers during school vacations. In contrast to the "Diploma in Teaching" program, this course became very popular among middle school teachers and many incumbent teachers participated in it.

As Burmese people's interest in education increased, it became difficult to meet these growing needs with only the "Diploma in Teaching" and "Extension Course". In a conference at Rangoon University in 1924, the University President noted that there were no teacher training institutions in the country and that there would be no progress in education unless proper teacher training was possible". After this conference, the government began planning the establishment of formal teacher training institutions. In this plan, a blueprint of the establishment of Teacher's Training Colleges (TTC) and the qualifications necessary to become a teacher were laid out. According to this blueprint people must have completed a 2-year training course and received the "University Trained Teachers Certificate (U.T.T.C.)" after finishing high school in order to become a middle school teacher. Also people must have completed a 2-year training course and received a "Bachelor of Education Arts (B.Ed.)" in order to become a high school teacher. This blueprint meant that people must be trained at a newly established TTC rendering training from existing Normal Schools invalid. Many people related to the Normal Schools strongly opposed this plan but the government proceeded rapidly anyway. As a result, Rangoon TTC was established under Rangoon University in 1931. In the first year of this TTC, there were 26 students in the B.Ed. Course and 65 students in the U.T.T.C. course. However, the number of students rapidly increased, and after 10 years, it reached 68 students in the B.Ed. course and 95 students in the U.T.T.C. course. With the opening of the Rangoon TTC, the Faculty of Education at Rangoon University was closed.

Teacher Education During Japanese Fascism Era

The Japanese military invaded and occupied Burma between 1941 and 1945 in the name of helping Burma gain independence from Britain. Under the Japanese military regime, the elimination of Anglo-American dependency and the insurance that all people thoroughly understand the philosophy of the Greater East Asia Co-prosperity Area were prioritized. As a result, the Japanese military regime closed existing Normal Schools and the Rangoon TTC and established a new Normal

College inside of the Rangoon Government Building in 1942. This new college provided one-month short-term courses. Approximately, 700 people attended this course during a four-month period.

The Japanese military government strongly believed that a permanent teacher training institution was necessary and therefore moved the Normal College to the Chinchanung Palace (currently called as the Kanbawza Palace) and expanded its size greatly. The new Normal College began to provide a six-month teacher training course which awarded a "Higher Grade Certificate" after completion. The number of students in the Normal College rapidly increased, and the school was then moved to the Saint John Convent School (currently known as the Basic Education High School No. 2 Latha) in order to accommodate a larger number of people. This college provided three-month training courses and a one-year training course with 300 students participating annually. This course's subjects included "Japanese Language," "Japanese History", "Greater East Asia Co-prosperity Area Philosophy", "Physical Education", "Labor Work", and "Group Activities".

Establishment of Teacher Education System After Independence

Burma won independence from the British on 4 January 1948. After independence, the Anti-Fascist People's Freedom League (AFPFL) took power and U Sao Shwe Thaik became the president and U Nu became the prime minister. Under this new government, Rangoon University and Rangoon TTC, which had been closed under the Japanese military occupation, were reopened. After a while, a big change occurred in teacher education as all college faculties were transferred to Rangoon University. Under this reform, Rangoon TTC became the Faculty of Education of Rangoon University. Because the Faculty of Education would provide a course for a Bachelors of Education (B.Ed.) only, all courses offered by the previous Rangoon TTC should have been transferred to other institutions.

The new government opened seven new teacher training institutions in different areas between 1947 and 1952 called Teacher's Training Colleges (TTC) and Teacher's Training Schools (TTS). TTC was responsible for training middle school teachers, and TTS was responsible for training primary school teachers. The objectives for these reforms were to provide an education rooted in democratic ideas at the rapidly increasing number of schools nationwide and to produce high-quality teachers. In 1947, Rangoon TTC was built (different from the former Rangoon TTC established in 1931), followed by other TTCs established in Mandalay, Myikyina, Moulmein, Bassein, Meikhtila, and Kyauphyu. As a result, three teacher training systems were established: TTS for primary school teachers, TTC for middle school teachers, and the Faculty of Education of Rangoon University for high school teachers.

Newly established TTC and TTS after independence

Names of Institutions	Established year	Remarks
Rangoon teacher's training college	1947	Currently known as Yankin education college. It was moved to its current location in 1952
Mandalay teacher's training college	1952	
Myitkyina teacher's training college	1952	
Moulmein teacher's training college	1952	Currently known as Mawlamyaing education college
Bassein teacher's training school	1952	Currently known as Pathein education college. It was promoted to a college in 1986
Meikhtila teacher's training school	1952	
Kyaukphyu teacher's training school	1953	

Source Tan Oo (1999)

In TTS, there were two courses: an ordinary course and a special course. The ordinary course provided education methods for "Burmese", "Mathematics", "Social Studies (Geography, History and Civics)", "Basic Science", "Handicraft (only for boys)", and "Music". The special course provided education methods specializing in "physical education" and "fine arts". In TTC, there were also two courses students were required to complete: an ordinary course and a special course. The ordinary course in TTC had the same subjects as TTS. The special course in TTC had courses on education methods for "English", "Science", "Agriculture," "Technology", "Domestic Science", "Physical Education", and "Fine Arts". Students selected one or two subjects among these.

In addition to the above formal curriculum, the "Teacher's Oath" was also taught every day. The oath was composed of the following five contents: (1) adhering to the Burmese government and the constitution, (2) protecting the independence of Burma, (3) fulfilling five obligations as a teacher,[4] (4) try to live a model life as a teacher, (5) make every effort to develop these five abilities so that students can understand and practise the idea of democracy.

Thus, a new teacher education system was formed and teacher training was practised in TTS, TTC, and the Faculty of Education in Myanmar. However, this system would not last for long.

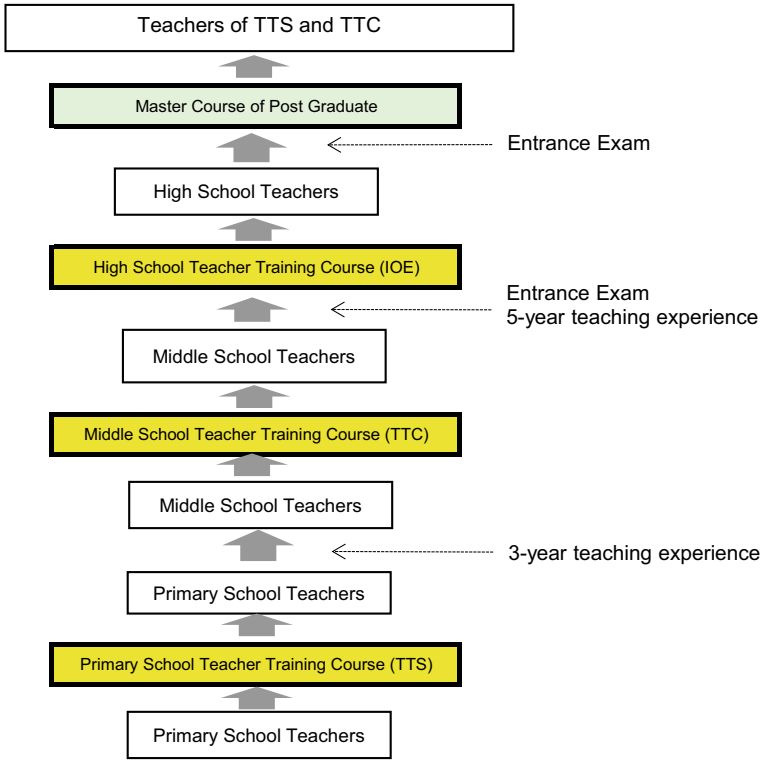
[4] The author examined various documents, but it was unclear what the five obligations mean.

Deterioration of Teacher Education Under the Military Regime

The ruling party AFPFL split into two parties: the Integrity AFPFL (led by U Nu) and the Stable AFPFL (led by U Ba Swe), due to conflict over members' positions. Prime Minister U Nu was unable to settle this conflict peacefully. He secretly plotted with Ne Win, the leader of the Burmese Army, to exchange a document about a transition of power to Ne Win in 1958. However, the Integrity AFPFL was victorious in the general election held in 1960 and U Nu changed his mind quickly taking power again and ignoring the document exchanged with Ne Win. Then, U Nu tried to promote nationalization of the economy in order to curb the expanding forces of the Burmese Army. In relation, the Burmese Army struck frequently in various areas of the country. Ne Win then arrested U Nu and seized power organizing the Revolutionary Council of the Union of Burma in 1962. Thus, Myanmar entered a period of military junta control.

After taking power, Ne Win decided to push forward with the construction of the "Burmese Way to Socialism" and reform education, especially higher education. Under this higher education reform, Rangoon University and Mandalay University became Arts and Science Universities, and most of the faculties became independent institutions focusing on their specialized fields. For example, the faculty of medicine became the Institute of Medicine (IOM), the faculty of engineering became the Rangoon Institute of Technology (RIOT), the faculty of education became the Institute of Education (IOE), and so on.

The birth of IOE has dramatically changed teacher education in Myanmar. In the previous regime, TTS, TTC, and the Faculty of Education at Rangoon University were responsible for training primary, middle, and high school teachers, respectively. However, the new system positioned primary school teachers, middle school teachers, high school teachers and TTC and TTS teachers in a hierarchy and formed a career path in which all teachers started as primary school teachers being gradually promoted to higher education level teachers.



Hierarchical career path formed under the military regime. *Source* Wei (1998)

For example, under this system, a student who wanted to become a teacher had to become a tentative primary school teacher first after graduating university and at the same time he/she was required to apply for admission to TTS. After admission to TTS, he/she had to concentrate on his/her study for one year. After 1-year training, he/she must become a formal primary school teacher. After 3-years working as a primary school teacher, he/she could be promoted to be a tentative middle school teacher. At the same time, he/she must apply for admission to TTC. After admission to TTC, he/she was required to focus on his/her study for 1 year. After 1-year training at TTC, he/she could become a formal middle school teacher. If he/she wanted to become a high school teacher, he/she could apply to IOE after working at a middle school for at least 5 years. Then, he/she could take either a 1-year normal course or a 2-year correspondence course offered by IOE. After completing the course, he/she could become a formal high school teacher. He/she was also allowed to take a masters course at university after two-years of teaching experience at a high school. After completing this 3-year course, he/she could become a teacher of either TTS or TTC.

This hierarchical teacher education system created a clear difference in ability between teachers at different educational levels, with inexperienced new teachers always being primary school teachers, and experienced knowledgeable highly qualified teachers always being high school teachers. The influence of this hierarchy

among teachers created by this system has continued for a long time. It remains strong even today 60 years after its implementation.

During this regime, in addition to the existing seven teachers training institutions (4 TTCs and 3 TTSs), nine new teacher training institutions were opened as listed: 8 TTS and 1 Institute.

Newly established TTS and Institutes during Ne Win's military regime

Names of institutions	Established year	Remarks
Taunggyi teacher's training school	1962	
Ywathikyi Institute of development of national races	1964	This institute was transferred to the administration of the Civil Service Selection Board in 1988 and then promoted to a university in 1991
thegone teacher's training school	1965	It is the current Loikaw education college
Toungoo teacher's training school	1967	
Sagaing teacher's training school	1968	
Prome teacher's training school	1968	It is the current Pyay Education College
Myaungmya teacher's training school	1969	
Rangoon Thingangyun teacher's training school	1969	It is the current Thingangyun education college
Bogaley teacher's training school	1970	

Source Tan Oo (1999)

Reform of Teacher Education Under the Education Promotion Program (EPP)

Under the military regime led by Ne Win, the economic situation has gradually deteriorated facing severe inflation. In response to this situation, the government suddenly suspended the distribution of high-value banknotes in order to crackdown on fraudulent income, the black market, and smuggling. This increased public dissatisfaction and distrust of the government. In 1988, the people's dissatisfaction exploded. One day, a student from the Rangoon Institute of Technology and the son of a local influential person quarrelled over a music tape at a local cafeteria. In this incident, the Burmese security force was dispatched and shot a student activist named Phone Maw. This rapidly led to a conflict between students from the Rangoon Institute of Technology and Rangoon University and the military government. Strikes and demonstrations by students and citizens broke out in various areas nationwide.

As a result, the military government abandoned the Burmese Socialist Program Party (BSPP) and organized the State Law and Order Restoration Council (SLORC)

in 1988 in order to take control of the administration again. The new government changed the name of the country from the Socialist Republic of the Union of Burma to the Union of Burma, and then to the Union of Myanmar. This new regime was led by Saw Maung. In 1990, the general election was held. In this election, SLORC lost by a landslide to the National League for Democracy (NLD). The military government dismissed the results, and the military regime continued to stay in power. When Than Shwe took over after Saw Maung in 1992, he abolished SLORC and created a new organization called the State Peace and Development Council (SPDC).

In 1998 under the SPDC regime, a large-scaled education reform called the Education Promotion Program (EPP) began. This reform included revising primary education curriculum, assessment of students' academic abilities, university entrance examinations, teacher education system, and so on. Under EPP, 19 Education Colleges were established nationwide instead of TTCs and TTSs. The ECs at that time had two types: Level 1 that provided a 2-year training course in order to train primary and middle school teachers and level 2 that provided only a 1-year course for primary school teachers. There were five level-1 ECs and fourteen level-2 ECs nationwide.

With the establishment of ECs, new curricula and syllabi for teacher education were created which were in modular form and the credit acquisition system was adopted for the first time. This increased the number of properly educated teachers and dramatically improved the quality of education in schools. However, several questions were raised. The main question was whether only 1-year of training was enough for primary school teachers. In Myanmar, it has been assumed that primary school teachers did not need higher knowledge and skills because their teaching contents were easy. This traditional thought which started under Ne Win's military regime was one of the biggest problems in teacher education.

The Current Teacher Education System

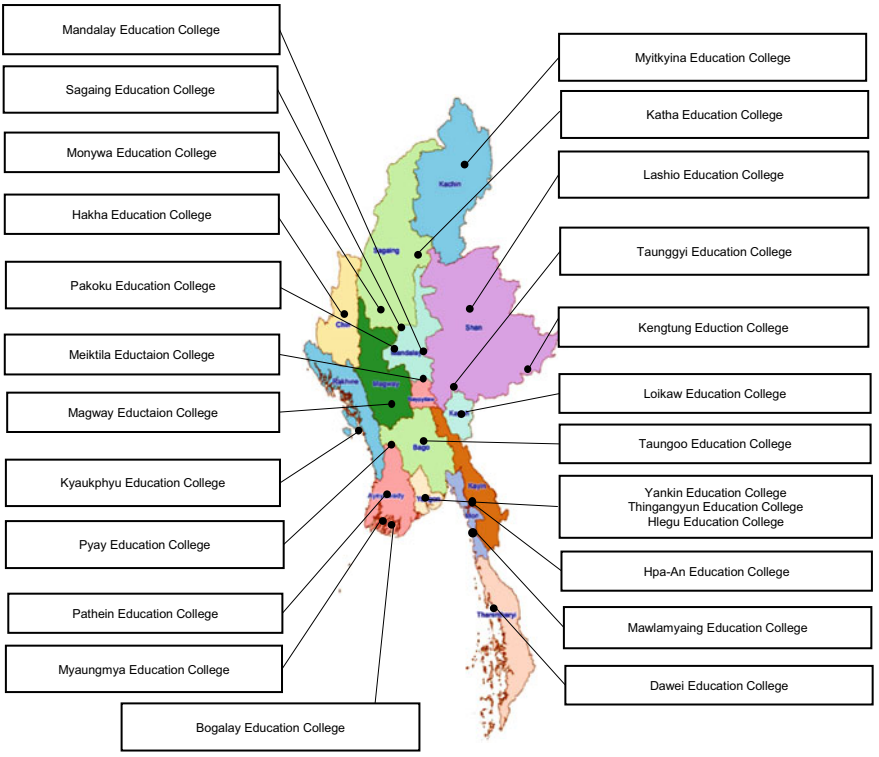
Educational Institutes for Teacher Education

Currently, there are two types of educational institutions for teacher education: Education Colleges (EC) and Universities of Education (UOE). At present, there are 25 ECs and two UOEs: Yangon University of Education (YUOE) and Sagaing University of Education (SUOE). EC was established in 1998 when systematic teacher education began. Since then, it is believed that the number of unqualified teachers has rapidly decreased. EC provides one-year and two-year courses and a training course for incumbent teachers. In the one-year course, students can get a Certificate in teacher education (CT.Ed.) and become primary school teachers. In the two-year course, they can get a Diploma in Teacher Education (DT.Ed.) and become middle school teachers after working two years as primary school teachers in primary school. However, recently EC abolished the one-year course and recommended all

students to take the two-year course. In addition, from 2016, EC began offering the Postgraduate Primary Teacher Training (PPTT), a 6-month course for training primary school teachers. Moreover, EC also provides a one-year correspondence course. EC has a dormitory, and all students sleep and eat together for two years. Those students also receive scholarship funds (three thousands kyats[5] per month) from the government.

On the contrary, the UOE offers a 4-year course and students can get a Bachelor of Education (B.Ed.). After graduation, students with a B.Ed. begin teaching at middle schools, and after two years, they become high school teachers. However, from 2012, UOE began offering a 5-year course which allows students to become high school teachers without completing a 2-year teaching stintata middle school. In addition, there is the Bridge Program in which approximately 30 top students of ECs can transfer to the third year of UOE.

Besides EC and UOE, there is another institution called the University for the Development of the National Races for the Union (UDNR). This university is administered by the Ministry of Border Affairs (MOBA) not by MOE. It provides a 5-year course, and students can get a Bachelor of Education (B.Ed.).

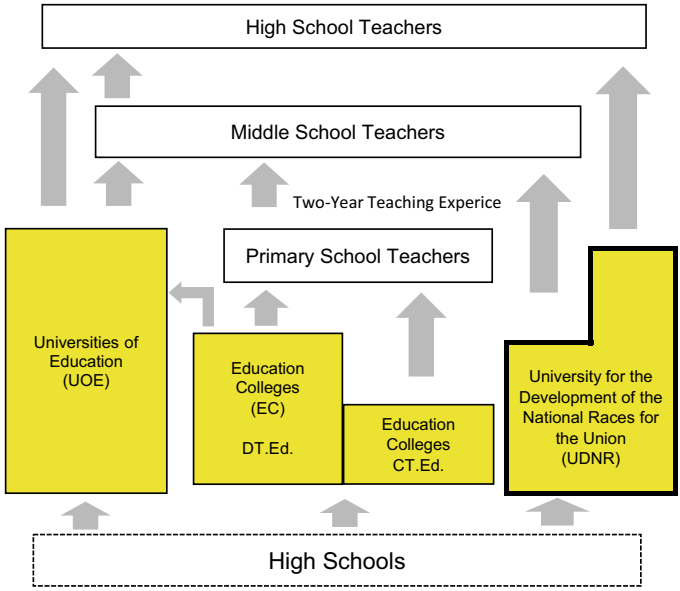


[5] Three thousands kyats is equivalent to approximately 3 US dollars. Prices in Myanmar are about one-tenth that of the US, so students can purchase the stationary with this scholarship.

25 Education Colleges of Myanmar. *Source* Interviewed MOE by author

Yangon University of Education (YUOE). *Source* Photography by author

Yankin Education College (YEC). *Source* Photography by author



Current teachers carrier path. *Source* Interview MOE by author

Curriculum of Education Colleges (EC)

The EC curriculum will be discussed in this section. As mentioned before, EC provides four types of courses: CT.Ed., DT.Ed., PPTT, and a Correspondence Course.

1. **Certificate in Teacher Education (CT.Ed.)**

This course lasts 1-year. It is composed of a 4-month first semester and a 4-month second semester with 40 days of practical training at primary schools. After completing this course, students can become a primary school teacher. If they want to become a middle school teacher, they must take the correspondence course. The curriculum of this course is divided into three parts: "Method", "Academic", and "Co-Curriculum". There are 15 subjects offered under these three parts. The subjects for "Method" focus on basic educational philosophy such as educational theory, educational psychology, and subject education methods. The subjects for "Academic" focus on the necessary knowledge and skills for teaching the core curriculum subjects such as Myanmar language, English, Mathematics, Science, and Social Studies. The subjects for "Co-Curriculum" focus on providing instructional methodologies of the Co-Curriculum including agriculture, music and dance, fine arts, industrial arts, domestic science, and physical education.

Curriculum in CT.Ed

Method (2 periods per week, 1 period is 45 min)	Academic (2 periods per week, 1 period is 45 min)		Co-curriculum (2 periods per week, 1 period is 45 min)
Educational theory	Required	Myanmar	Agriculture
Educational psychology		English	music and dance
Myanmar language teaching		Mathematics	Fine arts, industrial Arts, or domestic science
English language teaching	Elective	Chemistry, physics, or biology	Physical education
Teaching of mathematics and science		Geography, history, or economics	
Teaching of social studies (geography, history and lifeskills)			

Source UNICEF (2013a)

2. **Diploma in Teacher Education (DT.Ed.)**

This one-year course is taken after the completion of the CT.Ed. It consists of a 4-month first semester, a 4-month second semester, and a 40-day period of practical training at middle schools. After completing this course, students are allowed to become primary school teachers. Then, they can become middle school teachers after finishing a stint as primary school teachers. In addition, 15% of students who completed this course can go on to the Institute of Education (IOE) to acquire a Bachelor of Education. This course offers 17 subjects, and students must take 15 required subjects and two electives.

Curriculum in DT.Ed

Method (3 periods per week, 1 period is 45 min)	Academic (2 periods per week, 1 period is 45 min)		Co-curriculum (2 periods per week, 1 period is 45 min)
Educational theory	Required	Myanmar	Agriculture
Educational psychology		English	Music and dancing
Myanmar language teaching		Mathematics	Fine arts, industrial arts, or domestic science
English language teaching	Elective	Chemistry, physics, or biology	Physical education
Teaching of Mathematics		Geography, history, or economics	
Teaching of science			
Teaching of history			
Teaching of geography, lifeskills			

Source UNICEF (2013a)

3. Postgraduate Primary Teacher Training (PPTT)

This course was newly established in 2014, and it targets students who have completed a 4-year university education. It is a 6-month course, and after completion, students can become primary school teachers. This course is composed of 13 subjects. The subjects for "Academic" are not included as all students are supposed to have already gained enough knowledge in this area at university.

Curriculum in PPTT

Method (3 periods per week, 1 period is 45 min)	Academic (2 periods per week, 1 period is 45 min)	Co-curriculum (2 periods per week, 1 period is 45 min)
Educational theory	Teaching of science	Agriculture
Educational psychology	Teaching of history	Music and dance
Myanmar language teaching	Teaching of geography and lifeskills	Industrial arts or domestic science
English language teaching		Physical education
Teaching of mathematics		

Source UNICEF (2013a)

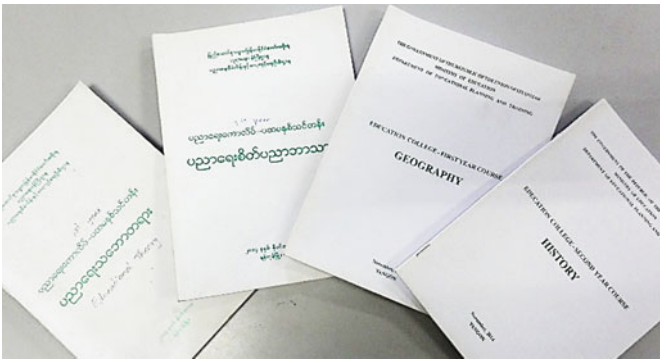
4. Correspondence Course

This course is a 1-year training course, and it targets primary school principals or middle school teachers without a DT.Ed. It also includes practical training implementation at their own schools. After completion of this course, participants will be qualified to become high school teachers.

Besides the correspondence course offered by ECs, IOEs also provides a correspondence course. After completing this course, students will be qualified to take the university entrance examination. If they pass, they can enter university and get a Bachelor Degree for Education.

Textbooks and Content of Education Colleges (EC)

EC uses the national textbooks complied by the Ministry of Education (MOE) just as basic education schools do. These textbooks are commonly used by all 25 ECs. As discussed above, EC curriculum is divided into three parts: "Method", "Academic", and "Co-Curriculum". The textbooks for "Method" and "Co-Curriculum" are written in Myanmar, but the textbooks for "Academic" are written in English. In this section, a textbook for Educational Theory belonging to "Method" will be discussed.

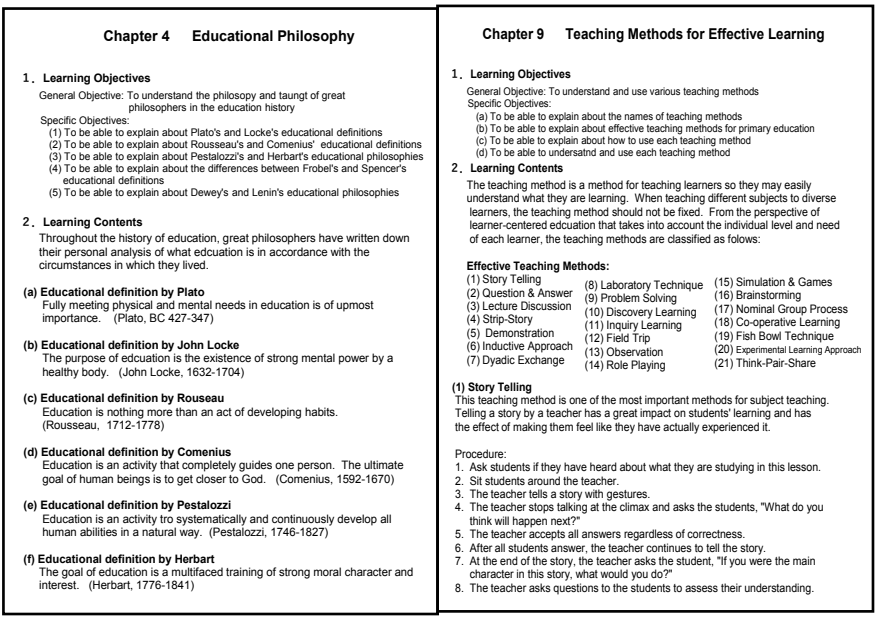


EC's national textbooks. *Note* from left, a textbook for "Education principles," "educational psychology," "geography" and "history". *Source* Photography by author

The textbook for Educational Theory consists of three main sections: (1) educational principles, (2) educational technology, and (3) educational management. The content of the educational principles section starts with the definitions of education, curriculum, and syllabus and introduces the basic rules of teaching and learning and educational philosophy. However, the contents of this textbook are of very poor quality. In the section on educational philosophy, the major educational philosophers are introduced and their ideas and their definitions of education are described. The philosophers include Plato, John Locke, J. J. Rousseau, J. A. Comenius, J. H. Pestalozzi, S. Herbert, F. Frobel, J. Dewey, and V. Lenin. The textbook contains with only one or two lines of explanation for each philosopher. With such a short description, it is impossible to comprehend what these philosophers thought about education and how these thoughts have influenced education. In order to teach about educational philosophers in an easy-to-understand manner, it is important to first categorize them by educational philosophy and second to pick a representative for each category of educational philosophy. For example, after listing the categories of educational philosophy such as "Prennialism", "Progressivism", "Essentialism", and "Reconstructionism", it is optimal to clarify which category the above-mentioned philosophers belong to and what kinds of ideas they had. Then, students can understand and analyse the differences.

In the educational technology section, the issue of how to set up learning objectives is explored and effective teaching and learning methods are introduced. The Bloom taxonomy is introduced regarding how to set up learning objectives effectively. The textbook states "when setting learning objectives, behavioural verbs should be used" based on behavioural psychology. It is a theory that cannot be accepted from the standpoint of Constructivism. Regarding effective teaching and learning methods, twenty-one methods are introduced, and each method has a detailed explanation on how to implement them. Students should understand that these teaching and learning methods are only *examples* of typical methods. However, the textbook's wording may lead students to misunderstand that these are *all* of the teaching and learning methods. In other words, students may misunderstand that if these twenty-one teaching and learning methods are used, teachers can teach any subject effectively. In addition,

because the procedure to use these methods are described in detail, it gives the impression that teachers must follow these procedures exactly. For example, the description about story telling says "this teaching method is one of the most important methods for subject teaching". However, subjects in which this teaching and learning method can be used are extremely limited. It may be used in Myanmar and Morals in the lower grades of primary school, but it cannot be used effectively in Mathematics, Science, Arts, and Physical Education. There are many such problems with the textbook used in EC. For reference, the chapters of "Educational Philosophy" and "Teaching Methods for Effective Learning" are showed below.



Chapter 4 Educational Philosophy

1. Learning Objectives

General Objective: To understand the philosopy and taungt of great philosophers in the education history

Specific Objectives:
(1) To be able to explain about Plato's and Locke's educational definitions
(2) To be able to explain about Rousseau's and Comenius' educational definitions
(3) To be able to explain about Pestalozzi's and Herbart's educational philosophies
(4) To be able to explain about the differences between Frobel's and Spencer's educational definitions
(5) To be able to explain about Dewey's and Lenin's educational philosophies

2. Learning Contents

Throughout the history of education, great philosophers have written down their personal analysis of what edcuation is in accordance with the circumstances in which they lived.

(a) Educational definition by Plato
Fully meeting physical and mental needs in education is of upmost importance. (Plato, BC 427-347)

(b) Educational definition by John Locke
The purpose of edcuation is the existence of strong mental power by a healthy body. (John Locke, 1632-1704)

(c) Educational definition by Rouseau
Education is nothing more than an act of developing habits. (Rousseau, 1712-1778)

(d) Educational definition by Comenius
Education is an activity that completely guides one person. The ultimate goal of human beings is to get closer to God. (Comenius, 1592-1670)

(e) Educational definition by Pestalozzi
Education is an activity tro systematically and continuously develop all human abilities in a natural way. (Pestalozzi, 1746-1827)

(f) Educational definition by Herbart
The goal of education is a multifaced training of strong moral character and interest. (Herbart, 1776-1841)

Chapter 9 Teaching Methods for Effective Learning

1. Learning Objectives

General Objective: To understand and use various teaching methods
Specific Objectives:
(a) To be able to explain about the names of teaching methods
(b) To be able to explain about effective teaching methods for primary education
(c) To be able to explain about how to use each teaching method
(d) To be able to undersatnd and use each teaching method

2. Learning Contents

The teaching method is a method for teaching learners so they may easily understand what they are learning. When teaching different subjects to diverse learners, the teaching method should not be fixed. From the perspective of learner-centered edcuation that takes into account the individual level and need of each learner, the teaching methods are classified as folows:

Effective Teaching Methods:

(1) Story Telling
(2) Question & Answer
(3) Lecture Discussion
(4) Strip-Story
(5) Demonstration
(6) Inductive Approach
(7) Dyadic Exchange
(8) Laboratory Technique
(9) Problem Solving
(10) Discovery Learning
(11) Inquiry Learning
(12) Field Trip
(13) Observation
(14) Role Playing
(15) Simulation & Games
(16) Brainstorming
(17) Nominal Group Process
(18) Co-operative Learning
(19) Fish Bowl Technique
(20) Experimental Learning Approach
(21) Think-Pair-Share

(1) Story Telling

This teaching method is one of the most important methods for subject teaching. Telling a story by a teacher has a great impact on students' learning and has the effect of making them feel like they have actually experienced it.

Procedure:
1. Ask students if they have heard about what they are studying in this lesson.
2. Sit students around the teacher.
3. The teacher tells a story with gestures.
4. The teacher stops talking at the climax and asks the students, "What do you think will happen next?"
5. The teacher accepts all answers regardless of correctness.
6. After all students answer, the teacher continues to tell the story.
7. At the end of the story, the teacher asks the student, "If you were the main character in this story, what would you do?"
8. The teacher asks questions to the students to assess their understanding.

Example contents of EC's national textbook. *Source* Ministry of Education, "Educational Theory—Education College First year course, translated by author

Lesson Practice of Education Colleges (EC)

The author has observed various lessons practised at many different ECs. Here, one actual practice lesson is introduced. The lesson was conducted at Yankin EC which is the leading EC among all 25 ECs. This lesson was about the above-mentioned "Teaching Methods for Effective Learning". The lesson was about the specific contents of the twenty-one teaching methods. The names of the twenty-one teaching methods had already been taught in the lesson previous to the one observed.

First, the teacher nominated a few students to name the twenty-one methods. Then, he instructed that "Five members of the first group should come forward and act out a classroom situation using a specific teaching method in front of the class". The other students will watch and then try to guess which teaching method is being demonstrated. Five students stood in front of the class. One students took the role of the teacher and the others took the role of students.

Teacher: Look at this material and write a scenario.
Students: (writing a scenario).
Student A: Teacher! The scenario is ready.
Teacher: Now, act according to that scenario. Start with a rehearsal.
Students: (Rehearsing).
Student B: Teacher! The rehearsal is over.
Teacher: Are you ready for the production?
Students: Yes!

Some of the students who saw the performance raised their hands and one of the students answered, "This is the role-playing method". The teacher said, "That's right. Well done". In this lesson, three groups participated; one demonstrating the role-playing method, another the storytelling method, and another the lecture-discussion method.

At first glance, this lesson practice is completely different from the memorization and recitation type of classes that have been traditionally conducted in Myanmar. Therefore, it can be considered as an interactive lesson that incorporates the idea of student-centred learning. When the author asked the teacher what he thought of the lesson, the teacher seemed very satisfied. However, a detailed analysis of this lesson reveals that it was by no means a high-quality lesson that deserved praise. The first problem is that the most important learning objective of the chapter had been forgotten. Although the textbook describes "(a) To be able to explain about the names of teaching methods", and "(b) To be able to explain about effective teaching methods for primary education", these are not the main objectives. The most important objective is "(c) To be able to understand and use each teaching methods". In this lesson, unfortunately, only the names of teaching methods were focused on.

The second problem is that this lesson ignored the different types and contexts of teaching materials that these twenty-one teaching methods can effectively use. These teaching methods may or may not be effective depending upon the type and context of teaching material. What kinds of teaching material and contexts each teaching method can be effectively used with is very important. However, this lesson focuses only on the superficial procedures of each method omitting any information about the importance of the types and contexts of teaching materials. This does not teach students how to use these teaching methods effectively.

The third problem is that there are teaching methods that are distinguishable only by the superficial differences in procedures. "(9) Problem Solving", "(10) Inquiry Learning", and "(11) Discovery Learning" are good examples. The procedures of these teaching methods are so similar that they can be said to be almost the same.

However, because the ultimate *objectives* of these methods are different, they are classified as different teaching methods. This point was not properly addressed in this lesson. In addition, the teacher followed the descriptions in the textbook exactly in order to conduct his lesson. Therefore, it can be said that all the problems mentioned above arise from inadequate explanations and descriptions in the textbook. In addition to improving EC teacher's abilities, it is also necessary to revise the contents of the textbooks.

An Ongoing Reform

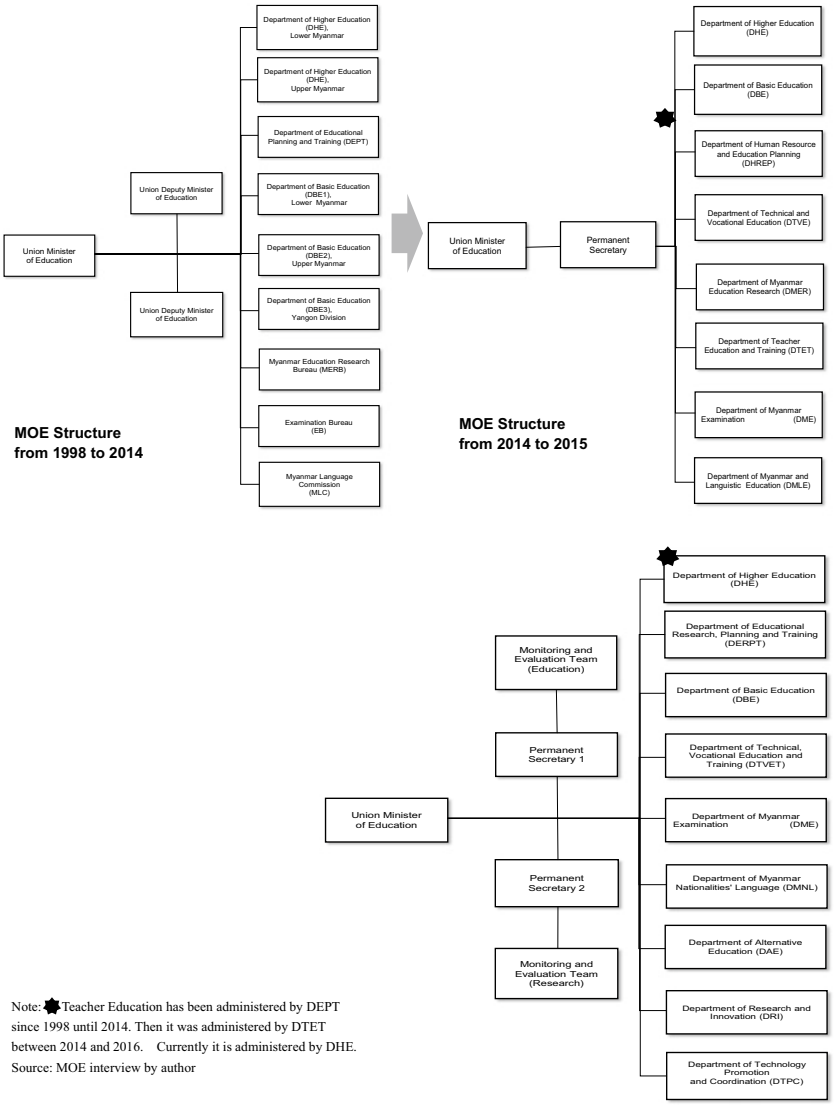
In 2011, a civilian regime led by President Thein Sein took over for the first time in 60 years. Thein Sein's government embarked on a large-scale education reform declaring the expansion of education as one of the nation's most important issues. This education reform is very comprehensive and includes educational related laws, education and school systems, curricula, teaching methodologies, and teacher education. The new National Education Law (NEL) was enacted in 2014 (revised in 2015), and the Basic Education Law (BEL) was enacted in 2019. The Free Compulsory Education Law, the Higher Education Law, the Teacher Education Law, the Private Education Law, and the Technical and Vocational Education Law are currently under development.

According to this education reform, the school system will be dynamically changed from 5 (primary education)-4 (lower secondary education)-2 (higher secondary education) to KG (kindergarten)-5 (primary education)-4 (lower secondary education)-3 (higher secondary education). The curriculum for each education level has being changed with the assistance from the Japanese government and the Asian Development Bank (ADB).

In 2016, the National League for Democracy (NLD) led by Aung San Suu Kyi won the general election and hence took over these reforms. Under this regime, reform of teacher education has also begun. For a long time, Myanmar's teacher education had been administered by the Department of Educational Planning and Training (DEPT) of MOE. Although the Department of Teacher Education and Training (DTET) was newly established as a department of MOE during Thein Sein's government, it lasted only for one and a half years. Under Aung San Suu Kyi's regime, teacher education is administered by the Department of Higher Education (DHE) under MOE, signalling a major change in teacher education. In other words, teacher education, which had previously been considered only as a vocational education, was now recognized as higher education.

Under this direction, a plan is underway to raise all Education Colleges to four-year universities. From 2021, four Education Colleges per year will be upgraded with the expansion of school buildings and dormitories. The new curriculum will also be introduced. The upgrades of all Education Colleges will be finished by 2026. According to MOE, the first ECs to be upgraded will be Yankin EC, Mandalay EC, Taunggyi EC and Taungoo EC. In fact, Taungoo EC was recently renewed with

Japan's grant aid in 2017. This newly renovated college has a vast site that is incomparable to the other 24 ECs with state-of-the-art school buildings and comfortable dormitories. It is MOEs hope that Taungoo EC will be a model school that will lead Myanmar's teacher education in the future.



Note: ✸Teacher Education has been administered by DEPT since 1998 until 2014. Then it was administered by DTET between 2014 and 2016. Currently it is administered by DHE.
Source: MOE interview by author

Changes of MOE structure from 1998 to present. *Note* Teacher education has been administered by DEPT since 1998 until 2014. Then it was administered by DTET between 2014 and 2016. Currently it is administered by DHE. *Source* MOE interview by author

Newly renovated Taungoo Education College. **a** School aerial photography (School facility layout that serves as an example for future renovations) **b** School entrance **c** Large meeting hall **d** Computer lab **e** Classroom buildings **f** Student dormitory *Source* Photography by author

Remarks

On 1 February 2021, a coup by the Myanmar Armed Forces detained the President, Win Myint and State Counsellor, Aung San Suu Kyi. The Myanmar Armed Forces said that coup was legitimate in line with the current constitution, alleging fraud in the 2020 general election. However, this coup may collapse the reinstated democracy that has finally sprout up in Myanmar since 2011. In addition, if this situation continues, the ongoing series of educational reforms could be cancelled.

References

Burma Baptist Missionary. (1935). *Seventh annual report of the burma baptist missionary convention.*

Campbell. (1938). *Report of the vernacular and vocational education re-organization committee*. Government Printing Press.

Cheesman, N. (2003). School, state and Sangha in Burma. *Comparative Education, 39*(1), 45–63, Carfax Publishing.

Council of National Education. (1923). *Syllabus for national schools*. National Printing Works, Rangoon, Burma.

ELEVEN. (2016). *Myanmar to spend more on education.* August 30.

ELEVEN. (2017). *Myanmar to spend more on education.*

Index Mundi. (2014). *Myanmar—school enrolment*.

Institute of Education. (1983). *Education Panorama*, *1*(1).

Institute of Education. (1985). *Education Panorama, 1*(1).

Institute of Education. (1986). *Education Panorama.*

Institute of Education. (1988). *Education Panorama.*

JICA Myanmar Office. (2017). *Opening ceremony of the new buildings of Taungoo teacher education college under the Japan grant program to improve quality of basic education in Myanmar.*

Kyaw, A. M. (2015). *Myanmar's budget system reform.*

Kyaw, B. (1955). *Octennial report on education in Burma 1947–48 to 1954–55*. The Union of Burma, Ministry of Education.

Kyi, K. M. (2000). *Economic development of Burma: A vision and a strategy, a study by burmese economic*. Olof Palme International Centre.

Lall, M. (2016). *Diversity in education in Myanmar*. Pyoe Pin Programme and UKAID.

Lwin, T. (1999). *Education in Burma (1945–2000).*

MICC. (2012). *Statement by Union Minister for Education at the Conference on Development Policy Options with Special Reference to Education and Health in Myanmar*.

Ministry of Education. (2004). *Development of education in Myanmar*.

Ministry of Education. (2016). *Myanmar school survey.*

Ministry of Education. (2016). *Statistical year book, number of schools, teachers and students population, 2015*.

Ministry of Education. (1954). Education plan for welfare state: syllabus for primary department, syllabus for middle department, and syllabus for high department. *SUPDT*, Govt. Printing and Stationery, Burma.

Ministry of Education. (1956). *The report of the technical, agricultural and vocational education committee.* SUPDT. Govt. Printing and Stationery, Union of Burma.

Ministry of Education. (2014). *Education statistics year book*.

Ministry of National Planning and Economic Development. (2015). *Myanmar data on CD-ROM*.

Muta, H. (2014). *Study on the future expansion of education due to reduced dropouts.*

Oo, M. (2012). *The Burmese in the history textbook prescribed for Burmese vernacular schools.* University of Oxford.
Oxford Business Group (OBG). (2015). *Myanmar's budget targets infrastructure and education.*
Oxford Business Group (OBG). (2016). *Changes to Myanmar's education sector needed*.
Office of the Education Commissioner. (1954). *Creation of new life education: Curriculum and syllabus for primary, middle and high school.*
Office of the Education Commissioner. (1955). *Creation of new life education: Curriculum and syllabus for primary, middle and high school.*
SUPDT. (1941a). *Burma educational calendar—April 1st 1941 to March 31st 1942*, SUPDT. Government Printing and Stationary, Rangoon, Union of Burma.
SUPDT. (1941b). *Report of the Burma textbook enquiry committee 1940*. SUPDT. Government Printing and Stationery, Rangoon, Union of Burma.
SUPDT. (1956). *Octennial report on education in Burma (1947–48 to 1954–55).* SUPDT. Government Printing and Stationery, Rangoon, Union of Burma.
Tan Oo, U. (1999a). *History of Myanmar education Department*. Pyinnyadazaung, (Myanmar).
Tan Oo, U. (1999b). History of Myanmar education (curriculum sector) 1948–1998. *Myanmar Education Research Bureau*, (Myanmar).
Tan Oo, U. (2001). *Myanmar educational thought*. Yangon.
Tan Oo, U. (2014). *Teach to accomplish learning achievement assess to achieve success.* Pyinnyadazaung.
Tanaka, Y. (2015). *21st Century skills and educational practice in the world—New ability development required*. Akashi Publisher 2015 (Japanese).
Tanaka, Y. (2017). *Education in Myanmar—The past, present and future of the school system and curriculum.* Akashi Publisher, (Japanese).
Tanaka, Y. (2020). Education of Myanmar—Break away from military era transitions and make democratic and dynamic changes. In P. M. Sarangapani & R. Pappu (Eds.), *Handbook of education systems in South Asia.* Springer.
The Union of Burma. (1954). *The education plan for welfare state and the teacher*.
The Voice. (2017). *Assessment system based on final exam will be abolished*. February 6.
UNESCO. (1990). *Strengthening and upgrading of teacher's training colleges and teacher's training schools.*
UNICEF. (2013a). Rapid review of Myanmar basic education policy and proposed way forward. *Comprehensive Education Sector Review.*
UNICEF. (2013b). *Development of a teacher education strategy framework linked to pre—and in-service teacher training in Myanmar*.
UNICEF. (2013c). *Snapshot of social sector public budget allocation and spending in Myanmar*.
UNICEF. (2016). *Research consortium on education and peacebuilding.*
USAID. (2016). *School communities and community engagement in education in Karen State.*
Wei, N. N. (1998). *Comparison of school education and teacher education in Japan and Myanmar* (pp. 119–147). Faculty of Education of Hokkaido University. Hokkaido University Bulletin of Research (Japanese).

Chapter 5
Teacher Education in Bhutan: Highlights and Challenges

Sonam Rinchen and Kinley Seden

Abstract Bhutan is a tiny nation perched in the Himalayas sandwiched between worlds two most populous nations China to the north-west and India to the south-east. The earlier form of education was monastic education where knowledge, skills, and values were mostly transmitted orally in the Buddhist monasteries. Realizing the importance of modern education in the national development, the monastic education system gradually transited to a modern secular western-style education in the 1960s, with English as the medium of instructions except for Dzongkha, the national language of Bhutan. With the advent of modern education everything was borrowed from India (Bhutan's closest neighbour and development partner) including curriculum, textbooks and teachers. The introduction of modern education ushered a new era in the history of learning and scholarship in Bhutan. The educated workforce brought about unprecedented changes in social, cultural, political and economic structures in Bhutan. Today Bhutan has a sound education system where students study standard home-produced curriculum taught by home-grown teachers. Bhutan has two teacher training colleges under the wing of Royal University of Bhutan. Paro College of Education specializes in Primary teacher education and national language teachers while Samtse College of Education focusses in secondary teacher education and counselling education. For a landlocked nation like Bhutan, education of its citizenry is considered as national wealth as we do not have resources like other countries. Teachers are highly regarded among civil servants in Bhutan. They have high entry grade and are the highest paid among civil servants. However, teachers are not free from criticisms and blame for the deterioration in the quality of education in the country. Whenever there is a question on the quality of education the onus falls on the Colleges of Education as we train teachers. The problem is further aggravated when a good number of teachers leave the system every year for greener pasture. Bhutan's developmental philosophy is Gross National Happiness (GNH) and education is key to the realization of GNH. Therefore, it is imperative to nurture and support teachers and their professional development. Drawing from relevant literature and personal insights, this paper explored the teacher education in Bhutan with special focus on the history and progress of teacher education in the country, and the challenges and

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opportunities of internationalization of the programmes in teacher education. It is a qualitative description based on extensive review of relevant literature and document analysis supported by interviews with teachers and teacher educators.

Keywords Teacher education · Internationalization · Bachelor of Education · Postgraduate teacher education programmes · School system

Background

Bhutan is a tiny landlocked nation sandwiched between worlds two populous nations China in the north-west and India to the south-east. Bhutan remained in self-imposed isolation for centuries mainly to preserve its rich traditional culture from external influence (Whitecross, 2008). Bhutan has a small population of 0.7 million and is the birth place of the philosophy of Gross National Happiness (GNH) which is the developmental philosophy of Bhutan introduced by the Fourth King of Bhutan, Jigme Singye Wangchuck. Bhutan measures the growth of a country through the happiness of its citizenry and not through gross domestic product. This noble philosophy (GNH) has become a catch phrase and has impacted the developmental policies of many nations across the globe. Further distinguishing the unique feature of the country is the absence of any foreign rule after its establishment.

The history of education in Bhutan is as old as the country itself. Religious education has a long and rich history in Bhutan. It is believed that the visit of Indian saint Guru Padmasambhava to Bhutan in 746 AD (Dorji, 2008) is considered to have contributed to the development of an early form of religious education in Bhutan.

Formalized monastic education began in 1962 when Zhabdrung Ngawang Namgyel, founder of Bhutan established first monk body at Chari monastery in Thimphu, the capital city of Bhutan. The focus of monastic education was not on formal curriculum, but rather on informal lessons in philosophy, ritual, and meditation techniques, which formed the core of the curriculum (Phuntsho, 2000). The traditional curriculum also included training in traditional music and dance, painting, embroidery, carving, astrology, etc. (Collister, 1988).

The first modern schools were set up by the Second King Jigme Wangchuk in selected districts in the country which marked the foundation of the present Bhutanese Education System (Mackay, 2002). The medium of instruction was Hindi (official language of India) except for English and Choekey (classical Tibetan) lessons. It was reasoned that since India was our nearest neighbour and developmental partner, so it was essential to learn Hindi for communication and easy trade between two countries.

In the early 1950s, the community also contributed to the cause of schooling by converting their backyard into a school, using one of their rooms of their house as classroom or a village collaboratively constructing schools. The languages of instruction then were Hindi, Nepali (language spoken by southern Bhutanese) and Choekey (classical Tibetan). However there were no prescribed curriculum.

The government took on a new purpose in the early 1960s that of guiding the nation towards development and shifting away from decades of self-imposed isolation from the outside world. Thus, the country's planned development activities required an education system that would support national development. With the launch of first Five-Year Development Plan in 1961(1961–1966) a unified system of school education system and curriculum was established in the country (Hirayama, 2015).The visionary Third King Jigme Dorji Wangchuk realizing that Hindi based education would limit Bhutan's scope in international market and thus revolutionized the education system by adopting English as the medium of instruction in 1961. Besides, English was lingua franca of the world (Dorji, 2005) and it would help Bhutan to maintain links with other countries and for socio-economic and educational needs. The Third King is revered as the Father of Modern Bhutan for revolutionizing the education system in Bhutan.

To quickly establish a modern system of education in Bhutan, the school system in Bhutan was borrowed from India which is based on British-based educational model. This includes borrowing curriculum, texts books and teachers from India (Solverson, 1995; Ueda, 2003). Thus, it is referred to by Bhutanese as the "modern" or "Western" system of education.

Further, Indian curricular model positioned graduates of primary schooling to pursue secondary education in India as there were few secondary schools in the country. Furthermore, the Indian curriculum also enabled graduates to pursue further studies in India and abroad as Bhutan had no higher learning institutes in the early 1960s (Solverson, 1995).

The Education Directorate was established in the country during the first Five-Year Plan (FYP) to manage the schools, teachers and curriculum. Under the auspices of Education Directorate, the first set of textbooks in Choekey (later shifted to Dzongkha) was developed in Bhutan around that time. Gradually textbook series in English and Social Studies were published for primary level in 1974.

In cognizance of the need of a body to manage and develop relevant school curriculum, Curriculum and Textbook Development Division (CTDD) was established in 1985 at Thimphu, capital city of Bhutan. Curriculum and Textbook Development Division was upgraded and renamed as Curriculum and Professional Support Section (CAPSS) in 1996 which was further upgraded to a Department called Department of Curriculum Research and Development (DCRD) in 2010. DCRD was further upgraded to Royal Education Council (REC) on 12 December 2014 (Royal Education Council, 2018). Since then REC became the national epicentre for education innovation and transformation that determines the national school curricula and teacher professional development programmes, to improve the overall mainstream education system.

Any nation require reliable and quality evidence to understand if students have the knowledge and skills that they are expected to acquire. In Bhutan too Examinations and Assessment system has been an important part of the education process since the introduction of modern education system. With the advancement of education system in the country, the Examinations and Assessment system in terms of measurement approaches and assessing educational outcomes have also grown over the years.

The examinations are conducted at school level and national level in line with both national and international standards.

Initially, the national board examinations for classes VI and VIII were conducted centrally by Bhutan Board of Examination (later upgraded to Bhutan Council for School Examinations and Assessment [BCSEA]). The examinations for class X and XII were conducted by the Delhi-based Indian Secondary Certificate Examination since all the high schools in the country were affiliated to the Council for the Indian School Certificate Examinations, New Delhi, India (Bhutan Council for School Examinations & Assessment, 2019).

Later, the national level examinations for classes VI and VIII were decentralized to schools and BCSEA took over the conduct of class X and XII examinations from Delhi-based Indian Secondary Certificate Examination in 2001 and 2006 respectively (Bhutan Council for School Examinations & Assessment, 2019).

School System in Bhutan

Distinct to several nations across the globe where free education is provided only till primary level but Bhutan has accorded a top priority to education and made a special effort to provide free education till the tenth grade (Bhutan's Constitution, 2008). Higher education is equally accessible to all based on merit both within the country and abroad. The government also ensures that technical and professional education is made generally available to those students who could not qualify for mainstream education (Royal Government of Bhutan, 2008).

The schooling system in Bhutan begins with pre-school (at age three) for two years at the Early Childhood Care and Development (ECCD) centres. Considering the benefits of the ECCD in ensuring the holistic development of pre-school students and readying them for school, the Ministry of Education (MoE) has initiated ECCD centres in different parts of the country. The ECCD programme is implemented through community based ECCD centres and centres are run by the private sector, non-governmental organizations and corporations (Ministry of Education, 2018).

The schooling system comprise of thirteen years with seven years of primary school (PP-VI) and 6 years of secondary schoolings (class seven through twelve). However, secondary education in Bhutan comprises of two years of lower secondary (VII-VIII), two years of middle secondary (IX-X), followed by two years of higher secondary school (XI-XII) respectively as reflected in Table 5.1.

Primary Schools

Primary education in Bhutan consists of seven years of schooling starting from pre-primary through class VI. Pre-primary or locally known "class PP" is the first grade in primary education and the official enrolment age is 6 years and above. In order to

Table 5.1 Structure of School Education in Bhutan

Level	ECCD			PP	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Age	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Type	ECCD			Primary Education							Secondary Education				Higher Secondary Education	
				Primary School							Lower Secondary School		Middle Secondary School		Higher Secondary School	

(*Source*: Annual education statistics, MoE, 2019).

accommodate students who has attained school going age and could not be admitted in the existing primary schools, Extended Classrooms were initiated to accommodate access students.

Lower Secondary Schools

After fulfilling all the academic requirements of the Primary School, the students progressed to Lower secondary school where they undergo 2 years of education in classes VII and VIII.

Middle Secondary Schools

Following the successful completion of class VIII, students are eligible to join Middle secondary schools. Middle secondary education is a 2-year schooling programme (IX-X). At the end of the class X students sit for a nation level examination (Bhutan Certificate for Secondary Education) administered centrally by the BCSEA.

Higher Secondary Schools

The students who meet the cut off marks set by the Ministry of Education in Bhutan Certificate for Secondary Education examination advanced to higher secondary school. The higher secondary education comprises of 2 years of schooling (XI–XII). At the end class XII, the students sit for Bhutan Higher Secondary Education Certificate (national board examination) administered centrally by BCSEA.

The transition rate of students from primary to lower secondary and middle secondary education is high at above 90% (MoE, 2018). 10% drop out rate is related

to student's health issues and few joining monk body and nunnery (no record maintained). However, student's progression from middle secondary level (class X) to higher secondary level has been reported at 72.2% (MoE, 2018). The drop in student's transition rate from middle level to secondary level may be because student's progression to class XI depends on certain qualifying marks secured in class X examination which is national-based examination centrally administered by BCSEA.

Majority of the high school graduates are absorbed in the colleges of Royal University of Bhutan and few in the University of Medical Sciences in Bhutan on government scholarship to pursue higher education which is strictly based on merit and availability of slots as per the human resource needs of the country. The top performing students are send abroad on government scholarship to pursue professional courses such as medicine, engineering, and IT. Students who do not qualify for government scholarship programmes seek admission in the colleges of RUB and Universities in India to pursue higher education on a private scholarship (MoE, 2014).

With a humble beginning in 1960s with 11 schools, the modern education system has expanded to 1124 schools and tertiary institutes with a total enrolment of 168,324 students in 2021 (MoE, 2021). To coordinate and promote the delivery of quality education, Ministry of Education has been established. Royal University of Bhutan was also established in 2003 to provide higher education. The school curriculum has been localized and is being manned by the Royal Education Council. The school examinations and assessment system has been standardized and is coordinated by the Bhutan Council for School Examinations and Assessment. Teacher recruitment and training is being looked after by Teacher Professional Support Division.

Teacher Education Programmes in Bhutan

With proliferation in the number of schools in the country since the launch of First Five-Year Plan in 1961, more and more teachers were recruited from India in addition to few Bhutanese teachers trained in India. Besides, though these teachers were qualified they failed to teach to our context. Thus to meet the demand of teacher recruitment and to produce home grown teachers who can teach to our context, the Third King established Teacher Training Institute (TTI) at Samtse in Southern Bhutan on 29 May 1969. The first cohort of teachers comprised of 40 students from class VII to X and few in-service teachers. At the end of two years, they were certified with Primary Teacher Certificate (PTC) to teach at the primary level (PP-VI).

To meet the increasing demand of primary teachers in the country, a second Teacher Training Centre (TTC) was established at Paro (Western Bhutan) in 1975 as a pre-school care teacher training centre. However, Primary Teaching Certificate (PTC) course was introduced at Paro only in 1985.

These primary school teachers were found to be deficient in basic content knowledge and, as a result, they could not teach higher grades (iDiscoveri& REC, 2009; MoE, 2009s), so a need was felt to train teachers who can teach at the secondary level. The erstwhile TTI at Samtse was upscaled to National Institute of Education

(NIE) in 1983 and a three-year Bachelor of Education Secondary (B.Ed) programme was introduced in quest of developing our own human resources who could teach at the secondary level. Prior to this, most of the teacher recruits in the schools were expatriates mostly from India with a handful of Bhutanese who were trained in India and abroad.

Class XII graduates were enrolled into B.Ed programme to undergo three-year B.Ed programme at NIE, Samtse. The B.Ed programme was designed to prepare teachers to teach two subjects of specialization either in science (i.e. physics, chemistry, biology, and maths) or humanities (i.e. English, history, economics, and geography) effectively in secondary schools from class VII–X.

The B.Ed programme provides a balanced of modules related to subject content, personal and professional studies. The elective modules are aimed at enhancing subject knowledge while personal modules are intended at developing Language and Information Communication Technology competencies that are vital tools for teachers in the classroom. While the professional modules are designed to facilitate the growth of professional knowledge and skills in the areas of Bhutanese Education System, Curriculum Development Process, Understanding the Learner, Pedagogy, and Research Methods. The students were also required to go to the schools for 6 weeks of supervised field practicum every year.

To ensure quality of the programme, the B.Ed syllabus was developed collaboratively by the professors from University of London, experts from India, and lecturers from Bhutan. The B.Ed degree was jointly conferred by the University of London and NIE, Bhutan. The professors from University of London visited NIE to moderate question papers and student answer scripts and to award marks (Davis, 1982) in order to maintain standards of the programme. From 1994 the B.Ed secondary programme began to function independently.

In 1990, Post Graduate Certificate in Education (PGCE) was introduced to train students with first degree to undergo one-year course in science, maths, commerce and humanities to teach higher secondary classes (i.e. class XI and XII students).They were required to specialize in two subjects either in science or humanities. Later in 2009, PGCE programme was upscaled to Postgraduate Diploma in Education (PgDE) and the subject of specialization was reduced to one from two.

Later, realizing the need to prepare primary teachers with higher qualification to provide academic and professional leadership both at the primary and secondary levels, three-year B.Ed primary programme was introduced in 1993. This programme was a blend of B.Ed Secondary and PTC certificate course. The course content was very similar to the B.Ed S, where one of the subjects of specialization (major) was substituted with the primary curriculum (Institute and of Education (1993) B.Ed primary syllabus handbook. Samtse, Bhutan., (1993). They were also sent to schools for six weeks of supervised field practicum every year.

Teacher Training Center at Paro was renamed as NIE Paro in 2000 and subsequently B.Ed Secondary programme was introduced in 2002. Both NIE Paro and NIE Samtse became a constituent college of Royal University of Bhutan in 2003 and later renamed as Paro College of Education (PCE) and Samtse College of Education (SCE) in 2006 respectively.

The three-year B.Ed S programme at SCE and PCE was extended to four years in 2009 in order to incorporate few additional modules and to change the field practicum mode from six weeks every year to one time semester long (6 months) field practicum.

However, later considering poor standards of learning in the early years of primary schools and B.Ed Primary graduates from SCE preferring to teach at the secondary subject neglecting the basic foundation of teaching at the primary level, the programme was revised and the programme considered modules only focussed on primary level from PP-VI. The revised B.Ed Primary programme was launched in 2009. The new programme also extended its course duration to four years instead from three to incorporate additional modules and to extend field practicum duration from six weeks every year to one time six months.

In 1995 to help teachers with primary teaching certificate to upgrade to a bachelors level, Distance Teacher Education Programme (DTEP) was introduced through a blended mode. The DTEP was a five-year version of the three-year Bachelor of Education for Primary teachers. The mode of delivery comprise of one month compulsory residential session at the beginning of each level of the programme using printed study materials. During the residential school, all the course contents are covered and during non-residential period the tutors support with learning materials and necessary guidance. The students were required to submit all assignments related to formative assessment. The summative assessments (Examinations) are conducted during the residential school.

The PgDE programme also underwent a major overhaul especially in areas such as teaching methods and field practicum. The field practicum has been made more rigorous and duration extended to 6 months from six weeks to enable students to get fully immersed in the rituals of teaching and learning in the real classroom settings, and develop the professional attitudes and qualities expected of a beginning teacher.

Further, Master of Education (MEd) programmes in sciences and maths were launched in 2017 followed by MEd in English and Geography in 2020 with the directives from the government to upscale the qualification of teachers to master's level. The programme is aimed to upscale pedagogical competencies, content knowledge and professional values of in-service teachers with B.Ed and PgDE/PGCE. The programme also intends to prepare teachers to be critical, reflective, innovative and able to engage in educational research and use it to improve the effectiveness of their professional practice such as identifying and customizing the various pedagogical tools for effective content delivery in their subject of specialization (Samtse College of Education, 2017; SCE, 2020a, 2020b).

Teacher Education Curriculum

Following the RUB's decision to streamline the programmes offered at SCE and PCE and to add rigour and focus of the programmes offered in these two Colleges of Education, it was decided that SCE will focus on secondary teacher education while

PCE will focus on primary teacher education and Dzongkha (national language) teacher education starting 2012.

The current teacher education programmes offered at PCE includes B.Ed Primary Education programme both full time (FT) and part time (PT) for class XII graduates (FT) and in-service teachers (PT) to develop competence and confidence in content knowledge and skills that the graduates will require to teach effectively in the primary classes (PP–VI).

PCE also offers a number of Dzongkha (national language) programmes to train national language teachers namely B.Ed Dzongkha for class XII graduates (FT), Postgraduate Diploma in Education in Dzongkha offered through both PT and FT path ways for Dzongkha graduates and MEd programme (PT) in Dzongkha for teachers with B. Ed and PgDE in Dzongkha.

Further, the college offers Masters programme namely MEd in Primary English, MEd in Primary Social Studies, MEd in Primary Science, MEd in Primary Mathematics, to train teachers and professionals with formal qualification in primary English, Social Studies, Science, and Mathematics who can teach and respond to students with relevant subject knowledge and special educational need.

SCE also offers number of teacher education programmes from undergraduate to Masters Programmes in the high priority areas of secondary education such as Bachelor of Education (B.Ed), Postgraduate Diploma in Education (PgDE), and Master of Education (MEd) in Chemistry, Physics, Biology, Maths, English, and Geography through full-time mode.

To ensure quality of programmes, relevant stakeholders such as the Ministry of Education (MoE), Royal Education Council (REC), and Bhutan Council of School Examination and Assessment, and school teachers are consulted and engaged while developing the programmes. Additionally, all these programmes development process go through a series of rigorous quality assurance mechanism such as seeking approvals from Academic Planning and Resources Committee, Programmes and Quality Committee, and validation process. Further, once a programme is launched and offered, there are numerous other academic quality assurance mechanisms that are carried out in the College such as the mid-semester student consultation meetings, external examiner's visit to the college, Academic Programme Monitoring Report, and the periodic review after completion of one cycle of the programme.

Perceptions, Opportunities and Challenges of the Teacher Education Programmes

Perceptions of Teacher Education Programmes.

Most of the teachers that participated in the interview appreciated the programmes offered by the two Colleges of Education. They opined that the programmes are planned well and has a good mix of academic, pedagogical and professional content.

However, some teachers felt that more needs to be done at the execution and evaluation levels of the teacher preparation programmes to make it more dynamic and to reflect its progresses. For instance, Teacher 3 (T3) expressed that:

Our Teacher Education Programme does not execute 100% of what is planned. On top of that we rarely assess (measure) the success or failure of that particular programmes. These actions leave us in dilemma whether we have progressed or still at the same place.

Interestingly, most teacher educators that participated in the interview also expressed the need for teacher preparation programmes to undergo dynamic changes as they felt that the programmes offered were old and traditional. For instance, Lecturer 1 (L1) noted:

The current programmes offered by teacher preparation colleges are bit traditional and old.

We need to move forward with the changing world. As rightly mentioned by His Majesty the King, we cannot solve the current problem with the same old tool used for centuries. 21st century problems will have to be solved with the 21st century tools.

Likewise, teachers too felt that some of the approaches used in the delivery of the modules are found to be obsolete in nature. In respect to this, teachers suggested that the teacher preparation programmes should collect feedback from the students, analyse and make necessary changes incorporating the student feedback and develop and use approaches that are appropriate in the modules. Prevalence of such practices according to the teachers would help support students learning. More importantly, they felt that the learning theories and strategies keeps evolving, therefore, the delivery of the programmes need to undergo changes considering the evolving times and changes (T4 & T5).

Further, most teachers that we talked to opined the need for teacher preparation programmes to foster collaboration, critical thinking, problem-solving, creative thinking, metacognitive thinking and other social skills besides emphasizing on the classroom content and pedagogy. In connection to this, teachers too asserted the need for teacher preparation colleges to focus on intensifying core Bhutanese values and ethics as well as social and emotional side of learning in their programmes rather than relying too much on the foreign borrowed concepts. This idea echoes the principles and values of Educating for GNH in Bhutan which is viewed as one of the fundamental ways to achieve GNH (Gyamtso et al., 2017). It is expected that the two colleges of education should take a lead role in disseminating GNH values to future teachers as these teachers upon graduation will make a long-term impact.

For example, T1 expressed that:

I personally think that we must work towards intensifying the core Bhutanese values and ethics that brought our country through those difficult moments in the history. There are many aspects in Bhutanese context which are even better than the ones we are borrowing from outside. We are more carried away by the western dominance and if not now, we will never be free from their hijack in modelling our future generations.

Although the two Colleges of Education offer varied programmes and courses, most teacher educators and teachers reported that the outcome has not been very significant and visible. Therefore, to strengthen teachers subject and pedagogical knowledge and skills, a need for deeper reflection of the practices and situations and then making aggressive efforts for reforms have been recommended (L2) including making programmes dynamic in its approach and methodology to cater to changing demands (T8) and going beyond classroom teaching and assignments (T4).

Opportunities and Challenges in Teacher Education Programmes

Most countries across the world are constrained with quality teachers because teaching profession is not generally held in high esteem as compared to other professions. Teacher education programme in these countries draw their candidates from the lower rung of the college graduates than their counterparts in other sectors.

If we believe that effective teaching and learning processes are the core business of providing good schooling to the students, then it is imperative to select and recruit right teachers to establish a high performing education system. Therefore, the selection process should ensure that the candidates selected for pre-service teacher education programmes possess the right knowledge, attitude, passion, enthusiasm and motivation towards teaching profession as a preferred career choice.

Singapore has a comprehensive system of selecting, training and developing teachers. For instance, Singapore selects top performers of the secondary school graduates as their prospective teacher candidates. Further, teacher candidates were incentivized by paying a stipend equivalent to 60% of a regular teacher salary while in training. As a result, Singaporean education system is among the world's best-performing education systems and much sought after especially in the fields of maths, science, and literacy. Similarly, the entry to teacher training is highly selective in top performing education system in Denmark, South Korea, Finland, UK, and the USA.

With the first wave of education reforms across the globe with special emphasis on providing access to schooling and parity of educational opportunity for all children. Bhutan has made significant gains in this area in the last few decades. Bhutan with limited natural resources is banking heavily on the quality of its education system which will make a significant impact on its future as a nation. Bhutan has also chosen a unique development philosophy called GNH. The philosophy of GNH places human well-being, environment conservation and preservation of cultural heritage at the highest level of importance. It is clear that education system is the core instrument in accomplishing these national goals through the future citizens who will embody these values.

Like many nations round the globe, in Bhutan too, reasons for most teachers joining teaching profession are fragmented between choice and compulsion with later on the higher side. Many opted for teaching without alternatives; for example,

they could not qualify for government scholarship, could not afford to finance their education, join teaching job to support family members financially, could not go for higher studies due to low marks to name a few.

The teaching profession also suffers from a poor image with respect to status and career prospects. There are incidents where a mother slams her son for choosing teaching profession and not becoming a clerk. Her reason was, teaching is common profession and even primary school drop outs could become teachers while clerks are few and revered more than teachers those days.

Similarly, the first cohort of teachers trained in Bhutan recount that their parents did not approve of their appointment as teachers especially after studying and trained abroad. Further, a teacher seeking his/her career appointment as assistant teacher can retire as assistant teacher. Consequently, it attracts candidates from the lower rung of academic proficiency. Further, there were instances of even teachers not advising their students to join teaching as it did not offer dynamic career prospects. The ones who join the profession by chance or compulsion become a liability to the system. So, it is imperative that we admit motivated people into teaching at the entry.

A study by REC, (2009) reported that the minimum qualifications required in Bhutan for school teaching are well below the norm prevalent in most countries. This implies that, the teachers graduating from the Colleges of Education do not possess the basic depth and range of subject required of them. They further opined that though the pre-service training at the two Colleges attempts to provide some subject knowledge to teachers, it does not compare to strong college level preparation that is required to build this competency. As a result, Bhutanese entrants to the teacher training programme come with the following skills gap such as low confidence levels, poor communication skills, poor study habits, and poor writing skills.

This is especially true with the B.Ed programme as compared to other bachelor programmes such as Bachelor of Arts, Bachelor in Science, Bachelor in Commerce, Bachelor in Computer Application, as the selection for the B.Ed programme is done at the end once the slots for other programmes are filled up. Students' entry into tertiary intuitions in the country is done online on the basis of class XII marks. The top performers of each cohort of class XII graduates is first selected for ex-country scholarships to pursue professional courses. The next cohorts of the students are selected for in-county scholarship to pursue higher studies in the colleges of RUB. The teacher candidates are selected once students for other programmes are filled up thus making teaching profession as the last option for most of the class XII graduates. Thus, the teacher course ranks lower than other programmes in terms of students' selectivity. Further, lack of interview process has meant that assessing potential candidates for their commitment and interest in the teaching profession is not possible.

The study by REC, (2009) also indicates that the current teacher preparation programme produces teachers of mediocre quality. For instance, there is a disconnect between theory and practice during filed practicum amalgamated with inadequate coaching and mentoring from the mentors and lack of constructive feedback on the numerous lesson plans developed during the field visit.

Even in the selection of teacher candidates for the postgraduate programme at the two Colleges of Education, graduates opt for teaching only after the opportunities for other programmes of study in tertiary educations are filled. Considering the candidates who opt to apply for pre-service teacher education programmes are usually the ones with low chances of getting into other tertiary education programmes and that teaching is not their preferred career choice, majority of the teacher candidates that join pre-service postgraduate teacher education programmes do not usually have high academic attainments. This leads to the vicious cycle of producing mediocre cadre of teachers lacking in adequate depth of subject knowledge and positive personal traits that are required of a teacher to inspire the students to pursue learning as a lifelong endeavour.

The teachers and lecturers who participated in the interview too opined that the teacher preparation programmes have been criticized for failing to recruit bright college students into teaching and for ineffectively preparing teachers for their work. They attribute this to the selection criteria. For example, T3 expressed:

Although there are various methods and recommendations recorded in government policy and core development agendas for the selection and promotion of quality teachers in Bhutan, it is still unclear if these documents have been strictly referred for execution. As a result, teacher education colleges receive low performing and demotivated high school/university graduates.

Similarly, T1 admits his lack of confidence in the current teacher selection process that:

I am not confident to admit that the selection process to recruit good and capable candidates in teaching. Most of the students only keep teaching as a backup, if they get opportunity elsewhere, they would happily take it. These teachers have no interest or passion for teaching. They opt for teaching out of compulsion.

Further supported by L1 that:

Teacher training colleges get academically low performing high school/university graduates, with low motivation levels to become teachers, with no aptitude for teaching, morally bankrupt, forced by parents and also largely by circumstances beyond their control.

The involvement of Colleges of Education as a provider of pre-service teacher education programmes for school teachers in the Bhutanese education system has been minimal or non-existent in the selection of pre-service teacher candidates. Because of this exclusionary approach of teacher candidates' selection, there were instances in the past where a candidate was admitted in a wrong programme, which posed difficulty for the College in determining the subject of specialization for the candidate concerned. Further, the current selection system does not consider personal attributes of teachers such as love for children, communication skills, willingness to learn, and motivation to teach.

It is proposed that a more holistic, systemic, inclusive and rigorous approach of selecting the pre-service teacher candidates be instituted to attract teacher candidates with high academic attainments, personal attributes and love for children.

Further, owing to sheer number of teachers, teachers are unable to raise the quality of teaching on the job because they lack ongoing professional development. While MoE does its best to provide in-service training and supervision to schools, it is not enough in terms of quality and quantity. Access to external training agencies and resource people is limited in Bhutan and availability of funds for these activities is restricted to schools.

Another problem that the MoE is grappling with is the high teacher attrition rate. Though teachers are the highest paid among civil servants, retention of teachers remains problematic. For instance, in the last two years [2019–2020] the education ministry has lost about 643 teachers of which 389 teachers voluntarily resigned for personal reasons while other leave teaching due to Superannuation, and expiry of a contract (Rinzin, 2020). Unfortunately, many of them were seasoned teachers.

This is happening despite the recent increase in teacher salary and incentives to make the teaching profession attractive. Going by the education statistics, on average, 3.6 per cent of teachers leave the education system annually (MoE, 2020).

It might even be argued that teachers resigning will open opportunities for others unemployed teachers who wish to join the system. The MoE should be concerned because every trained teacher leaving is a loss to the education system since most of the teachers leaving the system are seasoned teachers with years of experience in the trade and replacing them will be more than just challenging.

To combat the teacher attrition problem and to attract motivated teachers, the MoE came up with a number of interventions. For instance, the Ministry of Education has already acknowledged that "the quality of a school system cannot exceed the quality of its teachers and, therefore, quality candidates must be recruited into teaching profession and develop them to enhance students' learning outcomes" (MoE, 2014).The Bhutan Education Blueprint 2014–2024, (MoE, p.79) has in the right time identified "transforming teaching into a profession of choice". In testimony to that, MoE has recently raised the salary of teachers and made teaching the highest paid profession in Bhutan. Secondly, to align with the government's initiative to upgrade the entry level for pre-service teacher education for secondary school teachers from class XII to Bachelor's Degree, the intake for B.Ed has stopped since 2017 to let Colleges of Education be more focussed and specialized in offering only postgraduate study programmes in secondary teacher education.

Other initiatives according to the Education Blueprint is to raise the entry bar for teachers through the establishment of a stringent teacher candidate recruitment system. To make the teaching profession attractive and enhance the prospects of qualification upgradation for career advancement for teachers in the system, Master's Degree programmes are also introduced for teachers at the colleges of education, Samtse and Paro.

Conclusion

Although, government has made teachers the highest paid civil servants and open avenues to upscale the qualification of teachers to masters level, yet, we are not able to attract top graduates into teaching profession. Teaching is not a profession of choice for many and further retention of qualified and experienced teachers is a big concern for the ministry. Some of the causes of teacher attrition are lack of continuous professional development, poor working conditions, and heavy workload (REC, 2013). Further, lack of guidance and support from principals, recruitment and selection process, contribute to poor to teacher quality (MoE, 2014).

Moreover, lack of teacher autonomy, lack of proper policy for teacher professional development, low social status of teacher has posed more risks to the teacher preparation programmes. For instance, as reflected in Bhutan Education Blueprint (2014–2024) document:

Currently there are many educational policies in different documents with some inconsistencies which is causing a lot of confusion. There is a need to consolidate all education policy directives into one legal framework for the growth and development of education in the country. (MoE, 2014, p. 54)

The need for education act and national teacher council was also supported by a majority of teachers and principals and general public that participated in the survey carried out by the Ministry of Education (MoE, 2014).

Hence, Ministry of Education should establish education act and teacher council to support, develop and incentivize teacher quality and uplift teacher's social status so that graduates join teaching profession by choice and not by compulsion. Further, teachers and teacher educators in the interview asserted that the stake holders should work closely with teacher preparation programmes to develop stronger models of teacher preparation programmes. Currently, Teacher Professional Support Division that looks after teacher recruitment and Teachers Professional Development and Royal Education Council that coordinates school curriculum has minimal input in the teacher preparation programme.

References

Bhutan Council for School Examinations and Assessment. (2019). *History of Bhutan council for school examinations and assessment*. Retrieved from https://www.bcsea.bt/main/aboutsment

Collister, P. (1988). Bhutan, yesterday and today. *Asian Affairs, 19*(3), 298–305.

Bhutans Constitution. (2008). *Article 9: Principles of state policy.* https://www.constituteproject.org/constitution/Bhutan_2008.pdf

Royal education council & idiscoveri centre for education and enterprise. (2009). *The quality of school education in Bhutan: Reality and opportunities*, Royal Education Council.

Davis, T. N. (1982). *Report and recommendations: Mission to Bhutan under framework of UNDP/UNESCO Assisted Project BHU/80/016*. Bhutan: Samtse.

Dorji, J. (2005). *Quality of education in Bhutan—The story of growth and change in the Bhutanese education system.* KMT Publisher.

Dorji, J. (2008). Living by traditions. In F. Rennie & R. Mason (Eds.), *Bhutan: Ways of knowing* (pp. 119–134). Information Age Publishing.
Gyamtso, D. C., Sherab, K., & Maxwell, T. W. (2017). Teacher learning in changing professional contexts: Bhutanese teacher educators and the Educating for GNH initiative. *Cogent Education, 4*(1), https://doi.org/10.1080/2331186X.2017.1384637
Hirayama, T. (2015). *A study on the type of school during the dawn of modern education in Bhutan.* Retrieved from https://eric.ed.gov/?id1/4ED568679
National Institute of Education. (1993). *B.Ed. primary syllabus handbook*. Samtse.
Ministry of Education. (2014). *Bhutan education blueprint 2014–2024: Rethinking Education.* Thimphu.
Ministry of Education. (2018). *Annual education statistics.* Thimphu: Ministry of Education.
Ministry of Education. (2019). *Annual education statistics.* Thimphu: Ministry of Education.
Ministry of Education. (2020). *Annual education statistics* (32nd ed.). Thimphu: Ministry of Education.
Ministry of Education. (2021). *Annual education statistics* (33rd ed.). Thimphu: Ministry of Education.
Phuntsho, K. (2000). On two ways of learning in Bhutan. *Journal of Bhutan Studies, 2*(2), 96–126.
Rinzin, Y. C. sss(2020). Public school teachers continue to leave in droves. *Kuensel*. http://kuenselonline.com/public-school-teachers-continue-to-leave-in-droves/
Royal Government of Bhutan. (2008). *The constitution of the kingdom of Bhutan.* Thimphu: Royal Government of Bhutan.
Royal Education Council. (2009). *Teacher quality enhancement project Part I: Teachers in Bhutan and their work environment*. Royal Education Council.
Royal Education Council. (2013). *Teachers' job satisfaction in Bhutan.* Royal Education Council.
Royal Education Council. (2018). *Background—Royal Education Council.* Retrieved from https://rec.gov.bt/background/
Samtse College of Education. (2017). *MEd science and mathematics: Definite programme document*. Bhutan: Samtse.
Samtse College of Education. (2020b). *MEd Geography: Definite programme document*. Bhutan: Samtse.
Samtse college of education. (2020a). *MEd English: Definite programme document*. Bhutan: Samtse.
Solverson, H. (1995). *The Jesuit and the dragon.* Robert Davies Publishing.
Ueda, A. (2003). *Culture and modernisation: From the perspectives of young people in Bhutan.* Thimphu: Center for Bhutan Studies.
Whitecross, R. (2008). Virtuous beings: The concept of the damtshig, and being a moral person in contemporary Bhutanese society. *Himalaya, 28*(1/2), 72.
How it all began. The call: Stories of yesteryears. Centre for Educational Research and Development. Paro, Bhutan.

Chapter 6
Teacher Education in Malaysia: Preparation, Practices, and Future Directions

Donnie Adams and Tan King Lok

Abstract Teachers' play a critical role in the success of educational reforms. This success hinge on the quality of teachers. In the Malaysia Education Blueprint 2013–2025, one of the qualities that is given much consideration and attention are teachers' leadership skills. Explicitly, in Shift four of the Malaysian Education Blueprint, six strategies were outlined to remould the teaching profession. This chapter aims to break down some of the arguments around professional learning communities and teacher leadership and its role in creating the conditions for lasting improvement and change. Therefore, the chapter commences with some explanation and contextualization of pre-service entry qualification for teacher education and teacher training in Malaysia. Then the chapter provides some background on the Malaysia Education Blueprint aspiration for teacher education. Next, the chapter will focus on illuminating some of the challenges in teacher education in Malaysia. Finally, the chapter will provide insights which may be useful for any attempts on school improvement and system transformation in contexts like Malaysia.

Keywords Teacher education · Quality teachers · Teacher training · Teacher leadership

Introduction

Teachers' play a critical role in the success of educational reforms. This success hinge on the abilities of teachers to execute their roles and responsibilities within a vibrant environment, while maintaining an extraordinary standard of competency in delivering high-quality education to their students (Ingvarson & Rowley, 2017). However, without acknowledging the significance of teacher education and professional development programmes, teachers may not have a significant influence on student learning and their achievement (Mahmud et al., 2018).

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Adams and Muthiah (2020) perceive that education in the twenty-first century is no longer to just eradicate poverty and hunger, the current climate in this rapid world is highly dependent on education that helps students secure employment. Teacher education now face the challenge of providing pre-service teachers with programs, skills, and competencies to cope with era of globalization (Gallant & Mayer, 2012).

With that, the Malaysian government recognizes the impact of globalization and implements policies to enhance teacher education. In recent years, the Ministry of Education (MoE) released its Malaysia Education Blueprint 2013–2025 (Ministry of Education, 2012) outlining eleven strategic shifts to transform the Malaysian education system and elevate its performance. The importance of teacher quality is apparent throughout the blueprint's three waves of transformation from 2013 to 2025.

In its 1st wave (2013–2015), emphasis will be placed on raising the quality of its existing teachers. The 2nd wave (2016–2020) will see an introduction to a newly revised school curriculum allied to the twenty-first century. In the 3rd wave (2021–2025), improvements will be centred on school-based management models and the development of a teacher culture of excellence (Mohamad Johdi & Muhammad, 2018).

Additionally, the blueprint positions the government's commitment to remould the teaching profession by executing seven plan of actions: (i) transforming teaching into an elite profession by raising the entry requirements for teachers; (ii) transform the Institute of Teacher Education (ITE) into a world-class teacher training university by 2020 by reviewing the current pre-service training curriculum; (iii) improving the quality of pre-service and continuous professional development (CPD) programs; (iv) a refocus on teachers' core functions in schools which is teaching; (v) employing competency and performance-based career progression for teachers; (vi) increasing pathways for teachers into leadership roles, such as subject specialists; and (vii) fostering a peer-led culture of professional excellence by 2025 (Ministry of Education, 2012; Norlia et al., 2018).

The success of these strategies lies with the implementation processes at the grassroot level. Teachers are key personnel towards an effective and formative education system. They are to instil knowledge while maintaining student's enthusiasm for learning. Thus, this chapter highlights the history of teacher education, its pre-service and its curriculum, and a review of research on teacher education conducted in Malaysia. The chapter also aims to break down some of the current challenges in teacher education, illuminate the impact of COVID-19 on teacher education, and provide future directions on teacher education in Malaysia. The chapter also provides insights on professional learning communities and teacher leadership in teacher education curriculum for lasting improvement and change.

History of Teacher Education in Malaysia

Teacher education in Malaysia is strongly influenced by its socio-economic and politics (Lee, 2004). The changing needs of the school system has an influence of the recruitment of teacher candidates, the contents, the methods, and length of teacher training (Lee, 2004). In the early years of Malaysia' independence, the fast expansion of its school system resulted in shortage of teachers in schools.

To overcome the shortage of teachers, urgent recruitment was done to mitigate the lack of teachers in primary schools. This resulted in the recruitment of many untrained teachers with low academic qualification (e.g. nine years of general education) (Lee, 2004). These teachers were then given continuous training after working hours in teacher training colleges. As for the shortage of teachers in secondary schools, many teachers were recruited from India and the UK.

The first teacher education program in Malaysia was developed back in 1922 with the establishment of the Sultan Idris Training College (SITC) (Goh & Blake, 2015). SITC was among the first teacher training colleges in Malaysia to strengthen the training of school teachers. The pattern of teacher education was modelled after the British education system. Subsequently, in the 1970s, Malaysia had three and five teacher training colleges to train primary and secondary school teachers, respectively.

The Cabinet Committee report of 1979 accelerated the education transformation and became a predominant guide to the direction of teacher education in Malaysia (Ratnavadivel, 1999).Quality education was given more attention now resulting in teacher candidates to have a minimum qualification of a high school certificate (e.g. equivalent to an O-level certificate). Additionally, the MoE restructured the teacher training programs by incorporating both primary and secondary teacher colleges into one institute with a same curriculum. Teacher candidates also have an option to specialize in either primary school or secondary school.

In the 1980s, the government built more teacher training colleges increasing the count of such institution in the country. Subsequently, the government also established more public universities and a faculty or school of education was established in each of these universities. These faculties or schools are responsible for their own teacher education programs and are active training providers for teacher candidates intending to serve in secondary schools.

In order to provide a direction for teacher education in Malaysia, a national philosophy for teacher education was formulated in 1982 to provide the direction of teacher education in Malaysia. The philosophy emphasizes the desire to "educate and produce teachers who are noble and caring, knowledgeable and skilful, creative and innovative, resilient and competent, scientific in outlook, committed to upholding the aspirations of the nation, proud of their heritage and dedicated to the development of the individual and preservation of a united, progressive, and disciplined society" (Jamil et al., 2007, p. 88).

This philosophy was subsequently embraced into the teacher education curriculum which seeks to develop a balanced, well-rounded teacher, who is skilled and trained

to meet the Ministry's aspirations of providing teacher trainings to meet the needs of its schools.

Pre-service Teacher Education

Pre-service teacher education is the first step in developing professionalism in teachers. An effective teacher education program can further elevate an educational system (Pushpanadham & Nambumadathil, 2020). It imparts new knowledge and extends the professional intellectual capacities of new teachers that enables them to teach aptly and meticulously. Pre-service education bridges the gap between a novice and professional teacher. A teacher candidate joins the program and, upon completion, graduates as a trained teacher and begins teaching within the school setting (Mahmud et al., 2018).

However, recruiting high-quality graduates has always been a conundrum faced by education systems around the world (OECD, 2011). A range of strategies has been employed to help recruit quality graduates ranging from competitive compensation, career diversity, career prospects and labelling teachers as professionals. Where teaching is viewed as attractive career option, this view can be further elevated through careful and selective recruitment. This way teacher candidates will feel they are joining a career that is sought after by high-fliers.

Accordingly, it is of great importance to ensure high-quality candidates are recruited and high-quality programs are provided for the profession. In Malaysia, candidates intending to be teachers in government schools are required to acquire knowledge and skills in pre-service teacher education (Ratnavadivel, 1999). Teacher candidates must possess a bachelor's degree in education before they are recruited into the teaching career (Vethamani, 2011).

The pre-service teacher program in Malaysia is divided into two levels: (i) Universities level and (ii) College level. Presently, for university level, government universities could provide teacher education for teacher candidates under the purview of the MoE. Teacher candidates with a Bachelor of Education Degree (4 years of study) from universities are mainly placed at government secondary schools. These government universities do also, by and large, offer Postgraduate Diploma in Education for candidates who are keen to pursue a teaching career after the completion of a non-educational first degree (Adams & Muthiah, 2020). Teachers could also pursue a Master or Doctorate in Education from universities recognized by the Malaysian Qualifications Agency (MQA). The MQA is an established statutory body that accredits academic programs offered by educational institutions, and ensures quality assurance in the programs.

As for the College level, teacher candidates can study in any of the 27 teacher training colleges across the country and graduate with a certificate or diploma in education (Ratnavadivel, 1999). Since 2009, many of these teacher training colleges have been awarding the Bachelor of Education (primary). These teacher training colleges were subsequently rechristened into Institute of Teacher Education Malaysia

(Adams & Muthiah, 2020). These ITEs, placed under the control of the MoE are largely in charge of training teacher candidates for government primary schools.

Pre-service Teacher Education Curriculum

A well-developed teacher education program can produce good teachers to withstand a dynamic and ever-changing school environment (Pushpanadham & Nambumadathil, 2020). The Organisation for Economic and Co-operation and Development's review of teacher education in over 65 countries around the world propounds that professional development programs conducted over a sustained period are more effective than one-off courses (OECD, 2011). Hence, it is in crux, teacher professional development program must integrate observation and appraisal as part of its training, and to ensure teachers receive necessary help, support structures and follow-up support whenever challenges arise (OECD, 2011).

In addition, the outcome of teacher education must differ according to context. Teacher education that is effective in Europe may not produce the same results in the Asian context. In Malaysia, 4-year teacher education programs are offered by Malaysian government universities. These teacher education programs offer a plethora of specialized fields such as Special Education (SE), Teaching English as Second Language (TESL), Science, Technology, Engineering and Mathematics (STEM), and Sports and Recreation. Teacher candidates are required to complete compulsory core courses and a professional practice course, also known as practicum or internship.

In recent years, Malaysian universities teacher education programs are "not-standardized" as universities were granted the autonomy to design their teacher education curriculum (Adams & Muthiah, 2020). However, teacher education in all ITEs and government universities follow a standard regulated by the MQA. Altogether, there are five components that are adhered to: (i) a component on education (ii) a component on professional practice; (iii) a subject content; (iv) an elective component; and (v) a specialized component (Adams & Muthiah, 2020). Additionally, teacher candidates are required to master pedagogical practices and educational technology tools (Mohamad Nasri et al., 2020).

Crucially, both ITEs and government universities in Malaysia could now train teachers for primary and secondary schools (Mahmud et al, 2018). In addition, the private sector is now allowed to offer teacher education programs and their degree programs are recognized to cater to the growing demand for qualified teachers. "Private teacher education program providers are responsible for determining the subject areas …as well as what business model they use (e.g. face to face, e-learning, or blended models)" (PEMANDU, 2010, p. 487). This enabled teacher educators with other credentials and experiences to join the profession (Vethamani, 2011).

Research on Teacher Education

Research on teacher education in Malaysia is highly influenced by the Malaysian government policies. In the early 1990s, the envisioning of Technical-Vocational Education (TVE) began to meet the demand of human capital in the period of early industrialization. Due to the emphasis on TVE, teacher education was not a focus for Malaysia at that time. In realizing the importance of teacher education and professional development programs towards a high-quality workforce, the need of studying teacher education program and its impact on the future workforce in Malaysia gained momentum.

In the early years, teacher education and professional development programs mainly focussed on fostering national unity and moral development rather than enhancing students' learning (Sivalingam, 2020). In the late 1990s, Ratnavadivel (1999) provided a critical review of Malaysian policies concerning teacher education and practices from 1979 to 1997. In the review, it was highlighted that the emphasis on Malaysian teacher education policies was mainly on national unity. However, teacher education continues to be of concern to the MoE in which enhancement and risk-taking were undertaken over the years, in the hope to develop a successful teacher education in Malaysia (Salleh & Hatta, 2017; Sivalingam, 2020).

Thus, Carter Andrews et al. (2021) cautions on the need for active communication from the Ministry of Education to the local authorities to understand the challenges faced by teachers especially in a bureaucratic education system, and to provide a clear vision and mission to ensure the effectiveness of teacher education within the country. Crucially, policymakers should focus on cultivating collaborations between the government and private sectors to implement quality teacher education programs.

Studies on teacher education in the 2010s found a focus on various aspects of teacher education such as teacher performance indicator, teacher education policy reformation, teacher education practices, and professional development. This significant evolution demonstrates that teacher education is no longer about supplying relevant workforce to meet the expectations of the industrialization age, rather, it is about the quality of teachers comprehending the reality of the education system.

Jelas (2010) argued that existing teacher education programs in Malaysia should emphasize on integrating the knowledge and content of inclusive education into its teacher education curriculum to address the needs of diverse students. He explained that both a review of the teacher education curriculum and investigation on the effectiveness and integration of the inclusive education is needed to guarantee teachers are trained with relevant skills to deliver quality education to students. Additionally, Goh and Wong (2014) proposed that teachers should first comprehend the definition of "quality education" before proceeding to enhance their practices. This would result in a better and more effective teacher education.

Gallant and Mayer (2012) conducted a study on teacher performance assessment (TPA) and in their observation, teacher candidates had the opportunity to connect the theories they learned during the teacher education programs with their practices during the practicum. They recommended that more opportunities should be provided

to teachers to participate in practical teaching, as this would develop teachers' independence, sense of responsibility and self-confidence. Moreover, they suggested TPA was an effective method to help teachers in professional learning and develop their professional practice.

Amzat (2017) further expanded Gallant and Mayer's (2012) study by proposing a Key Performance Indicator (KPI) model for "Excellent Teachers in Malaysia". The study developed a KPI model for excellent teacher practices with classroom management as the main indicator, followed by the teacher's teaching philosophy and objectives. Goh and Blake (2015) deliberated further on improving teacher education in Malaysia and suggested a curriculum based on Malaysian context and improving the practicum experience for teacher candidates are vital for enhancing teacher education in Malaysia.

Interestingly, another study by Ismail and Awang (2017) used the human capital theory in their recommendations to enhance teacher education. They suggested increment in teachers' salaries and employment opportunities could ensure quality teacher graduates. The study recommended the government should ensure teachers' salaries are comparable to those in the private sectors as this would not only attract quality teachers with high qualifications to teach in government schools, but also encourage more teacher candidates to select teaching as a lifelong profession.

A recent study by Mohamad Nasri et al. (2020) found awareness on the value of equity in education has greatly increased due to mitigating the COVID-19 pandemic. Disruptive changes caused by the pandemic have propelled teacher education institutions to inspire student teachers to teach within limited capacity, particularly for disadvantaged students with limited access to learning resources (e.g. Internet access and devices) and enabling teacher educators to share knowledge according to the real-world contexts.

Challenges for Teacher Education

Robinson and Aronica (2015) had emphasized that students today is quite different as compared to before due to globalization. Care et al (2018) advocates that nowadays students should be equipped with the knowledge and skills in order to attain the demand of the twenty-first century, and that should be the mutual goal of the education system of today. These knowledge are problem-solving skills, decision-making, teamwork, communication skills, creative thinking in tandem with right attitudes, moral values, and ethics (Care & Kim, 2018).

Therefore, the contribution of teachers should be geared towards a sustainable education while addressing the many worldwide trends that many educational systems must confront (Dugarova & Gülasan, 2017). These trends are reflected in the United Nations' 17 Sustainable Development Goals (SDGs). Among the trends highlighted is to "eradicate poverty", "promote peace", and "a more inclusive society" (Dugarova & Gülasan, 2017). These trends are also evident in Malaysia's educational system.

The challenges of teacher education in Malaysia are manifold. In a recent Teacher Education and Development Study (TEDS-M), Ingvarson and Rowley (2017) compared the teacher education and the outcomes of 17 countries including Malaysia. It was revealed that the recruitment and selection for entry into the Malaysian teacher education program remain at the medium level. In addition, the accreditation of the Malaysian teacher education program is at the medium level and the entry requirements to the teaching profession remains low. However, caution must be applied as this finding is only limited to the subject of Mathematics, which could not depict a comprehensive understanding of teacher education in Malaysia.

Teacher graduates from Malaysian ITEs or universities are generally absorbed and assigned to the government schools. However, due to the British colonial policy of "Divide and Rule" pre-independence, the Malaysian government schools were separated into 4 types: Malay medium, Tamil medium, English medium, and Chinese medium, schools (Sivalingam, 2020). Up till now, the vernacular schools (Chinese and Tamil medium schools) still exist alongside the government school. These schools are partly funded by the government while highly dependent on community funding. As Malaysia is a pluralistic society shaped by its cultural diversity, teacher education needs to be in tune with its culture (Othman & Ruslan, 2020), and the social fabric of the society.

Correspondingly, pre-service teachers need to be prepared for inclusive classrooms to address the needs of diverse students (Dinham et al., 2020). There are increasing number of students with special needs seeking inclusive education. Thus, teacher education programs must incorporate the knowledge on special educational needs into its curriculum to ensure pre-service teachers are equipped with the relevant competencies to cater for all students in their classroom. In addition, a recent news highlights other challenges the Ministry was facing especially the lack of teachers for Counselling subjects, Physical Education, Music, Design and Technology, Science, Visual Arts, and English (Lee, 2020).

As for career growth, Malaysia still lacks a proper career pathway for its teachers (Jamil et al., 2007). Teaching is no longer regarded as a respected position and has become somewhat a less desirable job in Malaysia (Lee, 2020). There are multiple facets of issues to be explored in regards to career path for teachers. Huge expenditure is required by the Ministry to fund teacher salaries and to provide attractive career pathways (Awang, 2014). Hence, thorough investigations on government investment in teacher career paths would certainly be an important indication that reflects the training of good quality teachers (Awang, 2014).

Similarly, the challenge of teachers lacking knowledge and the scarcity of professional development programs and courses are still pertinent until today. Following this, shift 4 in the Malaysian blueprint promises improved quality of pre-service and CPD programs (Ministry of Education, 2012; Norlia et al., 2018). Also in recent times, Malaysia has seen an increased focus towards teacher candidates with a postgraduate degree. However, pursuing a Ph.D. remains unfavourable among pre-service teachers (Awang, 2014). The choice of pursuing a Ph.D. qualification is perceived as a luxury rather than a necessity. This can be attributed to the current salary scheme on offer for government school teachers with a Ph.D. (Awang, 2014). At present,

the salary scheme for a Ph.D. qualification remains the same with teachers with an undergraduate or Master's degree. This, in a way discourages teachers to obtain the highest qualification possible in their profession. Therefore, there is a need to reassess and revise the salary schemes for government school teachers in Malaysia (Rashid et al., 2016).

Although Malaysia has employed several approaches and reform initiatives to address the various challenges towards its teacher education, the adequacy and quality of its pre-service and in-service programs remain questionable. Consequently, the Malaysia Education Blueprint 2013–2025 posits teacher education and CPD of teachers as one of its main goals in order to deliver new skills and competences for teachers relevant to the demands of the globalization age (Adams & Muthiah, 2020).

Teacher Education During the COVID-19 Pandemic

The coronavirus (COVID-19) pandemic has transformed the way education is delivered globally. Nations across the world have adopted asynchronous and synchronous online modes of instruction for teaching and learning as the closure of all educational institutions and colleges was inevitable.

In order to understand how the pandemic impacts teacher education, scholars across the world; namely from Africa (Moyo, 2020), Asia (Moorhouse, 2020), Australia (Carter Andrews et al., 2021), Eastern Caribbean nations (Leacock & Warrican, 2020), Europe (Assunção Flores & Gago, 2020), North America (Quezada et al., 2020), and South America (Prata-Linhares et al., 2020) have been exploring strategies and mitigations to adapt to the new normal as teacher education courses were conducted remotely (Leacock & Warrican, 2020).

However, Moorhouse (2020) observed that pre-service teachers rarely speak in online sessions. Instead, they prefer chatting for communication and discussion. Additionally, pre-service teachers faced challenges to access technological devices and additional expenses were incurred to purchase these devices (Prata-Linhares et al., 2020). There were also cases of teacher education internships suspended (Moyo, 2020) and no specific guidelines provided for teacher education programmes (Assunção Flores & Gago, 2020). Therefore, acquaintance with digital communication systems, active participation in the lectures and training sessions as well as tutorials between teacher educators and pre-service teachers are pivotal to an effective teacher education during the pandemic.

Mohamad Nasri et al. (2020) study articulated three main issues during the pandemic, namely: "pedagogical; assessment; and teaching practicum". To address these issues, two coping strategies were proposed: (i) "student–content interaction" and (ii) "student–lecturer interaction". They explained the former is a major part of a formal teacher education program whereby teacher candidates interact with online instructional materials as learning sources and references. Meanwhile, "student–lecturer interaction" is a strategy that supports pre-service teacher learning through asynchronous and synchronous online modes of instruction such as communication through chats, audio, and video. However, this strategy would require

clear guidelines, timely information, and supportive engagement from the teacher educator.

Future Directions

Teacher education needs to constantly evolve to face the challenges of the globalization era. These challenges can't be addressed by just harmonizing the accountability mechanisms (Drahmann, 2020). In particular, topics such as *inclusive education* and *digital education* seem to be the future of education. In bracing for this impact, Malaysian universities and ITEs need to incorporate these topics into its teacher education curriculum more rigorously.

It is crucial to equip teachers with the skills to handle students with disabilities, and students with special needs. Teacher education could prepare its teacher candidates on the concept of social inclusion and most importantly ensure equality for these students in schools. Furthermore, including simulation of inclusive classroom management in the curriculum would be of great benefit in training pre-service teachers. Therefore, adapting the curriculum at universities and ITEs is a necessity to prepare for an inclusive education system (Drahmann & Huber, 2017).

Digital technologies are being integrated into every area of our life. Thus, digital education and the handling of social media are crucial topics in teacher education (Drahmann & Huber, 2017). Pre- and in-service teachers need to be trained in the handling of digital education for teaching. Crucially, the pandemic has spurred the utilization of digital education paving the way towards a more holistic teacher education program in future.

Service learning is now a popular component in teacher education as it develops both academic knowledge and soft skills (Astin et al., 2006). In service learning, candidates are required to contribute to the need of a community (service) and relate what they have learned in their program. Service learning could be useful for future teachers to develop their professional and reflective skills (Jackson et al., 2018); and an empathy approach in teaching (Buchanan et al., 2002).

In addition, many countries with high achieving students also have strong teacher union. Evidence suggests the better an education system performs, the more likely the government is working closely and productively with its teacher unions (OECD, 2011). These unions are treated as the government's trusted and expert professional partners. A collaboration between teacher unions, the Ministry of Education and researchers in teacher training universities and colleges can facilitate a constructive dialogue to improve teacher education based on research and evidence.

Professional Learning Communities

"Research on the characteristics of effective professional development indicates that teachers must be active agents in analysing their own practice in the light of professional standards, and their students' progress in the light of standards for student learning" (OECD, 2011, p. 53). Teacher professional development is central to improving an education system. The notion of professional learning community (PLC) creates positive teacher professional development, builds the capacity of teachers, and helps stimulate changes in teachers' teaching practices (Chua et al., 2020). PLC is recognized as "a group of people sharing and critically interrogating their practice in an ongoing, reflective, collaborative, inclusive, learning-oriented, growth promoting way" (Stoll et al., 2006, p. 223).

In schools, PLCs commits a group of educators to collaborate and make enquiries into their teaching practices to continuously improve their students' learning and achievement in school (DuFour et al., 2006). A PLC is a "collective focus on professional learning" whereby teachers come together to discuss and exchange their teaching ideas and enact actions to improvise their teaching methods positively. Apart from that, PLC enables teachers to work as a team and take collective responsibility to improve the performance of their students (Abdullah, 2017).

Past studies have indicated students' positive learning outcome is entangled with teacher collaboration in their professional practices such as evaluating curriculum and selecting the types of instructional strategies for their students (Abdullah, 2017; Chua et al., 2020). However, Chauraya and Brodie (2017) warn that teachers shift in teaching strategies can only be sustained if PLCs are conducted in a continuous manner and that teachers participate actively in it, not as an on–off basis.

PLC has been widely adopted in countries such as the USA (Johnson & Voelkel, 2019), China (Zheng et al., 2019), and Germany (Warwas & Helm, 2018) with the intention to improve teacher quality by improving their pedagogical skills in teaching and enhance teachers' professional skills in schools. Through PLCs, teachers are known to be more receptible to new ideas and they are willing to try new teaching methods (Lee et al., 2011) which directly contributes to student learning (Stoll et al., 2006).

Similarly, in Malaysia, PLCs are adopted as well as practised at all levels of education (Adams & Muthiah, 2020). Lifelong learning is now a crucial component of teacher education (Drahmann & Huber, 2017). Teachers who participate in PLCs are involved in professional discourse with other teachers, which encourages the adoption of new ideas and teaching practices to cater to students' diverse needs (Chua et al., 2020).

Although the concept of PLC is still new (Roslizam et al, 2018), it is one of the government's initiative to improve the qualities of its teachers. This initiative is highlighted in Shift 4 of the Education Blueprint. Recently, the Ministry of Education (MoE) has launched a guideline on the practices of PLC for all of its public schools. Common PLC practices such as teacher-sharing sessions, peer coaching, lesson study, and learning walks are encouraged among its teachers.

However, a recent empirical study by Chua et al. (2020) indicated the practice of PLC has its own challenges. Among the challenges identified are excessive workload for teachers, poor execution of PLC, vague understanding of PLC, teachers' passive attitudes and obstructive conditions in school. Hence, understanding the PLC practices and challenges in the Malaysian school context could be integrated during teacher education to ensure teacher candidates understand its concept and most importantly have the capability to implement PLC successfully in schools (Adams & Muthiah, 2020).

Creating Teacher Leaders

Teacher education needs to evolve and change from being "technically oriented" (Garcia-Martinez et al., 2018) to one that prepares teacher candidates for formal and informal leadership roles. Creating teacher leaders is important as they are change agents in schools (Adams, 2018). Teachers must be exposed with leadership theories (Masturah et al., 2016) and the concept of teacher leadership could be integrated in teacher education programs (Adams & Muthiah, 2020).

The literature indicates teacher leaders are often referred to as "Mentor teacher", "Specialist", and "Coach" (Adams et al., 2018). Neumerski (2012) underlines "there is little consensus around what constitutes 'teacher leadership'... it tends to be an umbrella term referring to a myriad of work" (p. 320). This is mainly due to the roles of teacher leaders as often; these teachers do not hold the same position across schools.

Teacher leaders are primarily responsible in four aspects: (i) facilitating learning and teaching in the classroom; (ii) improving their school administrative and managerial tasks; (iii) improving relationships with stakeholders; and (iv) being an exemplar for other teachers in the school (Abdul Rahman et al., 2015).

Traditionally, teacher leaders are viewed as expert teachers who can tutor and communicate their experiences with other novice teachers (Neumerski, 2012). This role was reserved to only senior teachers and subsequently, this led to the alienation of novice teachers who are also key contributors to school improvement (Nolan & Palazzolo, 2011).

Novice teachers should be afforded the opportunity to be teacher leaders leading in informal settings. Nolan and Palazzolo (2011) argues teacher leadership should consist of teachers at different stages of their career including their time as a teacher candidate. The role should not be exclusive to only veteran and experienced teachers. Henceforth, teacher leadership is no longer optional, it is now the means to inspire the enhancement of teaching in schools.

Though the concept of teacher leadership is not new, teacher leadership must be cultivated at pre-service education. This will create opportunities for teacher leaders to take more responsibility outside of the classroom while balancing their main responsibility of teaching inside the classroom.

Ryan (2009) commented that "teacher preparation programs must make attempts to teach the knowledge, skills and dispositions of teacher leaders, and nurture these traits to ensure that change [school improvement] is embraced by new educators and leaders and the teaching profession" (p. 203). Presently, teacher leadership is viewed as the responsibility of the school principals in Malaysian schools (Adams, 2018). Therefore, there is a need to reframe the concept of teacher leadership aligned with teacher education to enable teacher candidates to become teacher leaders as they enter the teaching profession.

Conclusion

In summary, teaching is a complex activity that is challenging both intellectually and emotionally. It requires a dynamic combination of knowledge about the curriculum, appropriate teaching skills, positive attitude, and personal values of the teacher (Pushpanadham, 2020). The procurement of these traits is an effort that starts from a high-quality teacher education.

Teacher education today should emphasize on the humane teacher as teachers are change agents in their society (Pushpanadham, 2020).Teachers must be equipped with the necessary competencies before they enter the teaching profession to become effective and efficient change agents, as it is certain that the development of a nation's workforce is reliant on its teacher education. On the other hand, the transition of preservice teachers embracing their professional teaching career remains an interesting area of study that is yet to be explored extensively (Sikora, 2021).

Malaysia has done well in its teacher education. However, the teacher education system remains an unfinished project especially in the area of CPD. Efforts to reinforce teacher quality are in place such as an increase in budget allocation to improve teachers' CPD and in-service training programs (Adams & Muthiah, 2020). However, equality should be afforded towards teacher recruitment and education quality. Nonetheless, teacher education remains an integral part of teacher learning and how teachers could succeed in real classroom and school settings (Pushpanadham & Nambumadathil, 2020) that would elevate the reputation and prestige of the teaching profession in Malaysia.

References

Abdul Rahman, N. A. S., MohdNoor, M. A., Yusof, R., & Yusof, H. (2015, April). Kesahan ModelAmalanKepimpinan Guru. *JuKu: JurnalKurikulum&Pengajaran Asia Pasifik, 3*(2).

Abdullah, Z. (2017). *KomunitiPembelajaran Professional diMalaysia* (*Professional learning community in Malaysia*). Penerbit Universiti Malaya.

Adams, D. (2018). *Mastering theories of educational leadership and management*. University of Malaya Press.

Adams, D., & Muthiah, V. (2020). Teacher education in Malaysia: Practices, challenges and future trends for the twenty-first century. In K. Pushpanadham (Ed.), *Teacher education in the global era: Perspectives and practices* (pp. 133–144). Springer Nature.

Adams, D., Samat, S. N. A., & Samah, H. A. (2018). Teacher leadership: Going beyond classroom. *International Online Journal of Educational Leadership, 2*(1), 1–3.

Amzat, I. H. (2017). Key performance indicators for excellent teachers in Malaysia. *International Journal of Productivity and Performance Management, 66*(3), 298–319.

Assunção Flores, M., & Gago, M. (2020). Teacher education in times of COVID-19 pandemic in Portugal: National, institutional and pedagogical responses. *Journal of Education for Teaching, 46*(4), 507–516.

Astin, A. W., Vogelgesang, L. J., Misa, K., Anderson, J., Denson, N., Jayakumar, U., et al. (2006). *Understanding the effects of service-learning: A study of students and faculty*. Retrieved from University of California, Los Angeles, Higher Education Research Institute.

Awang, F. (2014). *'Moving up, but not moving out': A policy ecology of the excellent teacher program/scheme in Malaysia.* (Doctoral thesis). University of Queensland, Brisbane, Australia). Retrieved from https://espace.library.uq.edu.au/data/UQ_345073/s4244088

Buchanan, A. M., Baldwin, S. C., & Rudisill, M. E. (2002). Service learning as scholarship in teacher education. *Educational Researcher, 31*(8), 30–36.

Care, E., & Kim, H. (2018). *Assessment of 21st century skills: The issue of authenticity.* In E. Care, P. Griffin, & M. Wilson (Eds.), *Assessment and teaching of 21st century skills: Research and applications.* Springer.

Care, E., Kim, H., Vista, A., & Anderson, K. (2018). *Education system alignment for 21st century skills: Focus on assessment*. Brookings Institution.

Carter Andrews, D. J., Richmond, G., & Marciano, J. E. (2021). The teacher support imperative: Teacher education and the pedagogy of connection. *Journal of Teacher Education, 72*(3), 267–270.

Chauraya, M., & Brodie, K. (2017). Learning in professional learning communities: Shifts in mathematics teachers' practices. *African Journal of Research in Mathematics, Science and Technology Education, 21*(3), 223–233.

Chua, W. C., Thien, L. M., Lim, S. Y., Tan, C. S., & Guan, T. E. (2020). Unveiling the practices and challenges of professional learning community in a Malaysian Chinese secondary school. *SAGE Open, 10*(2).

Dinham, J., Choy, S. C., Williams, P., & Yim, J. S. C. (2020). Effective teaching and the role of reflective practices in the Malaysian and Australian education systems: A scoping review. *Asia-Pacific Journal of Teacher Education*, 1–15.

Drahmann, M. (2020). Teacher education in Germany: A holistic view of structure, curriculum, development and challenges. In *Teacher education in the global era* (pp. 13–31). Springer.

Drahmann, M., & Huber, S. G. (2017). AktuelleEntwicklungen und Herausforderungen in der Lehrerbildung. ErgebnisseauseinerForschungsstudie in Deutschland, Österreich und der Schweiz (Current developments and challenges in teacher education. Results of a research study in Germany, Austria and Switzerland). *SchulVerwaltungSpezial, 19*(5), 196–199.

DuFour, R., DuFour, R., Eaker, R., & Many, T. (2006). *Learning by doing: A handbook for professional learning communities at work*. Teachers College Press.

Dugarova, E., & Gülasan, N. (2017). *Global trends, challenges, and opportunities in the implementation of sustainable development goals.* United Nations Development Program and United Nations Research Institute for Social Development.

Gallant, A., & Mayer, D. (2012). Teacher performance assessment in teacher education: An example in Malaysia. *Journal of Education for Teaching, 38*(3), 295–307.

Garcia-Martinez, I., Diaz-Delgado, M. A., & Ubago-Jimenez, J. L. (2018). Educational leadership training, the construction of learning communities. A systematic review. *Social Sciences, 7*, 1–13.

Goh, P. S. C., & Blake, D. (2015). Teacher preparation in Malaysia: Needed changes. *Teaching in Higher Education, 20*(5), 469–480.

Goh, P. S. C., & Wong, K. T. (2014). Beginning teachers' conceptions of competency: Implications to educational policy and teacher education in Malaysia. *Educational Research for Policy and Practice, 13*(1), 65–79.

Ingvarson, L., & Rowley, G. (2017). Quality assurance in teacher education and outcomes: A study of 17 countries. *Educational Researcher, 46*(4), 177–193.

Ismail, R., & Awang, M. (2017). Quality of Malaysian teachers based on education and training: A benefit and earnings returns analysis using human capital theory. *Quality Assurance in Education, 25*(3), 303–316.

Jackson, C., Mohr-Schroeder, M., Cavalcanti, M., Albers, S., Poe, K., & Delaney, A. (2018). Prospective mathematics teacher preparation: Exploring the use of service learning as a fieldexperience. *Fields Mathematics Education Journal, 3*(5), 1–21.

Jamil, H., Razak, N. A., Raju, R., & Mohamed, A. R. (2007). *Teacher professional development in Malaysia: Issues and challenges* (pp. 85–102). Africa-Asia University Dialogue for Educational Development Network.

Jelas, Z. M. (2010). Learner diversity and inclusive education: A new paradigm for teacher education in Malaysia. *Procedia-Social and Behavioral Sciences, 7*, 201–204.

Johnson, C. W., & Voelkel, R. H. (2019). Developing increased leader capacity to support effective professional learning community teams. *International Journal of Leadership in Education*, 1–20.

Leacock, C. J., & Warrican, S. J. (2020). Helping teachers to respond to COVID-19 in the Eastern Caribbean: Issues of readiness, equity and care. *Journal of Education for Teaching, 46*(4), 576–585.

Lee, C. (2020, September 13). Malaysia needs more teachers. *The Star*. Retrieved from https://www.thestar.com.my/news/education/2020/09/13/malaysia-needs-more-teachers

Lee, J. C., Zhang, Z., & Yin, H. (2011). A multilevel analysis of the impact of a professional learning community, faculty trust in colleagues and collective efficacy on teacher commitment to students. *Teaching and Teacher Education, 27*(5), 820–830.

Lee, M. N. (2004). Malaysian teacher education into the new century. In *Reform of teacher education in the Asia-Pacific in the new millennium* (pp. 81–91). Springer.

Mahmud, S. N. D., Nasri, N. M., Samsudin, M. A., & Halim, L. (2018). Science teacher education in Malaysia: Challenges and way forward. *Asia-Pacific Science Education, 4*(1), 1–12.

Masturah, Z. A., Norlia, M. N., & Khalip, M. (2016). Teacher leadership knowledge to pre-service teachers. *International Journal of Academic Research in Business and Social Sciences, 6*(11), 351–360.

Ministry of Education. (2012). *Malaysia education blueprint 2013–2025*. Retrieved from http://www.moe.gov.my/cms/upload_files/articlefile/2013/articlefile_file_003108.pdf

Mohamad Johdi, S., & Muhammad, H. (2018). Best practices of promoting teachers' professional development among principals of cluster secondary schools toward realization of education blueprint 2013–2025 Malaysia. In *Prosiding Seminar Kebangsaan Majlis Dekan Pendidikan UniversitiAwam*, 1–4.

Mohamad Nasri, N., Husnin, H., Mahmud, S. N. D., & Halim, L. (2020). Mitigating the COVID-19 pandemic: A snapshot from Malaysia into the coping strategies for pre-service teachers' education. *Journal of Education for Teaching*, 1–8.

Moorhouse, B. L. (2020). Adaptations to a face-to-face initial teacher education course 'forced'online due to the COVID-19 pandemic. *Journal of Education for Teaching, 46*(4), 609–611.

Moyo, N. (2020). COVID-19 and the future of practicum in teacher education in Zimbabwe: Rethinking the 'new normal'in quality assurance for teacher certification. *Journal of Education for Teaching, 46*(4), 536–545.

Neumerski, C. M. (2012). Rethinking Instructional leadership, a review: What do we know about principal, teacher, and coach instructional leadership, and where should we go from here? *Educational Administration Quarterly, 49*(2), 310–347.

Nolan, B., & Palazzolo, L. (2011). New teacher perceptions of the "teacher leader" movement. *National Association of Secondary School Principals Bulletin, 95*(4), 302–318.

Norlia, M. N., Hamidah, Y., Mahaliza, M., & Wan MohdNazri, W. M. D. (2018). Development of teacher leadership guiding principles in preparing teachers for the future. *International Journal of Academic Research in Business and Social Sciences, 6*(12), 374–388.

Organisation for Economic Co-operation and Development (OECD). (2011). *Building a high-quality teaching profession: Lessons from around the world*. OECD Publishing. Retrieved May 23, 2021 from http://www2.ed.gov/about/inits/ed/internationaled/background.pdf

Othman, A., & Ruslan, N. (2020). Intercultural communication experiences among students and teachers: Implication to in-service teacher professional development. *Journal for Multicultural Education, 14*(3/4), 223–238.

Performance Management and Delivery Unit (PEMANDU). (2010). *Economic transformation programme*. Performance management and delivery unit (PEMANDU), Prime Minister's Department.

Prata-Linhares, M. M., Cardoso, T. D. S. G., Lopes-Jr, D. S., & Zukowsky-Tavares, C. (2020). Social distancing effects on the teaching systems and teacher education programmes in Brazil: Reinventing without distorting teaching. *Journal of Education for Teaching, 46*(4), 554–564.

Pushpanadham, K. (2020). Teacher education in global era: retrospect and prospect. In *Teacher education in the global era* (pp. 3–11). Springer.

Pushpanadham, K., & Nambumadathil, J. M. (2020). Teacher as a transformational leader: Perspectives and practices of teacher education in India. In *Teacher education in the global era* (pp. 209–226). Springer.

Quezada, R. L., Talbot, C., & Quezada-Parker, K. B. (2020). From bricks and mortar to remote teaching: A teacher education program's response to COVID-19. *Journal of Education for Teaching, 46*(4), 472–483.

Rashid, R. A., Abdul Rahman, S. B., & Yunus, K. (2016). Reforms in the policy of English language teaching in Malaysia. *Policy Futures in Education, 15*(1), 100–112.

Ratnavadivel, N. (1999). Teacher education: Interface between practices and policies. The Malaysian experience 1979–1997. *Teaching and Teacher Education, 15*(2), 193–213.

Robinson, K., & Aronica, L. (2015). *Creative schools: Revolutionizing education from the ground up*. Penguin.

Roslizam, H., Jamilah, A., & Boon, Y. (2018). Professional learning community in Malaysia. *International Journal of Engineering & Technology, 7*(3.30), 433–443.

Ryan, T. G. (2009). The emerging educator as leader and action researcher. *International Electronic Journal of Elementary Education, 1*(3), 202–217.

Salleh, M. J., & Hatta, M. (2017, December 7). Best practices of promoting teacher professional development among principals of cluster secondary schools towards realization of education blueprint 2013–2025 Malaysia. In *Seminar KebangsaanAmalan Pendidikan Terbaik 2017*. Grand Court Hotel TelukIntan, Perak.

Sikora, J. (2021). Does teenage interest in a teaching career lead to becoming a teacher? Evidence from Australia. *Teaching and Teacher Education*, *101*, 103315.

Sivalingam, A. D. (2020). History of Malaysian education system: Year 1824 to 2020. Available at SSRN 3735372.

Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change, 7*(4), 221–258.

Vethamani, M. E. (2011). Teacher education in Malaysia: Preparing and training of English language teacher educators. *Journal of Asia TEFL, 8*(4).

Warwas, J., & Helm, C. (2018). Professional learning communities among vocational school teachers: Profiles and relations with instructional quality. *Teaching and Teacher Education, 73*, 43–55.

Zheng, X., Yin, H., & Li, Z. (2019). Exploring the relationships among instructional leadership, professional learning communities and teacher self-efficacy in China. *Educational Management Administration & Leadership, 47*(6), 843–859.

Chapter 7
Teacher Education: Theory and Practice in Bangladesh

Md. Mujibur Rahman

Abstract Overall development in all sectors of any country in the world mostly depends on the quality of education. Like many other countries, the Government of Bangladesh has brought different radical changes in the education sector. The education system of this country was inherited from the British. To bring qualitative and original changes in the education system, including Teacher Education, the Bangladesh government has unanimously taken many steps. The first significant one was to form the country's first National Education Commission with a prominent educationist and scientist Dr. Qudrat-e-Khuda as Chair. After the glorious independence of this country through the liberation war in 1971, the then government led by the Father of the Nation and the then Prime Minister of Bangladesh Bangabandhu Sheikh Mujibur Rahman formed this commission on 26 July 1972. Based on the report of this commission, many changes in the education sector including teacher education had been made. The curricula, syllabuses, teaching approaches, and assessment procedures in teacher education were also reorganized and reformed during the last two decades. *This paper aims* to discuss the basic changes in teacher education for the secondary level and to review their practices. This paper also aims to identify the innovative aspects of teacher education system in Bangladesh.

Keywords Teacher education · National education commission · Educational research · Open University · Innovation

Introduction

The Bangladesh is a densely populated and 8th largest country in the world in terms of population. The population of this country are 167.47 million (Statistical Pocketbook 2019, Bangladesh Bureau of Statistics-BBS). And the population by area are rural 112.7 million and urban 44.1 million (Pocketbook 2015, BBS). The country becomes independent in 1971 through the heroic liberation war under the leadership of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman. The official name of this

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country is "The People's Republic of Bangladesh". The 26 March is its independence day, and the 16 December is the glorious victory day. The geographical location of this country is in South Asia between 20°34′ and 26° 38′ latitude and between 88° 01′ and 92° 41′ east longitude. The area of this country is 147,570 km^2. The literacy rate is 63.6%. The Dhaka is the capital city of the country.

Since gaining its independence in 1971, the country has continued its development efforts in various fields. As part of this, the country's first Education Commission was formed on 26 July 1972 with a prominent educationist and scientist Dr. Qudrat-e-Khuda as Chair. The Father of the Nation and the then Prime Minister of Bangladesh Bangabandhu Sheikh Mujibur Rahman formed this commission on 26 July 1972. In the light of this commission, the National Education Policy was formulated in 2010. The government is continuing its efforts to create well-educated and patriotic good citizens and skilled manpower.

The Government of Bangladesh has identified skilled manpower as the main force to fulfil its commitment to change the day and turn Bangladesh into a middle-income country by 2021, and it will be possible through education. In order to enable people to cope with the social and economic realities of the time, it is essential to formulate curricula accordingly. Considering all these aspects, the qualitative change and refinement of the teacher education curriculum has become urgent as an important step in the implementation of the National Education Policy 2010 and the National Curriculum, 2012. The preface of the National Education Policy (2010) states "Education is the key to a nation's development. Education is the principal means to achieve the goal of poverty alleviation. A properly educated nation, which is modern in genius and intellect and forward-looking in thinking, can only put the country at the zenith of its development. That's why education is the backbone of a nation (p. 2)".

Similarly, the policy recognized that "the proper dignity of teachers everywhere from the primary to the highest level is a very important factor. The status of teachers of all levels requires to be re-evaluated through in-depth examination since they are supposed to inspire the meritorious students to be interested in the teaching profession by discharging their proper duties. This is important because the teachers claim proper dignity and facilities for their jobs. At the same time, their rights are closely connected with their duties. Teachers must responsibly carry out their professional and other duties. All concerned should contribute to the development of educational standard and environment (National Education Policy, 2010, p. 67)".

The overall development of any country depends on the educational circumstances of that country. The more modern and developed the education system of a country, the more developed the country is. To develop a modern and an advanced education system, modern curricula, syllabuses, adequate teaching equipment, trained and skilled teachers are importantly required. In order to take the country forward on the path of development by ensuring these elements, the teacher training system has to be modernized. It is possible to develop the general education system of a country through world-class teacher training system.

Almost in all countries of the world, the aims and objectives of education, the education systems, the curricula, and syllabuses are set out on their national educational goals. In this regard, the educational need of the people of the society, the national demands of respective countries, and the total economic growth are importantly considered to set up the national goals of education. The quality of education starts with the quality teacher, and the teachers must be trained up in terms of pedagogical point of views. To train up the teachers, teacher education for the respective level of education should be modernized. The teacher education curriculum, syllabuses, the assessment procedures should also be redesigned. Again, the policy noted that "qualified teachers are essential for proper and quality education. To ensure the quality of teachers, it is essential to recruit qualified teachers through scientific and transparent recruitment process on one hand, and on the other, quality teachers' education and repetitive demand-driven training is imperative to develop the professional excellence of the teachers (National Education Policy, 2010, p. 64)". The role of well-educated and trained teachers-society is very significant in the expansion of education and provision of excellence quality (Bangladesh National Education Commission Report, 1988).

In fact, building, appliances, and any such investment in the field of education will be of little value if appropriate measures are not taken for improving the standard of teachers (Bangladesh Education Commission Report, 1974, p. 76). It must be remembered that as the teacher is concerned with building the personality of the pupil, the former must not only acquire the required amount of knowledge but also a special ability in teaching in relation to the pupil's mental inclinations. Above all, the teacher must have all the appropriate personal qualities required to build up the pupils as responsible citizen of the country through the particular medium of his instruction (Bangladesh National Education Commission Report, 1988). The existing teachers' training system of Bangladesh is very traditional, insufficient, certificate-based, loaded with theoretical knowledge, incomplete in practical learning, based on rote learning and conventional testing system. That is why the expected results cannot be achieved (The National Education Policy, 2010). So, there is no substitute for modern and quality teacher training to get the desired results in Teacher Education.

Background of the Teacher Education

The history of Teacher Education of Bangladesh describes that emphasis on teachers training was recommended in the Wood's Dispatch of 1854. After receiving education in a normal school established on the basis of the recommendations of this report, if deemed fit, one would get a teaching certificate and become a school teacher at a higher salary. Wood's Dispatch had suggested for making provision for training of teachers. But his suggestion was ignored. Trained teachers were not available for the secondary schools which were growing in number every year (Mukherjee, 1996, p. 111).

Teacher training received its due importance for the first time in the 1854-Wood's Dispatch the establishment of a normal school at Dhaka in 1857 was its direct outcome. Later in 1869 and in 1882, two more normal schools were set up in Cumilla and Rangpur, respectively. The normal schools at Cumilla was transferred to Chattagram in 1885, and in 1882, the Hunter Commission (Sir William Wilson Hunter was an Indian Civil Service officer and a member of the Executive Council of the then Viceroy Lord Ripon. Lord Ripon appointed the Indian Education Commission on 3rd February 1882, with Sir William Hunter as its Chairman. It is known as Hunter Commission of 1882, recommended a one-year training course for graduate teachers at secondary schools (Bangladesh Education Commission Report, 1974, p. 58).

Subsequently, a proposal was made to bring normal schools under the university by converting them into colleges. As a part of this plan, the Dhaka Teachers' Training College established in 1909. After establishing the University of Dhaka in 1920, the Teachers' Training College, Dhaka, was handed over under this university and introduced Bachelor of Teaching (BT). The Dhaka University used to award a Master of Teaching degree to the students who were successful in research. The 1917 Sadler (Sir Michael Ernest Sadler, the then Vice Chancellor, University of Leeds) Commission laid special stress on the university's responsibility for the professional training and academic research of the secondary school teachers (Bangladesh Education Commission Report, 1974, p. 58).

When the government announced in 1916 that training for permanent employment of teachers was made compulsory, it became imperative to increase the number of Guru Training and Normal Schools. As a result, the government has set up one Guru Training School in each sub-division (the then, administrative area later it became the district) and the teaching period of these schools was one year for those with Central Vernacular Pass Certificate and 2 years for those without Certificate. Later, 2 years of training was conducted in normal schools established in Dhaka, Chittagong, and Rangpur in Bangladesh. They taught Bengali language, mathematics, history, geography, and drawing, teaching practice (TP), physical exercises, and various handicrafts. Successful students from these schools were awarded Middle Vernacular Teachers Certificates (Ullah, 1975, p. 106).

Up to 1956, the teachers who taught in classes VI to VIII—in secondary schools received their training in normal schools and the training was of one year's duration. According to the recommendation of the 1952 East Bengal, Education Reconstruction Committee normal schools were designated as junior training colleges, although the duration of the course remained the same. Up to 1956, junior training colleges enjoyed autonomy, like Teachers' Training Colleges, in matters of curriculum, examination, and evaluation, and the certificate given by them was called Higher Education Certificate. In 1967, the responsibility for taking the junior training college examination was transferred to the Education Board and the certificate was designated as Higher Secondary Education Certificate. As result, the junior training colleges lost their professional distinctiveness, more so as the evaluation of their pupils was now dependent completely on a public examination. It may be mentioned here that before the junior training colleges were brought under the academic control of the

Education Boards, their course was a terminal one. On the other hand, the enrolment at these college was gradually reduced as the salary and other facilities of the teachers teaching in the lower classes of secondary schools were not attractive enough. The one advantage of junior training colleges coming under the academic control of the Education Boards was that the course becomes more popular as the successful candidates got the opportunity of being admitted to the first-degree course. Nevertheless, the desired objective was not realized as this change frustrated the aim of preparing qualified teachers for the lower classes of the secondary schools and encouraged the pupils to go in for higher education. The facilities of junior training colleges such as free tuition, scholarship, and hostel accommodation only whetted the appetite of the pupils, for higher education. It is needless to mention that the above-mentioned course included in the higher secondary educational group met the same fate outside the junior training colleges. From 1972, a three-year Bachelor-in-education course has been introduced in the junior college including Kabi Nazrul College at Dhaka re-designated as colleges of education. At present, the minimum educational qualification required for admission to these colleges is a second division in the Higher Secondary Certificate Examination. Apart from this, teachers for the secondary level are trained at the six teachers' training colleges. The duration of the course at these colleges is 10 month and the eligibility for admission is a graduation degree (Bangladesh Education Commission Report, 1974, pp. 59–60).

Up to 1973, there were six Teachers' Training Colleges and six College of Education for secondary level in Bangladesh which are shown in Table 7.1.

Due to the inadequacy of teachers' training institutions, the then government first set up a primary training college in Mymensingh in 1948. In this training college, two courses called Diploma in Education and Higher Diploma in Education are introduced for a period of 1 year. The Teaching Methods of Child Psychology, Pedagogy, Bangla, Mathematics, Social Sciences, Science, Physical Education, Art, and Handicrafts were taught in the Diploma in- Education course. On the other hand, Higher Child Psychology, History of Education, Teacher-Teaching, Educational Administration, Test and Evaluation, and research-related education were taught in higher Diploma in Education Courses. Since the establishment of Dhaka Teachers' Training College, this one training college has been responsible for the training of secondary

Table 7.1 Total enrolment and the number of teachers at different teacher training institutes in 1972–73

Name of Institutes	No. of institutes	Level	No. of pupils	No. of teachers
Primary Training Institutes (PTIs)	47	Primary	6700 (Women 1000)	580 (Women 20)
College of Education	6	Secondary	673 (Women 108)	36 (Women 7)
Teachers' Training Colleges (TTCs)	6	Secondary	1550 (Women 425)	98 (Women 24)

Source Bangladesh Education Commission Report, 1974 (page-59)

school teachers in Bangladesh for a long time. Later, as the demand for teacher training increased tremendously, Mymensingh Primary Training College was transformed into a Secondary Teachers' Training College in 1957. At the same time, the Diploma in Education and Higher Diploma in Education courses introduced in this Primary Training College were changed to BEd (Group-C) and MA in Education courses, respectively. After the establishment of the National University in 1992, the name of this MA in Education course was changed to M.Ed. Besides, another training college named Mymensingh Women Teachers' Training College was established in 1952 (Ullah, 1975, p. 108).

The ten-month training course for graduate teacher at secondary schools was introduced in the sub-continent about a century ago. In the developed countries of the world, including England, a three-year training course simultaneously subject based and profession based has been current now for quite a few years. The main aim of this course is to enable to respective teachers to acquire professional knowledge and at the same time to get trained in two special schools subjects. Because of the longer duration of the course, the teachers not only acquire the desired competence as a result of their training but they also develop an attachment to their profession. For this purpose, the 1957 Education Commission had recommended the introduction of a three-year degree course in teacher training after an eleven-year secondary education system for teacher at the secondary level. From 1972, the five junior training colleges in the country have been transformed to Colleges of Education with provision for a three-year degree course in teacher training (Bangladesh Education Commission Report, 1974, pp. 65–66).

Up to the academic year of 2003–2004, the ten-month B.Ed. and M.Ed. courses were continued in different teachers' training colleges. Subsequently, the duration of these courses was extended from 10 months to one year from the academic year 2004–2005. Since then, till now the one-year B.Ed. and M.Ed. program are running. The then introduced one-year Bachelor of Education (B.Ed.) course started with the 5 compulsory subjects, 10 elective subjects, and 7 optional subjects under the National University. Besides, four years Bachelor of Education (Honours) course is also running.

The Existing Teacher Education Program

Education has a crucial role in creating the elements of good citizenship and in generating progress in the society as a whole (Bangladesh Education Commission Report, 1974, p. 1). With due importance, a lot of emphasis has been placed on teachers training for the overall development of Bangladesh. Emphasis has been given on teachers training in the Qudrat-e-Khuda Education Commission and in the other education commissions. Apart from this, the importance of teachers training is to be noticed in various reports related to education and also in the National Education Policy 2010.

The National Education Policy 2010 describes the aims and objectives of teachers' training as follows:

- "to help teachers acquire knowledge and skills in the strategies of teaching–learning through teachers' education and training;
- to help teachers develop and update their professional knowledge;
- to develop the personality, innovative knowledge and qualities of leadership of the teachers;
- to introduce the teachers with the socio-economic conditions and immediate problems of the country and to help them to get involved in the issues concerned;
- to identify the behavioural strengths and weaknesses of the teachers and to find remedies;
- to encourage them to acquire efficiency to use the modern materials for teaching;
- to increase their efficiency in the strategies for new educational methods;
- to help grow professionalism in them to prepare research papers and report writing;
- to encourage them to teach students by creating equal opportunities for all, irrespective of religion, race and socio-economic conditions;
- to help them acquire efficiency in delivering education to the students of disadvantaged community and small ethnic groups and the disabled learners by sincerely responding to their special needs;
- to enrich their quality to analyse problems and to take decisions;
- to train teachers of all levels in information technology and to ensure wider use of IT to build up a modern and developed Bangladesh;
- to inspire them to be conscious of their duties and responsibilities;
- to encourage and make them confident to take part in research work".

There are various types of training institutes in Bangladesh for conducting teacher training activities. For example, the government teachers' training colleges for conducting long-term training such as four years Bachelor of Education (Hons), one-year Bachelor of Education (B.Ed), one-year Master of Education (M.Ed) courses, besides 2 more Public Universities, 2 Institutes of Education and Research (IER) under the University of Dhaka and Rajshahi, 2 public universities are responsible for awarding Teacher Education program. At present, there are 14 government Teachers' Training Colleges in the country. For the madrasa teachers training, there is a Bangladesh Madrasa Teachers' Training Institute (MBTTI) under National University. These Teachers' Training Colleges are operated under the control of the Secondary and Higher Education Division, the Ministry of Education. The overall responsibility of running the government Teachers' Training Colleges is entrusted to the Ministry of Education. The Secondary and Higher Education Division is responsible for overseeing the recruitment through competitive examinations for these institutions, and for their promotion and transfer also. The Directorate of Secondary and Higher Education (DSHE) under this division is responsible for overseeing the training activities. On the other hand, the National University is responsible for formulating teacher training courses and curricula, conducting and evaluating examinations, publishing results, issuing certificates, etc.

Following the establishment of Teachers' Training College by the government for the training of secondary level teachers in the country, Teachers' Training College, Dhaka, was established in 1909, Teachers' Training College, Mymensingh, in 1948, Teachers' Training College (Women), Mymensingh, in 1952, Teachers' Training College, Rajshahi, in 1955, Teachers' Training College, Cumilla, in 1962, Teachers' Training College, Chattagram, in 1968, Teachers' Training College, Khulna, in 1970, Teachers' Training College, Rangpur, in 1976, Teachers' Training College, Feni, also in 1976, Teachers' Training College, Jessore, in 1978, Shaheed Abdur Rob Serniabat Teachers' Training College, Barisal, in 1999, Teachers' Training College, Pabna, in 2003, Teachers' Training College, Sylhet, in 2005, Teachers' Training College, Faridpur, in 2005. All these colleges run under the government control. Besides, there are 104 private teachers' training colleges in Bangladesh. The number of teachers' training colleges, teachers, and enrolment rate has been shown in Table 7.2.

The number of teacher education institution by type, gender, and management has been shown in Table 7.3.

The number of teachers in teacher educational institutions by type, gender, and management has been shown in Table 7.4.

The enrolment in teacher education institutions by type, gender, and management has been shown in Table 7.5.

The number of teacher education institute by type and division has been shown in Table 7.6.

There are eight administrative division in Bangladesh. These are Dhaka, Barisal, Chattagram, Khulna, Rajshahi, Rangpur, Sylhet, and Mymensingh. This table shows that the highest number of Teachers' Training Colleges (29.41%) is in Dhaka and the lowest number (2.52%) is in Sylhet division.

According to the Education Development report (2009–2018), the government has taken various initiatives over the past decade to modernize the teacher training system in Bangladesh. These initiatives include:

1. Formulation of National Education Policy 2010.
2. Preparation of National Curriculum, 2012.
3. Recruitment of trained teachers with B.Ed. and MEd degrees for Government Teachers' Training Colleges through competitive Bangladesh Civil Service (BCS) examination.
4. To arrange advanced training abroad for the teachers working in the Government Teachers' Training Colleges. This training includes eight weeks of customize training in developed countries.
5. Training on digital content and multimedia classrooms has been provided for teachers of Government Teachers' Training College.
6. Implementation of ICT for pedagogy activities.
7. A content portal called "Teacher Window" has been created for sharing digital content developed by teachers with the help of A2I (Access to Information, a program under the Prime Minister's Office, Government of Bangladesh) and the British Council.
8. Arrangements have been made to exchange all the information through online of 14 Government Teachers' Training Colleges (TTCs) and 5 Higher

Table 7.2 Number of teachers' training college, teachers and enrolment in teacher education by type, gender and management 2019

Management	Management	No. of college		No. of teachers'			Enrolment		
		Total	Girl's	Total	Female	% of female	Total	Girl's	% of girl's
Teachers' Training College (TTC)	Private	104	0	1336	526	26.53	9511	4093	43.03
	Public	14	1	463	123	26.57	2976	1463	49.16
	Total			1799	649	36.08	12,487	5556	44.49

Source Bangladesh Education Statistics, 2019 (June 2020), page-248

Table 7.3 Number of teacher education institution by type, gender and management 2019

Type of institution	Public			Private			Total		
	Total	Female	% of female	Total	Female	% of female	Total	Female	% of female
Teachers' Training College (TTC)	14	1	7.14	104	0	0	118	1	0.85
Total	14	1	7.14	104	0	0	118	1	0.85

Source Bangladesh Education Statistics, 2019 (June 2020), page-250

Table 7.4 Number of teachers in teacher educational institutions by type, gender and management 2019

Type of institution	Public			Private			Total		
	Total	Female	% of female	Total	Female	% of female	Total	Female	% of female
Teachers' Training College (TTC)	463	123	26.57	1336	526	39.37	1799	649	36.08
Total	463	123	26.57	1336	526	39.37	1799	649	36.08

Source Bangladesh Education Statistics, 2019 (June 2020), page-251

Table 7.5 Enrolment in teacher educational institutions by type, gender, and management 2019

Type of institution	Public			Private			Total		
	Total	Female	% of female	Total	Female	% of female	Total	Female	% of female
Teachers' Training College (TTC)	2976	1463	49.16	9511	4093	43.03	12,487	5556	44.49
Total	2976	1463	49.16	9511	4093	43.03	12,487	5556	44.49

Source Bangladesh Education Statistics, 2019 (June 2020), page-251

Table 7.6 Number of teacher education institute by type and division 2019

Type of Institute		Barisal	Chattagram	Dhaka	Khulna	Rajshahi	Rangpur	Sylhet	Mymensingh	Total
Teachers' Training College (TTC)	No	9	22	35	22	15	9	3	4	119
	%	7.56	18.49	29.41	18.49	12.61	7.56	2.52	3.36	

Source Bangladesh Education Statistics, 2019 (June 2020), page-252

Secondary Teachers' Training Institutes (HSTTIs) and the Directorate of Secondary and Higher Education (DSHE). Apart from that, information on related issues is also provided through e-mail. Initiatives have been taken to ensure classroom and appropriate teaching–learning environment and high-speed Internet connectivity in all educational institutions.

9. To establish a Centre of Excellence in English at Dhaka Teachers' Training College, in Mathematics at Rajshahi Teachers' Training College and in Science at Sylhet Teachers' Training College with maximum efficiency for teachers and students.
10. Under the Policy Guidelines of Secondary Teacher Competency Standard through TQI-2 (a project named Teaching Quality Improvement in Secondary Education Project-II under the Ministry of Education, Bangladesh), four areas have been identified for acquiring professional knowledge and skills of secondary level teachers. These are

    (i) Professional Knowledge or Content Knowledge
    (ii) Professional Practice or Pedagogical Practice Knowledge
    (iii) ICT Integration in Teaching Profession or Use of Technology
    (iv) Professional Learning Ethnics and Moral Values.

In these four areas, four types of teachers have been classified based on the knowledge and skills acquired. For example

(i) Beginning Teacher; (ii) Developing Teacher; (iii) Advanced Teacher; (iv) Expert Teacher.

By acquiring these skills, a teacher will change himself or herself from a beginning teacher to an expert teacher and the skills will be integrated with the Secondary Teacher Career Path.

Teacher Education Program in Details

There are different types of Teacher Education program running in Bangladesh. Under the National University, these programs are one-year Bachelor of Education (B.Ed.), four years Bachelor of Education (Honours), one-year Master of Education (M.Ed.), and under the Bangladesh Open University (BOU), one-year Bachelor of Education (B.Ed.) program, and one and half year Master of Education (M.Ed.) program through distance learning mode.

Bachelor of Education Program (One year)

The National University awards one-year Bachelor of Education (B.Ed) program for those university graduates who are interested to be a secondary level teachers. But having Master's degree with Bachelor of Education (B.Ed) degree, one can apply to be a teacher for the Teachers Training Colleges through competitive examination. But the Postgraduate Diploma in Education (PGDEd) is also offered by the Institute of

Education Research (IER), Rajshahi University, which is equivalent to the one-year Bachelor of Education (B.Ed) program.

Bachelor of Education Curriculum Framework under National University
The existing one-year Bachelor of Education (B.Ed) course is divided into two semesters. The first semester is scheduled from 1 January to 30 June, and the second semester is scheduled from 1 July to 31 December each year.

First Semester
There following four compulsory subjects are for first semester for 100 marks each.

1. Secondary Education
2. Teaching–Learning Skills and Strategies
3. Learning and Assessment
4. Information and Communication Technologies in Education.

But the teaching practice (TP) is for 50 marks assessed the trainee-teachers internally.

Teaching Practice (TP)-1
College-based demonstration teaching and school-based teaching practice (2+2) = 4 weeks.

Teaching Studies Subjects
Two teaching subjects must be chosen from any group. Each subject carries 100 marks.

Humanities group (any two should be chosen):

1. Teaching Bangla
2. Teaching English
3. Teaching the History of Bangladesh and the World Civilization
4. Teaching Civics and Nationality
5. Teaching Economics
6. Teaching Bangladesh and Global Studies
7. Teaching Geography and Environment
8. Teaching Advanced ICT.

Science Group (any two should be chosen):

1. Teaching Mathematics
2. Teaching Physics
3. Teaching Chemistry
4. Teaching Biology
5. Teaching Advanced ICT.

Business Studies Group (any two should be chosen):

1. Teaching Business Entrepreneurship
2. Teaching Accounting
3. Teaching Finance and Banking
4. Teaching Advanced ICT.

Second Semester
Compulsory subjects for 100 marks each.

1. Inclusive Education
2. Research in Education

Teaching Practice (TP)-2
School based teaching practice $(4 + 4) = 8$ weeks.

Elective/Optional Subjects
From the following list any one subject to be chosen for 100 marks each:

1. Primary Education
2. Teaching Library and Information Science
3. Teaching Arts and Crafts
4. Teaching Physical Education, Health Science and Sports
5. Teaching Islamic History
6. Teaching Agriculture Studies
7. Teaching Home Science
8. Teaching Islam and Moral Education
9. Teaching Hindu Religion and Moral Education
10. Teaching Buddhist Religion and Moral Education
11. Teaching Christ Religion and Moral Education.

Comprehensive Examination

1. Two hour long comprehensive examination on six compulsory subjects.
2. Viva Voce in presence of External and Internal Examiner

1 credit = 10 classes of 60 min/1 h. But 1 credit = 10 h should not be applicable. Marks distribution: Internal examination 40 and external examination 60. Total 100 marks. But 50 marks for TP 1 and TP 2 as internal and 50 marks for TP 2 final. 50 marks for viva voce.

Result/Grading system
Letter grade should be counted as the following grading system:

Marks range	Letter grade	Grade point
80% and above	A^+	4.00
75–79%	A	3.75
70–74%	A^-	3.50
65–69%	B^+	3.25
60–64%	B	3.00
55–59%	B^-	2.75
50–54%	C^+	2.50
45–49%	C	2.25
40–44%	D	2.00
Below 40%	F	0.00

Convert grade into Grade Point Average (GPA) for determining Cumulative Grade Point Average (CGPA)

Four Years Bachelor of Education (Honours) Program

In Bangladesh, the National University introduced the new curriculum of the course Bachelor of Education (Honours) in the year 2013. The first batch of this course started their new journey towards building career as the education professionals of the twenty-first century. The new curriculum is introduced with the great expectations of achieving output as described in the curriculum document. Since then this course has been implemented at the government Teachers' Training College. The Institute of Education and Research (IER), University of Dhaka and the Institute of Education and Research (IER), University of Rajshahi also offer the 4 years integrated Bachelor of Education (Honours) program.

The Curriculum Structure of the 4 years integrated Bachelor of Education (Honours) Program

Earlier, it has been mentioned that the National University introduced the 4 years integrated Bachelor of Education (Honours) program in the year of 2013. This program is divided into eight semesters. Each semester consists six months duration.

First Year First Semester

In first year first semester, the following subjects are to be taught as compulsory by the students:

1. History of the Emergence of Independent Bangladesh
2. Bangla -1
3. English -1
4. Introduction to Education.

Each subject carries 100 marks which is equivalent to 4 credits, and the total marks are 400.

First Year Second Semester
And in the same year, students should undertake compulsorily the following subjects during second semester:

1. Bangla-2
2. English-2
3. Education in Bangladesh
4. Foundations of Education.

Each subject carries 100 marks which is equivalent to 4 credits, and the total marks are 400. In addition, during the second semester students are required to appear at the comprehensive viva voce (satisfactory/non-satisfactory).

Second Year Third Semester
In second year third semester, the following subjects are to be taught as compulsory by the students in which each subject carries 100 marks which is equivalent to four credits:

1. ICT in Education
2. Educational Psychology and Guidance.

In this semester, students choose three courses from any area of the following five areas as elective courses:

Area-I

1. Bangla Paper-I
2. English Paper-I
3. ICT Education Paper-I.

Area-II

1. Economics Paper-I
2. Political Science Paper-I
3. Sociology Paper-I
4. Geography and Environment Paper-I
5. History Paper-I or Islamic History and Culture Paper-I
6. ICT Education Paper-I.

Area-III

1. Physics Paper-I
2. Chemistry Paper-I
3. Geography and Environment Paper-I
4. Mathematics Paper-I
5. Botany Paper-I
6. Zoology Paper-I
7. Statistics Paper-I
8. ICT Education Paper-I.

Area-IV

1. Accounting Paper-I
2. Management Paper-I
3. Marketing Paper-I
4. Finance and Banking Paper-I
5. ICT Education Paper-I.

Area-V.

1. Information Science and Library Management Paper-I
2. Home Economics Paper-I
3. ICT Education Paper-I.

In these five areas, each subject carries 100 marks which is equivalent to 4 credits.

Second Year Fourth Semester

In second year fourth semester, the following subjects are to be taught as compulsory by the students in which each subject carries 100 marks which is equivalent to 4 credits:

1. Organization and Management of Educational Institutions
2. Gender Education

In this semester, students choose three courses from any area of the following five areas as elective courses:

Area-I

1. Bangla Paper-II
2. English Paper-II
3. ICT Education Paper-II.

Area-II

1. Economics Paper-II
2. Political Science Paper-II
3. Sociology Paper-II
4. Geography and Environment Paper-II
5. History Paper-II or Islamic History and Culture Paper-II
6. ICT Education Paper-II.

Area-III

1. Physics Paper-II
2. Chemistry Paper-II
3. Geography and Environment Paper-II
4. Mathematics Paper-II
5. Botany Paper-II
6. Zoology Paper-II

7. Statistics Paper-II
8. ICT Education Paper-II.

Area-IV

1. Accounting Paper-II
2. Management Paper-II
3. Marketing Paper-II
4. Finance and Banking Paper-II
5. ICT Education Paper-II.

Area-V

1. Information Science and Library Management Paper-II
2. Home Economics Paper-II
3. ICT Education Paper-II.

In these five areas, each subject carries 100 marks which is equivalent to 4 credits. And, students will appear at the comprehensive viva voce (satisfactory/non-satisfactory).

Third Year Fifth Semester

In third year fifth semester, the following subjects are to be taught as compulsory by the students in which each subject carries 100 marks which is equivalent to 4 credits:

1. Teaching–Learning Methods and Strategies
2. Assessment and Evaluation in Education
3. In this semester, students choose three courses from any area of the following five areas as elective courses:

Area-I

1. Bangla Paper-III
2. English Paper- III
3. ICT Education Paper-III.

Area-II

1. Economics Paper-III
2. Political Science Paper-III
3. Sociology Paper-III
4. Geography and Environment Paper-III
5. History Paper-III or Islamic History and Culture Paper-III
6. ICT Education Paper-III.

Area-III

1. Physics Paper-III
2. Chemistry Paper-III

3. Geography and Environment Paper-III
4. Mathematics Paper-III
5. Botany Paper-III
6. Zoology Paper-III
7. Statistics Paper-III
8. ICT Education Paper-III.

Area-IV

1. Accounting Paper-III
2. Management Paper-III
3. Marketing Paper-III
4. Finance and Banking Paper-III
5. ICT Education Paper-III.

Area-V

1. Information Science and Library Management Paper-III
2. Home Economics Paper-III
3. ICT Education Paper-III.

In these five areas, each subject carries 100 marks which is equivalent to 4 credits.

Third Year Sixth Semester

In third year sixth semester, the following subjects are to be taught as compulsory by the students in which each subject carries 100 marks which is equivalent to 4 credits:

1. Micro-Teaching and Simulation
2. Introduction to Curriculum

In this semester, students choose three courses from any area of the following five areas as elective courses:

Area-I

1. Bangla Paper-IV
2. English Paper- IV
3. ICT Education Paper-IV

Area-II

1. Economics Paper-IV
2. Political Science Paper-IV
3. Sociology Paper-IV
4. Geography and Environment Paper-IV
5. History Paper-IV or Islamic History and Culture Paper-IV
6. ICT Education Paper-IV.

Area-III

1. Physics Paper-IV
2. Chemistry Paper-IV
3. Geography and Environment Paper-IV
4. Mathematics Paper-IV
5. Botany Paper-IV
6. Zoology Paper-IV
7. Statistics Paper-IV
8. ICT Education Paper-IV.

Area-IV

1. Accounting Paper-IV
2. Management Paper-IV
3. Marketing Paper-IV
4. Finance and Banking Paper-IV
5. ICT Education Paper-IV.

Area-V

1. Information Science and Library Management Paper-IV
2. Home Economics Paper-IV
3. ICT Education Paper-IV.

In these five areas, each subject carries 100 marks which is equivalent to 4 credits. And students will appear at the comprehensive viva voce (satisfactory/non-satisfactory).

Fourth Year Seventh Semester

The seventh semester is for teaching practice at the respective secondary schools assigned by the Teachers' Training Colleges. This is practicum-based internship teaching. As stated in the syllabus "internship teaching is the culminating experience of the first-degree program in education. It provides the opportunity to apply theoretical knowledge on pedagogies in the actual classroom settings and gain practical experience. The internees are exposed to an environment where they encounter learners for the first time and face them with multitude of ideas, approaches, techniques, and process. During the internship period, the internees will get ample opportunities to demonstrate the art of teaching in actual situation and participate in all activities at the school level. The duration of internship is one semester when the internees will perform their assigned responsibilities in schools under the direct management and control of the heads of the respective schools and under the supervision of two subject-supervisors and a school coordinator. The internees experience in school will include, among others teaching two subjects, observation of others lessons, organizing co-curricular activities, developing and administering tests, scoring answer scripts, statistical treatment and interpretation of test results and performing other responsibilities as assigned by the heads of the schools (Bach-

elor of Education-Honours Syllabus, NU)". In this practicum, students are to be evaluated in five areas for 500 marks in which 100 marks for each of 4 credits and the total credit is 20.

Fourth Year Eighth Semester

In third year eighth semester, the following subjects are to be taught as compulsory by the students in which each subject carries 100 marks which is equivalent to 4 credits:

1. Introduction to Educational Research
2. Environment Education
3. Non-Formal and Continuing Education
4. Inclusive Education
5. Education and Development.

These five subjects carry 100 marks which is equivalent to 4 credits. And students will appear at the viva voce.

Evaluation Process

At the end of each semester, a written examination is held under the National University. The university authority publishes semester wise result, and after eighth semester examination, the final result is declared by the university. The results are declared according to the following scale:

Letter grade instructions		
Numerical marks	Letter grade	Grade point
80–100%	A^+	4.00
75–79%	A	3.75
70–74%	A^-	3.50
65–69%	B^+	3.25
60–64%	B	3.00
55–59%	B^-	2.75
50–54%	C^+	2.50
45–49%	C	2.25
40–44%	D	2.00
0–39%	F	0.00

Full marks of each course are 100, and total credit hours are 152.

Teacher Education Offering Institutions

In Bangladesh, there different types of national- and international-level institutions for offering Teacher Education program. These are the National University, the University of Dhaka, the University of Rajshahi, and the Bangladesh Open University (BOU).

The National University (NU)
According to the National University Website, "the university was established by an Act of Parliament as an affiliating University of the country to impart graduate and postgraduate-level education to the students through its affiliated colleges and professional institutions throughout the country. For that matter the University has been playing the most significant role in providing opportunities for higher education among the students coming from rural and semi-rural background at an affordable means since its inception (National University Website)".

There are three types of programs in Teacher Education under the National University. One is the 4-year integrated Bachelor of Education (Honours) program. This program is arranged in 6 semesters. Each semester is comprised of a period of 6 months. The honours program has been introduced in 14 government teachers' training colleges in the country. The second one is the one-year Bachelor of Education (B.Ed.) program comprising 2 semesters for a period of 6 months; each is conducted in all government teachers training colleges and other private teachers' training colleges. One-year Master of Education (M.Ed) program is running under the same university. The program is also arranged in two semesters for a period of 6 months each.

Institute of Education and Research (IER), University of Dhaka
According to the Website, "the Institute of Education and Research (IER), University of Dhaka, was established through the joint efforts of the University of Dhaka, and the U.S. AID (then ICA) Mission. The U.S. AID Mission in this country entered into a contract with the Colorado State College, (later became University of Northern Colorado), Greeley, Colorado, USA, for professional services to establish, organize, and direct the initial stages of IER, including advanced overseas training of teachers. The contract came into effect on 1 November 1959. The classes of the institute began on 1 July 1960 with 33 students of one-year M.Ed. degree program. Over the year, it has expanded and diversified its programs. The number of students increased from 33 in 1960 to 700 (academic year 2002–2003). The Institute of Education and Research is an apex institute in the field of professional education in Bangladesh. It is the only institute of its kind under the public universities of Bangladesh which offers teaching program leading to higher professional degrees, conducts advanced research studies, and provides extension services in education. Its professional staff, most of them having overseas postgraduation and doctoral degrees and long experiences with specialization in various aspects of education, render professional services to government-sponsored committees and commissions on education to help develop

the education sector of Bangladesh and provide consultancy services at both national and international levels. (www.du.ac.bd/academic/department_item/IER)".

The Website stated that "the Institute was started in 1960 with the following objectives:

- To promote and to provide facilities for advanced study and research in education.
- To provide teaching, and guidance in order to prepare candidates for the degrees of Master of Education and Doctor of Philosophy in Education of the University
- To provide courses of further study for those already qualified to engage in educational work.
- To provide services for those concerned with higher education in the University Teaching Departments and affiliated or constituent colleges".

Programs Offered

Over the years, IER has diversified and expanded its programs. For providing highly qualified professionals for the education sector, IER took the initiative and introduced the Integrated Bachelor of Education (Honours) program from 1994–95 sessions. The B.Ed. (Honours) program is first of its kind in this region where education has been treated as a discipline replacing its narrow connotation as teacher training.

At present, the programs offered by the institute are as follows:

a. Four years Bachelor of Education (Honours) Program
b. One-year Master of Education program (day)
c. Two year part time (evening) Master of Education program
d. MPhil Program in Education
e. PhD Program in Education.

Institute of Education and Research (IER), University of Rajshahi

The Institute of Education and Research (IER) of University of Rajshahi aims to develop professionals in education sector of Bangladesh since 2000. IER is multi-disciplinary research institute in Bangladesh. IER offers postgraduate and doctoral programs in the core areas of education.

According to the Website "aims and objectives of the Institute of Education and Research are:

- to provide teaching, training, and research guidance in order to prepare candidates for the degrees of Bachelor of Education with Honours; Master of Education (M.Ed); and Master of Philosophy (MPhil) and Doctor of Philosophy (Ph.D.) in Education;
- to provide courses of further study for those already qualified for teaching, e.g. postgraduate Diploma in Education (PGDEd);
- to provide services for those concerned with higher education in the University Teaching Departments;
- to promote and to provide facilities for advanced study and research in all areas of education and at all levels, primary, secondary, higher secondary, and above spread into different disciplines; and

- to run projects and programmers for experimental (a type of educational research), survey, and other types of educational research including action research as a continuous process warranting the institute to have its own set up for primary, secondary, and higher secondary education in the form of Rajshahi University Pre-Primary school, and Rajshahi University school. For undergraduate and post-graduate levels, the University of Rajshahi with all its disciplined shall be treated as an open laboratory research.

The Bachelor of Education (Honours) course is running for 4 years from the Institute of Education and Research under the University of Rajshahi. The honours course is also arranged in 8 semesters for a period of 6 months each. Upon successful completion of this course, the University of Rajshahi awards degree to the students (www.ru.ac.bd/ier)".

The Bangladesh Open University (BOU)

The School of Education (SoE) is one of the main schools among the six schools of Bangladesh Open University and has been operating its academic programs successfully since the emergence of the University in 1992. At present, the School of Education is conducting three programs which are M.Ed, B.Ed., and C.Ed (www.bou.edu.bd/index.php/schools/soe).

The key responsibility of the School of Education is to develop and nurture educational thoughts and teaching capacity of the teachers providing effective teacher education and training for all levels of education. At present, the school imparts the following formal programs in teacher education for the secondary level teachers.

Formal Programs

1. Master of Education (M.Ed)
2. Bachelor of Education (B.Ed).

Master of Education (M.Ed)

The main objective of M.Ed program is to provide an opportunity of higher study in education and thereby produce a group of highly skilled professional group experts in education and pedagogy. This Master of Education (M.Ed) program runs for the period one and a half year term. This program is arranged in three semesters for a period of 6 months each.

Bachelor of Education (B.Ed)

The main objective of B.Ed is to develop theoretical, conceptual and practical knowledge, understanding and skill of the target groups in pedagogy as well as in subject teaching conducting an efficient teacher education program. The duration of the Bachelor of Education (B.Ed) program is 1 year. This program is arranged in two semesters for a period of 6 months each.

Basic Changes in Teacher Education

The following are the basic changes made in the Bachelor of Education (B.Ed) program:

- Introduced one year instead of 10 months program;
- One year duration has been divided into two semesters in the academic session of 2017;
- New curriculum has been introduced in 2017. The previous was introduced from 2006 to 2007 academic session;
- Introduced new subjects with respect to the National Curriculum, 2012 which developed for the secondary level;
- Introduced double-phase teaching practice (TP). Earlier it was single phase;
- Internal and external marking system has been reorganized;
- Introduced semester and grading system instead of marking and class-based assessment system;
- The existing secondary education curriculum was developed in 2012. Accordingly, the teacher education curriculum has been redesigned;
- To introduce and emphasize on the use of ICT in education, the new teacher education curriculum was redesigned;
- Inclusive education has been introduced as compulsory subject in the second semester;
- Introduced Educational Research instead of Action Research;
- The subjects taught in the Humanities, Science, and Business Education group had been introduced as school-subjects;
- Teacher competency standard in the following areas had been introduced in the curriculum;

  (i) Professional Knowledge;
  (ii) Professional Practice;
  (iii) ICT integration in Teaching Profession and
  (iv) Professional Learning, Ethics and Values.

- Result publication has been changed into grading system.

Innovation in Teacher Education

The innovative aspects of the existing teacher education curriculum are as follows:

- Competency based and practical oriented;
- Designed in semester system;
- Teaching practice (TP) slot increased into double phase;
- Taught subjects are designed with respect to the National Curriculum, 2012;
- Introduced semester and grading system instead of marking and class-based assessment;

- Introduced ICT in education as compulsory subject;
- Introduced Inclusive Education as compulsory subject;
- Result published in Cumulative Grading Point Average (CGPA).

Accreditation of Teacher Education

In Bangladesh, the National University (NU) was established under the National University Act, 1992 (Act No. 37 of 1992) which had been passed by the Parliament of Bangladesh. In 1993, all Teachers' Training Colleges were handed over to this university. The National University is a public university and is situated in the district of Gazipur, 30 km from the country's capital city Dhaka. The nature of the university is off-campus and acts as an administrative university. The university is responsible for accreditation of the Teacher Education program conducting at the different private and government Teachers' Training Colleges. And the Teacher Education courses offered by the IER, University of Dhaka and the IER, University of Rajshahi are required to be approved by the respective universities. On the other hand, the Bangladesh Open University (BOU) offers the Teacher Education programs are to be accredited by this university.

The final word is that the related universities as well as their institutions is the constitutional authority to standardize courses for the educationalist and teachers in Bangladesh.

Challenges

- Lack of trained teachers;
- Lack of technical support and Internet connectivity;
- Irregular attendance of the students;
- Assessment procedures are not re-evaluated;
- Examination based tendency of both students and teachers;
- Multiple Choice Questions (MCQ) for final examination are irrelevant in Bachelor of Education (Honours) course;
- Existing satisfactory/non-satisfactory viva voce system for Bachelor of Education (Honours) course should have been allotted specific marks instead of 1 or 0;
- Training systems at private teachers' training colleges are not properly monitored.

Future Directions

The main objective of the teacher education is to develop skilled and efficient teachers. In order to ensure the quality education, the following points are to be considered:

- Teachers will be trained up in such a way so that they can make themselves to be skilled;
- The Teacher Education curriculum and syllabus will be modernized with certain interval;
- Extensive co-curricular program will be included in the training, and the role of the trainers will be properly evaluated;
- The training program will include various courses of diverse context;
- Emphasis will be given in use of Information and Communication Technology (ICT);
- Required amount of training should be delivered maintaining the standard of secondary teaching–learning need;
- Preparing learners to be fit for the new situation in daily life.

National Teacher Education Council (NTEC)

Steps have been taken to set up and implementation the National Teacher Education Council (NTEC) under the Institutional Reform Program for setting and implementing standard standards for teacher training. The organizational structure of NTEC and the draft law has already been prepared.

The Accreditation Council Act 2017 has been enacted to ensure the quality of higher education in the country and to raise it to the world standard level.

Conclusion

Introducing the honours courses in education in Bangladesh, the great changes have been made in teacher education. The country has come a long way in improving the quality of general education through qualitative changes in teacher education.

Both the one-year Bachelor of Education (B.Ed.) course and the four-year Bachelor of Education (Honours) course have been redesigned with the aim of developing skilled teachers. The government is working on these changes with the aim of bringing the teacher training system to the international level. Such changes are in the interest of developing quality education. At present, the Bachelor of Education (B.Ed.) program is running in face-to-face mode under National University. Apart from this, the Bachelor of Education (B.Ed.) program is being conducted in distance

learning mode under Bangladesh Open University (BOU) with the facilities of using some study centres throughout the country.

Introducing the Information and Communication Technology (ICT) in the existing Teacher Education for both one-year Bachelor of Education (B.Ed.) and four years Bachelor of Education is a new dimension in Bangladesh. Because, nowadays, without use of ICT, the daily life is incomplete and cannot be lead successfully. About two centuries ago, civilization took a radical turn on the wake of industrial revolution. The change is again taking place in the twenty-first century because of ICT revolution. Teacher is the main component in the use of ICT in education. Only skilled teachers can use information and communication technology in education to develop skilled students. The opportunity to use information and communication technology in education has been created to build suitable teachers for the twenty-first century. Due to great importance, the ICT Education has been introduced in both one-year and four-year courses.

However, in order to make teacher training more effective and successful, the attendance of participants in these courses must be properly ensured. For developing skilled teacher, field work and research work should be introduced effectively. In this case, the sincere and active participation of the participants will no doubt make the teacher training a success. And, a modern and effective teacher training system can help the country to develop more by improving the quality of overall education system of the country.

References

Bangladesh Education Commission Report 1974, Ministry of Education.
Bangladesh Education Statistics 2019. (2020, June). BANBEIS, Ministry of Education, Dhaka.
Bangladesh National Education Commission Report 1988, Ministry of Education, Dhaka.
Mukherjee, S. N. Dr. (1996). *History of education in India* (1st ed.), Acharya Book Depot, New Delhi-110 027.
National Curriculum (2012), National Curriculum and Textbook Board (NCTB), Dhaka.
National Education Commission Report 2003, Ministry of Education, Dhaka
National Education Policy 2010, Ministry of Education, Dhaka.
Revised B.Ed. Curriculum Dissemination Guidelines, January 2017, TQI-II Project, Dhaka.
Teacher Education in the Global Era, Springer (2020), Singapore.
The Education Development Report in 2009–2018, Ministry of Education, Dhaka.
Ullah, M. M. (1975). *History of education* (3rd ed.). Mita Publisher.

Online Resources

www.bou.edu.bd/index.php/schools/soe
www.nu.ac.bd
www.ru.ac.bd/ier
www.du.ac.bd/academic/department_item/IER

Chapter 8
Initial Teacher Education in Singapore and South Korea

JeongA Yang and Charlene Tan

Abstract This chapter compares initial teacher education in Singapore and South Korea. The key features of teacher education in both countries are identified and critically discussed. It is noted that initial teacher education in Singapore is characterized by a rigorous selection of teachers, a values-based and learner-centred approach to initial teacher education, and a strong theory–practice nexus. In the case of Korea, initial teacher education is marked by a well-structured programme, the high standards set by the government, and a recent push for a learner-centred teacher education. When we compare initial teacher education in Singapore and Korea, it can be observed that teacher education is effective in both countries due to heavy state investment, recruitment of highly qualified applicants, systematic teacher preparation that underscores values development, and progressive teacher education approaches that have evolved to meet the needs of modern times. It is also observed that teacher education in both countries is underpinned by Confucian values that emphasize the high societal status of teachers and a strong collaborative culture. An ongoing challenge faced by both countries is to further develop teacher education in a post-pandemic world to meet the changing needs of students.

Keywords Confucian values · COVID-19 pandemic · High-performing education system · Initial teacher education · Learner-centredness · South Korea · Singapore

Introduction

Research has consistently shown that a major factor that shapes the quality of student learning and achievement is the standard of teaching (Darling-Hammond, 2010; Flores, 2016; Hattie, 2009). The standard of teaching that takes place in the classroom in turn depends on, among other factors, the quality of teacher education. It

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is therefore critical for education jurisdictions around the world to provide first-rate teacher preparation programmes. A pertinent question is how high-performing education systems prepare their teachers for the teaching profession. This chapter focuses on initial teacher education in two high-performing education systems in Asia: Singapore and South Korea (hereinafter Korea).

Singapore students have consistently outperformed their peers in International Large-Scale Assessments (ILSAs). In the 2019 Trends in International Mathematics and Science Study (TIMSS) and Progress in International Reading Literacy Study (PIRLS), Singapore students emerged top in mathematics and science achievement at the 4th and 8th grades. In another ILSA known as the Programme for International Student Assessment (PISA) that assesses reading, mathematics and science for 15-year old students, Singapore was ranked second globally (OECD, 2019). Likewise, Korea has consistently stood out for its impressive performance in PISA and TIMMS (OECD, 2019). Reflecting its status as a highly literate society, almost all Koreans (98%) aged between 25 and 34 completed secondary education, and 64% of them finished post-secondary education (Kwon et al., 2017). This makes Korea the country with the highest ratio of students who completed upper secondary education among all the member countries of the Organisation for Economic and Co-operation Development (OECD) since 2001 (OECD, 2013).

The aim of this chapter is to provide an overview and comparison of initial teacher education in Singapore and Korea. The chapter is organized as follows: (1) a historical overview of and introduction to the salient features of initial teacher education in Singapore and Korea, (2) a comparison of initial teacher education in both countries, and (3) a discussion of a common challenge and recommendation for initial teacher education in both countries.

Initial Teacher Education in Singapore

Historical Overview

Although schools had existed for over a century in Singapore during the colonial periods, there was no formal teacher education programme in place until 1950 when the Teacher Training College (TTC) was formed. With Singapore's independence in 1965 and subsequently the establishment of government schools, TTC increased its capacity to train sufficient number of teachers for the nation. A turning point came in 1991 when TTC was incorporated as an autonomous institute within the newly formed Nanyang Technological University (NTU) (Hogan & Gopinathan, 2008; Loh & Hu, 2019). Adapting from Deng and Gopinathan (2001), there are five broad and overlapping stages of teacher education in Singapore (pp. 86–87, also see Gopinathan et al., 1999; Sim & Ho, 1994):

(1) 1967–1972: a rapid increase in the number of teachers after Singapore's independence in 1965.

(2) 1973–1981: a qualitative improvement in teacher education through structural changes.
(3) 1982–1990: the professionalization of teacher education and teaching through new initiatives and a synthesis of efforts.
(4) 1991–1999: the "universitization" of teacher education (Deng & Gopinathan, 2001) when National Institute of Education (NIE) was established and became a part of the Nanyang Technological University (NTU).
(5) From the start of the twenty-first century to present: the strengthening of local partnerships between NIE, the Ministry of Education and the schools, and overseas partnerships with universities around the world.

A unique feature of teacher education in Singapore is its highly centralized approach: NIE is the only institute for initial teacher education in the country. Pre-service teachers are enrolled in one of three teaching tracks for teaching: primary, secondary and high school (known locally as junior college) levels (for details, see National Institute of Education, n.d.). OECD (2013) reports that "Singapore has put in place strong teacher preparation and peer mentoring programmes to help newer teachers succeed" (para 1). Initial teacher education at NIE is marked by three attributes: a rigorous selection of teachers, a values-based and learner-centred approach to initial teacher education, and a strong theory–practice nexus. The next section elaborates on each of these characteristics.

Rigorous Selection of Teachers

The first significant feature of initial teacher education in Singapore is its stringent process to select the best and brightest to join the teaching profession. Only the top one-third of each graduating cohort is recruited, with the selection process comprising two stages and involving both the Ministry of Education (MOE) and NIE. Lim (2014) gives details:

> MOE and/or NIE complete the first step by short-listing candidates based on NIE's university admission criteria. MOE will then interview the short-listed candidates individually as part of the selection process. NIE faculty members are also involved as members of the interview panels for the degree programmes. Criteria used by the interview panels to assess the candidates include communication skills, interest in teaching, goals and aspirations, and willingness to learn. (pp. 5–6)

Another indication of careful teacher selection is that candidates who have passed the interview with MOE are required to complete a teaching stint as untrained teachers in schools before they formally begin their initial teacher education at NIE. This additional layer of checks ensures that the candidates have met the prerequisites to be teachers and are sure of committing themselves to the teaching profession. Candidates who fail to complete their teaching stint satisfactorily will be asked to withdraw from their teacher education programmes or extend their teaching stint (Lim, 2014). For those who proceed to be enrolled in NIE, they will receive tuition

waivers and a monthly salaries or stipends. Each teaching candidate receives the equivalent of US$30,000–$50,000 per year in salary, plus tuition, books, and laptop computers; in return, they need to fulfil a bond with the government to teach for 3–5 years, depending on the kind of programme completed (Darling-Hammond, 2017).

Values-Based and Learner-Centred Approach to Initial Teacher Education

A values-based and learner-centred approach is adopted for initial teacher education in Singapore. This approach is based on a V^3SK framework that sketches the essential values (V), skills (S) and knowledge (K) needed by all pre-service teachers in the twenty-first century (Tan et al., 2017). There are three core values for V^3:

> The framework is premised along three value paradigms. They are *learner-centered values* that put the learner at the centre of teachers' work, *teacher identity values* that refer to having high standards and strong drive to learn, and *service to the profession and community* that focuses on teachers' commitment to their profession through active collaboration and striving to become better practitioners to benefit the teaching community. (Liu, 2017, p. 35, italics in the original)

Empathy and a commitment to nurture the potential of each child are examples of learner-centered values (V). Reflective skills and thinking dispositions are the examples of skills (S) in the framework, whereas knowledge (K) encompasses areas such as educational foundation and policies (for details, see National Institute of Education, n.d.). That values form the foundation of teacher education in Singapore is testified to in the words of a former Director of NIE: "When there is rapid pace of technological development combined with the constant upheavals on the socio-politicoeconomic fronts, it is values that provide the anchor of stability, consistency and centredness in a changing vortex" (Tan, 2012, p. 39).

As part of inculcating the values of service to the community, all pre-service teachers at NIE need to complete two core mandatory programmes: Group Endeavours in Service Learning (GESL) and the Meranti Project (Lim, 2013). GESL involves the pre-service teachers identifying and working with a community partner to carry out a service; examples are conducting a reading programme for children with learning difficulties and running a mindfulness workshop for residents in a nursing home. The Meranti Project complements GESL by focussing on the pre-service teachers' self-awareness as teachers-to-be. To further promote self-reflection and formative assessment, pre-service teachers use the teaching and learning e-portfolio to record their development as learners and teachers, interact with other users on the online platform, and obtain constructive feedback from their tutors and peers (Lim, 2013).

A values-based approach to teacher education is fortified and enacted through learner-centred pedagogies. Low et al. (2012) point out that a central goal is to develop

reflective teachers using "a social constructivist approach, in which trainee teachers discuss and debate critical issues impinging on their professional practice, is more successful than the traditional 'tell and regurgitate' approach, in developing reflective teachers" (p. 200). Learner-centric pedagogies are also manifested through "a range of innovative approaches such as a developmental model for the practicum component, appropriate use of case methods such as Problem-Based Learning projects, effective use of blended learning and use of authentic assessment such as portfolio evaluation" (National Institute of Education, n.d., para 4).

A Strong Theory–Practice Nexus

The third characteristic of initial teacher education in Singapore is a strong theory–practice nexus. All pre-service teachers have to complete school teaching practice attachments of between 10 and 22 weeks. In addition, digital technology is harnessed for the teacher education programmes at NIE where the pre-service teachers have real-time access to a selection of the country's classrooms (Schleicher, 2020). Rasmussen and Bayer (2014) report that the teacher education programmes at NIE utilize evidence-based professional knowledge that synthesizes research-based and practice-based knowledge. As the teacher education programme gives the pre-service teachers access to "actual planning tools, teaching materials and narratives about successful practice", such a programme "provides a more solid foundation for the students' activities during their practical training" (Rasmussen & Bayer, 2014, p. 816). The coupling of theory and practice is illustrated in the introduction of focused conversations (FC). According to Lim (2014), FC enables the pre-service teachers who are completing their practicum to share with their school mentors about their learning in NIE, issues faced during the practicum on classroom management and motivating pupils, as well as their journey towards developing teaching competencies.

In sum, Flores (2016) reports that Singapore provides quality teacher education programmes that are undergirded by these principles: "vision (common and clear vision of good teaching practice); knowledge of learners linked to curriculum; integration of foundations, methods, and teaching practice; addressing the apprenticeship of observation; strategies to examine culture and schooling (cultural homogeneity, diversity and change); strong relationships, common knowledge and shared beliefs (built on university-school partnerships); and, integration focused projects (e.g. case studies, portfolios)" (p. 12). Highlighting the strong partnership between the education ministry and NIE, Sclafani (2008) avers that the NIE/ministry connection provides a model a school district might consider implementing. Specifically, he suggests that districts in the USA stipulate the teaching competencies required for teachers to be hired in the district and refuse to accept applicants from colleges of education that do not meet the requirements (Sclafani, 2008). Having introduced

initial teacher education in Singapore, the next segment turns the attention to initial teacher education in Korea.

Initial Teacher Education in Korea

Historical Overview

The history of teacher training in Korea can be primarily divided into three stages (Kim, 1989, 1994; Kim et al., 1995; Oh, 2001; Shin, 2010):

(1) 1953–1963: the probationary period and the institutionalization period
(2) 1963–1990: the chaotic period and the non-interference period
(3) 1991–present: the maintenance period and the qualitative leap

During the probationary and institutionalization periods, the secondary teacher training system began to take shape as the government took over the education system from the Japanese colonial government. These changes were made after the Japanese, who composed more than 40% of elementary school teachers, and most secondary teachers at the time left the teaching profession. Some adjustments were made to the training system for elementary school teachers through the implementation of educational laws. During the chaotic and non-interference periods, the focus of the government was on the reorganization of the universities as a response to a sudden increase in the demand for qualitative improvement. The relative neglect of teacher education during this phase led to the establishment of private teacher training institutions to meet the surge in demand for education.

During the third period of maintenance and qualitative leap, the government updated the laws and regulations to manage the quality of teacher's education. Primary school teacher training institutions became a four-year system in 1981–1988, and secondary school teacher training institutions became a four-year system in 1962. These laws were subsequently revised through the Education Act and annual promotion plans. A significant policy change launched by the government was the open appointment system in the form of the Comprehensive Teachers Plan, where teachers who graduated from national universities were no longer differentiated from their counterparts who graduated from private universities. The open teacher training system replaced the purpose-built teacher training system which was a specialized teacher education system operated by appointed universities. Another major development was the evaluation of teacher training institutions through the teacher training quality management in 1998 (Kwak, 1998; Oh, 2001; Shin, 2010).

Initial teacher education in Korea is marked by three fundamental features: a well-structured programme, high standards set by the government, and a recent push for a learner-centred teacher education. These three characteristics are amplified in the next section.

A Well-Structured Teacher Education Programme

Teaching is a highly coveted profession in Korea, as evident in the competition rate of 12.7 in 2016 for national and public secondary school teachers (Gwon, 2017; Kim et al., 2004). The competition rate has risen since the late 2000s: only 2,687 out of 67,509 applicants passed in 2011, with an average competition rate of over 25:1 (Ahn, 2017, p. 131).

A well-structured teacher education programme has been put in place in Korea. Currently, teacher education in Korea is divided into primary and secondary training system. Korea's primary training institutions include the purpose-built teacher training system operated by several national universities of education and the department of primary education at Korea National University of Education, the education college at Jeju National University, and the department of primary education in Ewha Woman's University (Ministry of Education in Korea, 2017b). After Jeju National University of Education was integrated into Jeju National University in 2008, there were a total of 13 educational institutions, including 10 national universities of education, two national universities, and one private university. In 2017, 3,847 elementary teachers were trained in these institutions (Ministry of Education in Korea, 2017a, b). According to Article 42 of the Higher Education Act, primary school teachers' curriculum operates for four years. According to Article 44 of the same law, universities are free to design their curriculum as long as the programme inculcates the values as educators, teach ethics, ideology and education, and develop the qualifications and capabilities of educators (Jeong et al., 2010, p. 40). Education practice consists of field practice in schools and educational volunteer work.

In contrast to primary training system which relies on the purpose-built teacher training system, secondary training system adopts the open teacher training system. As mentioned earlier, this system accepts teachers who graduate from both national and private universities. This system was first introduced in April 1953 through the Education Public Officials Act Article 5 of the Education Public Officials Act that gave preference to graduates of national training institutions with senior certificates. Then, in November 1954, the enforcement rules were enacted under the ministry of education and in 1955, the teaching courses in private Universities were institutionalized and public school teachers were selected for appointment based on a government-regulated exam (Oh, 2001). Presently, secondary school teachers in Korea are trained through exclusive training systems such as teacher colleges, department of education at private universities, and teacher training courses at universities and graduate schools of education (Jeong et al., 2010). In total, there are 15 national and 30 private universities dedicated to training secondary school teachers. There are

149 non-educational universities operating teacher training courses of which 117 are private. Due to increased competition for teaching appointments and the competence of teacher training institutions, student enrolment in university teacher training has decreased by about 45% from 16,165 to 6,946 (Jeong et al., 2010, p. 35).

High Standards Set by the Government

The second prominent feature of initial teacher education in Korea is the leadership of the government which ensures its high standards. A case in point is the introduction of competency diagnosis system for teacher training institutions and teacher appointment tests at teacher training institutions. The competency diagnosis system of teacher training institutions, which assesses teacher training institutions, was rolled out in 1998 and aimed to improve teacher training quality (Ministry of Education in Korea, 2018a, b). Administrative measures such as the reduction or abolition of the number of institutional educational proportion were also implemented, resulting in the reduction of the capacity of teacher education from 67,216 in 2010 to 45,212 in 2018 (Ministry of Education in Korea, 2016, 2017c, 2018a, b). In addition, the government manages the quality of teacher training at the national level using the teacher appointment test. Teacher appointment is conducted via two assessments: the first exam comprises descriptive, and essay-type tests based on the 1992 competitive examination for the appointment of education officials. The second exam consists of in-depth interviews on teaching aptitude and evaluation of teaching ability (written teaching course and demonstration) (Jeong et al., 2016). These tests which are very competitive ensures that candidates meet the national standards expected of teachers across the country. Overall, the initial teacher education programmes in Korea offer high-quality management through government control, monitoring and evaluation (Kim, 2003; Kim et al., 2005).

A Recent Push for a Learner-Centred Teacher Education

The third aspect of initial teacher education in Korea is a recent push for a learner-centred education in the aftermath of the COVID-19 outbreak. After 2020, the government revised the teacher training system through the National Education Council under the president's direct supervision. In response to the coronavirus pandemic, the government improved the role of the school curriculum and teacher training system by calling for a more learner-centred education (National Education Council Under the President's Direct Supervision, 2020a). Reflecting a desire to elicit views from educational stakeholders, the presidential National Education Council conducted a poll and presented the future direction of the Korean teacher training system through deliberation with representatives from segments of society. Several important policy moves have been forwarded through the consultation between the government and

educational stakeholders in the National Education Council. One is that the direction of future education in Korea should aim at creating an educational ecosystem that values students' real-life experiences and strengthens their capabilities, that is, a learner-centered education. In order to achieve this goal, the schooling system should work towards transforming the teacher's role from a mere knowledge transmitter to a learning promoter. The representatives in the National Education Council advocate an overall reorganization of the teacher training system to enhance the capabilities of new teachers (National Education Council Under the President's Direct Supervision, 2020a).

The deliberative group also suggested reforming the teacher training system so as to enrich the students' life and capabilities. To achieve this desired outcome, the government should establish the criteria and concepts for teachers, and increase the applicability of teacher training curriculum to schools. The government should also reduce the teacher training scale through a quality and quantity path that consolidates the secondary teacher training system, coupled with concrete measures for local universities. Furthermore, the government should formulate a medium- and long-term agenda to expand the teacher training period or convert teacher training colleges into professional graduate schools. To achieve this, the Ministry of Education should establish a governance organization involving pre-service teachers, education offices, teachers training institutions and civil society as soon as possible. Moreover, teacher training institutions should strengthen contents related to school sites by crafting teacher training curricula that foreground students' developmental stages, learning characteristics, and educational practices. Lastly, city and provincial education office should closely cooperate with the local levels, i.e. with teacher training institutions, to support the consolidation of the on-site suitability of the teacher training curriculum (National Education Council Under the President's Direct Supervision, 2020a, b).

The recommendations by the council are supported by research that highlights the urgency to enhance creativity and strengthen the teachers' capabilities in Korea (Jeong et al., 2010). Kim's (2018)'s policy research on the Ministry of Education (2018) also suggests the need for a future-ready competency-oriented curriculum, on-site curriculum, stronger educational practice and greater autonomy in organizing the teacher training curriculum. In other words, the priority is to draw a comprehensive blueprint for training highly qualified preliminary teachers by establishing curricula based on the core competencies applicable to society's future (Park et al., 2015). To conclude this segment, the leadership of the government and its collaboration with educational stakeholders ensure the consistently high-quality management of teacher training institutions and the orientation of teacher education towards learner-centredness. The direction of the reorganization is to enhance the ability of learners in a post-COVID-19 era by equipping teachers to become learning promoters. As a specific measure, medium- and long-term strategies and plans have been established, such as strengthening on-site training in the teacher training course. The core competency-based teacher training education model has been emphasized for teacher training to improve not only knowledge but also essential twenty-first century skills for society's future.

A Comparison of Initial Teacher Education Between Singapore and Korea

It is evident from the foregoing that initial teacher education in Singapore and Korea is marked by heavy state investment, recruitment of highly qualified applicants, systematic teacher preparation that synthesizes knowledge, skills and values, and progressive teacher education approaches that have evolved to meet the needs of modern times. In particular, initial teacher education in both countries share two prominent characteristics: an emphasis on values development and the influence of Confucian values. The next section elaborates on these two qualities.

An Emphasis on Values Development

Initial teacher education in Singapore and Korea stresses not only the acquisition of knowledge and skills but also the dispositions, attitudes, and values as educators who bring out the best in their students. It is worthy of note that teacher education in many education systems revolves around the attainment of competencies, leading to a neglect of the engagement with fundamental educational questions of purpose, content, and relationships (Biesta, 2012). Zeichner (2014) cautions against reducing teachers to "'educational clerks' who purely implement scripted teaching strategies and curriculum; he contends for the need to equip teachers with adaptive expertise so that "they are able to exercise their discretion and judgement in the classroom to adjust their teaching to meet the varied needs of their students" (p. 559).

A functionalist approach that undermines values development in initial teacher education is eschewed in both Singapore and Korea. We have noted that teacher education in Singapore is grounded in the a V^3SK framework. An illustration of a values-driven pre-service course offered in NIE is a module on multidimensional thinking (Tan, 2019c). This course exemplifies Shulman's signature pedagogies where pre-service teachers explore and internalize three essential aspects of professional work—to think, to perform, and to act with integrity. Signature pedagogies direct pre-service teachers to learn and embrace three essential aspects of professional work—to think, to perform, and to act with integrity. The pre-service teachers cultivate the habits of mind and heart by developing the students' power of analysis, reasoning abilities and emotional well-being. They reflect on the implicit structure of signature pedagogies that hinge on beliefs about professional attitudes, values, and dispositions, and ponder on fundamental ethical issues in life and their implications for their students (for details, see Tan, 2019c).

Likewise in Korea, there is a high level of interest in and demand for the development of teachers' expertise and the character of teachers (Park et al., 2015). The government has been paying particular attention to personality development for pre-service teachers (Seo et al., 2013). The desired characteristics of teachers encompass

various components such as character, quality, mission, service spirit, and dedication as educators. Teacher training institutions have set goals and standards and enacted teacher education programmes to develop these attributes in the pre-service teachers. The government also acts in tandem to reinforce these moral qualities in the pre-service and existing teachers. According to the government's comprehensive plan for teacher training and appointment in 1989, teacher training institutions such as education universities and teachers' colleges should conduct a teaching aptitude and personality test for evaluating teachers' aptitude and personality (Choi, 1994, p.135). Since 2013, the government has used a teaching aptitude and personality tests as part of the teacher qualification examination. When acquiring primary and secondary teaching qualifications, pre-service teachers are expected to demonstrate the teaching aptitude and meet the personality qualifying criteria at teacher training institutions (Article 19, Paragraph 3 in Ordinance of Teachers Qualifications and Attached Table 1).

The premium placed on character development of teachers is illustrated in the example of Ewha Woman's University which was chosen as the best college of education in the first and second training institution assessment cycles in 1998 and 2003. Ewha Woman's University underscores teaching personality such as the attitude towards teaching, students, self, and society. The university's core competency-based teacher training model underlines the nurture of creative teachers who actively respond to various complex social changes, thrive in a globalized world, accept diversity in multicultural societies, and have a sense of duty and social responsibility. The five core competencies expected of all teachers are academic competence, creative convergence competence, global competence, respect, and ethics (Joo et al., 2006; Lee, 2019).

In a nutshell, the experiences of Singapore and Korea testify to teaching in general and initial teacher education in particular as "an intellectual, cultural, and contextual activity that requires skilful decisions about how to convey subject matter, apply pedagogical skills, develop human relationships, and both generate and utilise knowledge" (Cochran-Smith, 2004, p. 298).

The Influence of Confucian Values

The second notable characteristic of initial teacher education in Singapore and Korea is the influence of Confucianism, given that both countries are Confucian heritage cultures (Tan, 2019a, b). We have elsewhere reported that the dominant world-pictures of Singaporeans and Koreans stem from and are determined by Confucian norms and practices (Yang & Tan, 2019; Tan, 2019a; Tan & Yang, 2019). Park (2015) concurs that many Asian countries "have been highly influenced by Confucianism, a system of teachings in which the importance of education is emphasized as a tool for personal development and the primary mechanism promoting mobility" (p. 145, also see Choi & Choi, 2016). Framed by Confucian beliefs and presuppositions, initial teacher education in both countries is aided by the high societal status of teachers

and collaborative culture between the education authorities, colleges/universities for teacher education, and schools. The TALIS survey in 2018 reports that over 70% teachers in Singapore and over 65% in Korea agree that their profession is valued in society—percentage that is way above the OECD average of 26% (Schleicher, 2020). The reverence for and high expectations of teachers are captured in the traditional quote, "King, Parents, and teachers are one" (군사부일체, 君師父一體). Due to the social atmosphere of respecting and supporting teachers, pre-service teachers need to undergo exacting training and pass competitive tests before qualifying as teachers. The consistently high standards of Korea's teacher education are attributed to the superior management of teachers' training institutions and the assessment of government-led teachers' training institutions within a Confucian culture that exalts the teaching profession.

A collaborative culture is also observed in Singapore and Korea. We have noted how NIE works closely with MOE in teacher recruitment and the schools for the pre-service teachers' practicum. The school–university cooperation in Singapore "takes place through shared decision-making about student-teachers, and opportunities for teachers to serve at NIE and for NIE faculty to serve in schools through a "school attachment" opportunity" (Darling-Hammond, 2017, p. 300). Similarly in Korea, the government not only manages the quantity and quality of teacher training institutions through evaluation and teacher appointment tests, but also sets the directions for teacher training. Looking ahead, the president-led deliberative group will propose and partner with the government to bring about positive and impactful changes to teacher education in Korea. The Ministry of Education will continue to oversee governance organizations education offices, teacher training institutions and civil society while maintaining close relations between the state and teacher training institutions.

A Challenge and Recommendation in a Post-pandemic World

Notwithstanding the effectiveness of initial teacher education in Singapore and Korea, an ongoing challenge is how teacher education can be further developed to meet the evolving needs of a post-pandemic world. The COVID-19 pandemic has caused massive educational disruptions around the world. It has led to school closure and emergency remote teaching and learning. Teacher education has also been affected, with teacher educators turning to online learning and social medial tools for their courses. Teacher educators all over the world have experimented with blended learning that combines face-to-face and online learning (Tan, 2021). In the aftermath of COVID-19, the contents, mode of delivery, and assessment formats of teacher education have also been revamped. In an educational landscape where learning from home will become the norm in Singapore and Korea, pre-service teachers need to learn how to design and carry out alternative teaching strategies and resources for their students. This task includes the mastering of innovative and hybrid teaching approaches that employ technologies and encourage student engagement. The initial teacher education programmes also need to prioritize the teaching and learning of

advanced thinking such as critical thinking and problem solving that are essential in the Fourth Industrial Revolution (Darling-Hammond, 2017; Tan, 2021). In a word, online learning will become a permanent fixture for schools and teacher training centres in the contemporary world. Hence, it is imperative for teachers and teacher educators to make use of digital devices, online resources, social media technology, and e-learning activities (Mulenga & Marbán, 2020).

It is recommended that teacher educators be guided by the following four pedagogical principles when promoting online/blended learning (Evans et al., 2020, p. 280):

- knowing how to engage students in an online environment by providing them with intuitive interaction,
- enabling social learning connections with educators and their peers,
- promoting active facilitation and learning support (including feedback) through synchronous and asynchronous channels, and
- utilizing appropriate smart technologies and digital learning assets that enhance the experience.

In all, the new normal will pose challenges and offer opportunities for teacher educators and pre-service teachers as they explore the most effective and contextually appropriate ways to help the students in schools.

Conclusion

This chapter has examined initial teacher education in Singapore and South Korea. The salient characteristics of teacher education in both countries are distilled and analysed. We have explained that initial teacher education in Singapore is characterized by a rigorous selection of teachers, a values-based and learner-centred approach to initial teacher education, and a strong theory–practice nexus. In the case of Korea, initial teacher education is marked by a well-structured programme, the high standards set by the government, and a recent push for a learner-centred teacher education in the aftermath of the pandemic. It is noted that both countries offer high-quality teacher education that goes beyond a skills-based approach towards values development. In addition, teacher education in both countries, reflecting the influence of Confucian worldviews, appreciates the work of teachers and partnerships between educational stakeholders. A major challenge faced by both countries is to further develop teacher education in a post-pandemic world, especially pertaining to information and communications technology, to meet the evolving needs of students.

It is widely acknowledged that a critical, if not most important, component for successful student learning is the quality of the teacher education (Qvortrup, 2008). Flores (2016), in reviewing the international trend in teacher education, singles out two main trajectories: either a shift towards higher qualifications for teachers at a master degree level where the research component is underlined, or a move towards a more practical and school-based orientation. In the case of Singapore and Korea,

both trends are discernable: pre-service teachers are enrolled in programmes that are evidence-based *and* oriented towards the learner needs in schools. To put it simply, both countries go beyond viewing teacher education through a technical, functionalist lens to situating it within a values-based and communitarian framework. Azorın (2020) suggests that a post-pandemic world is the best time to redesign "a better education for all, where equity, excellence and student well-being will be the foundations on which to build" (pp. 1–2). Regardless of the changes that will take place in the future, initial teacher education in both Singapore and Korea will continue to be geared towards providing a better education for all. Both education jurisdictions are expected to offer state-of-the art teacher preparation so as to nurture high-quality teachers that both systems are known for.

References

Ahn, H. S. (2017). Training and appointment of secondary school teachers and the significance of introduction of high school credit system. *Education Review, 40*, 122–144.

Azorın, C. (2020). Beyond COVID-19 supernova. Is another education coming? *Journal of Professional Capital and Community, 5*(3/4), 381–390.

Biesta, G. (2012). The future of teacher education: Evidence, competence or wisdom? *Research on Steiner Education, 3*(1), 8–21.

Choi, H., & Choi, A. (2016). Regulating private tutoring consumption in Korea: Lessons from another failure. *International Journal of Educational Development, 49*, 144–156.

Choi, K. K. (1994). A study on aptitude, personality and interview for selecting qualified teachers. *Journal of Pusan National University of Education, 30*(1), 135–172.

Cochran-Smith, M. (2004). Editorial. The problem of teacher education. *Journal of Teacher Education, 55*(4), 295–299.

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education, 61*(1–2), 35–47.

Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice? *European Journal of Teacher Education, 40*(3), 291–309.

Deng, Z., & Gopinathan, S. (2001). Research on teaching and teacher education in Singapore (1989–1999): Making a case for alternative research paradigms. *Asia Pacific Journal of Education, 21*(2), 76–95.

Evans, D. J. R., Bay, B. H., Wilson, T. D., Smith, C. F., Lachman, N., & Pawlina, W. (2020). Going virtual to support anatomy education: A STOPGAP in the midst of the Covid-19 pandemic. *Anatomical Sciences Education, 13*, 279–283.

Flores, M. A. (2016). Teacher education curriculum. In J. Loughran & M. L. Hamilton (Eds.), *International handbook of teacher education* (pp. 187–230). Springer.

Gopinathan, S., Ho, W. K., & Tan, J. (1999). Teacher education and teaching in Singapore. *Asia-Pacific Journal of Teacher Education & Development, 2*(1), 3–14.

Gwon, D. T. (2017, April 28). Appointment examination management problems and improvement measures. In *2017, Korea Education Society Education Policy Forum: Theories, Issues, and Policy Directions of Korean Educational Issues*, Daejeon

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Hogan, D., & Gopinathan, S. (2008). Knowledge management, sustainable innovation, and pre-service teacher education in Singapore. *Teachers and Teaching: Theory and Practice, 14*(4), 369–384.

Jeong, I. H., Ko, J., Koo, J. E., Kwon, D. T., Kim, J. H., Kim, H. W., Lee, H. D., Jeong, Y. G., Jeong, H.S., Joo, D. B., & Choi, Y. P. (2016). *A comparative study on the quality management system by teacher life cycle in major countries*. Ministry of Education.

Jeong, M. K., Kim, G. S., Ryu, S. C., Kim, B. C., & Park, S. W. (2010). *Research on improvement measures for teacher training curriculum*. Korean Educational Development Institute.

Joo, Y. J., Kim, E. J., Park, E. H., Seo, G. H., Lee, Y. H., Lee, J. G., Lim, H. S. Hwang, K. H., Kim, G. J., Kim, J. S., Bong, M. M., Sung, H. H., Lee, E. J., Lee, J. H., & Heo, M. (2006). *Ewha teachers education standard development study.* Ewha Woman's University Teacher Education Specialisation Project Team.

Kim, C. J. (2018). *A study on the development of a future-type curriculum by a teacher training institution to cultivate preparatory teachers in line with the future society*. Ministry of Education.

Kim, J. C., Park, D. G., Song, K. Y., Lee, B. J., Lee, I. Y., Lee, Y. S., Choi, J. K., & Kang, H. G. (1995). The direction of the Korean teacher training system from a historical perspective. *Korean Teacher Education Research, 11*, 91–132.

Kim, L. K. (2003). *Participation in the OECD teacher policy review project and policy research to analyze implications.* Korean Educational Development Institute.

Kim, L. K., Lee, T. S., & Park, S. W. (2004). *Teacher policy directions and tasks: Focused on OECD review, KEDI Position Paper, 1(19).* Korean Educational Development Institute.

Kim, L. K., Lee, T. S., & Park, S. W. (2005). Critical analysis on the results of the OECD Korean teacher policy review. *Journal of Korean Education, 32*(2), 297–319.

Kim, Y. W. (1989). *History of secondary teacher education in Korea.* Gyoyukgwahaksa.

Kim, Y. W. (1994). *History of primary teacher education in Korea.* The Academy of Korean Studies.

Kwak, Y. W. (1998). Education reform and development tasks of teachers college. *The Journal of Korean Teacher Education, 15*(1), 88–119.

Kwon, S. K., Lee, M., & Shin, D. (2017). Educational assessment in the republic of Korea: Lights and shadows of high-stake exam-based education system. *Assessment in Education: Principles, Policy & Practice, 24*(1), 60–77.

Lee, J. S. (2019). *A plan to secure teacher expertise in preparation for the future society-focusing on the comparison and implications of teacher training policies in Korea and Australia.* South Korea, Sejong: Ministry of Education.

Lim, K. M. (2013, September). *Teacher education in Singapore*. Paper presented at the SEAMEO RIHED Regional Seminar on Teacher Education, Singapore.

Lim, K. M. (2014, October). *Teacher education & teaching profession in Singapore*. In Paper Presented at the International Conference on the Teaching Profession in ASEAN, Bangkok, Thailand.

Liu, W.-C. (2017). The teaching profession and teacher education. In O.-S. Tan, E.-L. Low, & D. Hung (Eds.), *Lee Kuan Yew's educational legacy: The challenges of success* (pp. 29–42). Springer.

Loh, J., & Hu, G. (2019, February 25). Teacher education in Singapore. *Oxford Research Encyclopedia of Education*. Retrieved 4 Jan. 2021, from https://oxfordre.com/education/view/https://doi.org/10.1093/acrefore/9780190264093.001.0001/acrefore-9780190264093-e-293.

Low, E., Hui, C., Taylor, P. G., & Ng, P. (2012). Towards evidence-based initial teacher education in Singapore: A review of current literature. *Australian Journal of Teacher Education, 37*(5), 65–77.

Ministry of Education in Korea. (2016). *Announcement of 2015 teacher training institution evaluation, Ministry of Education*, Retrieved from https://www.moe.go.kr/boardCnts/view.do?boardID=294&lev=0&statusYN=C&s=moe&m=0204&opType=N&boardSeq=62676. Accessed March 13, 2021.

Ministry of Education in Korea. (2017a). *2017 Teacher training institutions, Ministry of Education.* Retrieved from https://www.moe.go.kr/boardCnts/view.do?boardID=327&lev=0&statusYN=C&s=moe&m=0305&opType=N&boardSeq=72604. Accessed March 13, 2021.

Ministry of Education in Korea (2017b). *2018 Elementary school teacher appointment test application results.* Retrieved from https://www.moe.go.kr/boardCnts/view.do?boardID=294&lev=0&statusYN=C&s=moe&m=0204&opType=N&boardSeq=72242. Accessed March 13, 2021.

Ministry of Education in Korea. (2017c). *Announcement of 2016 teacher training institution evaluation, Ministry of Education*. Retrieved from https://www.moe.go.kr/boardCnts/view.do?boardID=294&lev=0&statusYN=C&s=moe&m=0204&opType=N&boardSeq=70298. Accessed March 13, 2021.

Ministry of Education in Korea. (2018a). *Announcement of 2017 teacher training institution evaluation, Ministry of Education*. Retrieved from https://www.moe.go.kr/boardCnts/view.do?boardID=294&lev=0&statusYN=C&s=moe&m=0204&opType=N&boardSeq=73560. Accessed March 13, 2021.

Ministry of Education in Korea. (2018b). *Foundation for fostering prospective teachers who will be responsible for future education*. Retrieved from https://www.moe.go.kr/boardCnts/view.do?boardID=294&lev=0&statusYN=W&s=moe&m=0204&opType=N&boardSeq=77220. Accessed March 13, 2021.

Mulenga, E. J., & Marbán, J. M. (2020). Is COVID-19 the gateway for digital learning in mathematics education? *Contemporary Educational Technology*, *12*(2), ep269. https://doi.org/10.30935/cedtech/7949

National Education Council Under the President's Direct Supervision. (2020a). *Presentation of the results of intensive deliberation on policies and recommendations for the development direction of the teacher training system suitable for future schools and curriculum*. National Education Council under the president's direct supervision.

National Education Council Under the President's Direct Supervision. (2010b). *Reference material for policy intensive deliberation on the development direction of the teacher training system suitable for future schools and curriculums*. National Education Council under the president's direct supervision.

National Institute of Education (n.d.). *Signature initiatives*. Retrieved from https://www.nie.edu.sg/teacher-education/signature-initiatives. Accessed January 12, 2021.

OECD. (2013). *Education at a glance 2013. OECD Indicators*. OECD Publishing. Retrieved from March 20, 2014, from http://dx.doi.org/https://doi.org/10.1787/eag-2013-en. Accessed June 6, 2016.

OECD. (2014). The OECD *teaching and learning international survey (TALIS)—2013 Results*. Retrieved from http://www.oecd.org/edu/school/talis-2013-results.htm

OECD. (2019). *PISA 2018 results: Combined executive summaries*. Volume I, II & III. Paris: Author. Retrieved from https://www.oecd.org/pisa/Combined_Executive_Summaries_PISA_2018.pdf. Accessed January 12, 2021.

Oh, T. J. (2001). A study on the development process of Korean teacher policy. *The Korean Society for History of Education, 23*(2), 81–113.

Park, C. (2015). Labor market effects of participation in shadow education: Evidence from South Korea. *The Korean Economic Review, 31*(2), 383–411.

Park S. J., Park, S. W., Lee, I. H., Lee, G. J., Park, Y. H., Maeng, J. S., Woo, H. J., So, E. J., & Lee, J. W. (2015*). A Study on the reorganisation of the teacher training system: Final report*. Chungnam National University.

Qvortrup, L. (2008, August). The first global education forum. *Teacher Education Quarterly, 1*, 2.

Rasmussen, J., & Bayer, M. (2014). Comparative study of teaching content in teacher education programmes in Canada, Denmark, Finland and Singapore. *Journal of Curriculum Studies, 46*(6), 798–818.

Schleicher, A. (2020). *TALIS 2018: Insights and Interpretations*. OECD.

Sclafani, S. (2008). *Rethinking human capital in education: Singapore as a model for teacher development: A paper prepared for the Aspen Institute Education and Society Programme*. The Aspen Institute.

Seo, G. H., Choi, J. Y., Kim, S. J., & Lee, J. Y. (2013). Development and validation of a pre-service teacher's teaching personality evaluation tool. *Journal of Educational Studies, 44*(1), 147–176.

Sim, W. K., & Ho, W. K. (1994). 25 years of teacher education. In J. S. K. Yip & W. K. Sim (Eds.), *Evolution of educational excellence: 25 years of education in the Republic of Singapore* (pp. 157–186). Longman.

Shin, H. S. (2010). *Teacher policy in Korea.* Hakjisa.
Tan, C. & Yang, J. (2019). Path-dependency or path-shaping? An analysis of the policy to target exam-orientation in South Korea. *Critical Studies in Education*, 1–13. https://doi.org/10.1080/17508487.2019.1611612.
Tan, C. (2019). *Comparing high-performing education systems: Understanding Singapore, Shanghai, and Hong Kong*. Routledge.
Tan, C. (2019). Sensemaking and sensegiving in schooling reform: South Korea and China. *Globalisation, Societies and Education, 17*(4), 536–547.
Tan, C. (2019). A signature pedagogy for initial teacher education in Singapore. *The New Educator, 15*(3), 226–245.
Tan, C. (2021). *Mindful education: Insights from Confucian and Christian traditions.* Springer.
Tan, O. S. (2012). Fourth Way in action: Teacher education in Singapore. *Educational Research for Policy & Practice, 11, 35–41*.
Tan, O.-S., Liu, W.-C., & Low, E.-L. (2017). *Teacher education in the 21st century: Singapore's evolution and innovation.* Springer.
Yang, J., & Tan, C. (2019). Advancing student-centric education in Korea: Issues and challenges. *The Asia-Pacific Education Researcher*. https://doi.org/10.1007/s40299-019-00449-1,1-11
Zeichner, K. (2014). The struggle for the soul of teaching and teacher education in the USA. *Journal of Education for Teaching, 40*(5), 551–568.

Chapter 9
Teacher Education Curriculum in India: National Imagination and Actual Practices

Aarti Mangal

Abstract The historical changes in teacher education in India have been envisioned through the recommendations of various national policies and commission. Despite it, the most crucial of such changes in the contents of the teacher education programme is constituted and reviewed through the teacher education curriculum framework. How do those changes surface in the actual curriculum? This interrogation makes the problematic of this chapter. The chapter identifies and elucidates the shifts in the policies and teacher education curriculum frameworks since the independence of India (1947). It offers to examine such connected reflection as they seem to appear in the teacher education programme for secondary school teachers at University of Delhi. By doing so, the paper tends to show the gaps between the recommendations of teacher education and the actual curriculum of the teacher education programme. Finally, it attempts to problematize the innovations in the teacher's education and query why school education fails to match the national imagination.

Keywords Teacher education curriculum framework · Delhi University · B.Ed programme · Rigid · Constructivism

Introduction

Teacher education has always received an ample amount of attention because of its significance for school education, viz. preparing future citizens of the country, meeting the societal needs, syncing education with political agendas and in a globalized world, meeting the needs of the world market (Agoston & Nagy, 1974; Boatman, 1972; Giroux et al., 1988, Green as cited in Warren, 1998, Hayes et al., 2006; Boyle, 2011). Therefore, all over the world, different times saw different kinds of emphasis in teacher education and hence the development in the teacher education. For example, Germany after the defeat of Prussia by Napoleon had expressed its desire to compensate physical losses with spirituality through the medium of education and so the

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teachers were sent to learn the principles of Pestalozzi, teaching which to the subsequent candidates led to the need of instituting normal schools in Germany (Edwards, 1929). Similarly, in America, the need to spread Pestalozzi's principles in education led to the formation and increase in the normal schools. However, the case of England was different and teacher education in England gained prominence due to the need of the quality teaching in Grammar schools which provided students for the universities (McMahon, 1950). Since the present chapter deals with the teacher education in India, therefore, only the Indian scenario with regards to the teacher education will be discussed.

In colonial India, with the arrival of Wood's Despatch in 1854, education was considered a state duty, and simultaneously, establishment of teacher training institutions was recommended. The subsequent despatches in 1854 and 1859 noted the discontent with the existing condition of teacher training. Thereafter, a lot of committees, commissions have highlighted the question of teacher preparation. The deteriorating quality of teachers and the teacher education programmes has remained a constant concern, in order to ameliorate which, a lot of recommendations were put forward. As a result of this, the number of normal schools and teacher training institutes increased by the time India gained independence (1947), although many of the normal schools were also closed during the said time period. Similarly, new teacher degrees got devised as well as the syllabus of the teacher education undergone a change. However, the ideas with regard to the teacher education were fluid (Holme, 1923) and so the programme for preparing teachers became disparate and chaotic all over India. The discrepancy within the teacher education programmes occurred with regard to the admission eligibility criterion, the duration of the programme and syllabus which was followed. Nonetheless, in spite of the fluidity in the ideas for teacher preparation, the latter deemed significant for moral education and disciplining students (Croft, 1888). There was no doubt regarding disciplining the students and providing them moral education, however, the methods with which to do it was highly debated. This had also brought in light the preparation as well as selection of quality teachers.

A large part of preparation of teachers is determined with the curriculum of the teacher education programmes while they reflect the primary vision for not only the teacher preparation but also the school education. Fox and Gay (1995) write that although there are various ways in which a curriculum is defined but there is a consensus among the curricularists regarding curriculum being a desired plan intending a change in the students' behaviour or learning. Therefore, "it is the plan for instruction rather than the act of instruction itself" (Fox & Gay, 1995, p. 65). The most tangible form of curriculum is its course content or the written syllabus, which would be used for the purposes of present chapter.

In spite of the important role that a curriculum plays in the entire scheme of a programme, it is more shocking than surprising that the syllabus/curriculum of teacher education programmes did not receive sufficient attention from the point of view of research (Denham, 1985). In India, the curriculum of teacher education is an under researched area (Sharma & George, 2017). Therefore, the present chapter

concerns specifically with the curriculum of B.Ed programme of the Delhi University in the backdrop of the teacher education curriculum frameworks.

The B.Ed programme is a teacher education programme which prepares candidates to teach in a secondary school. The minimum admission eligibility criterion for B.Ed is graduation and so a graduate B.Ed candidate after passing the course is eligible to teach in secondary school classes, that is, from VI standard to X standard and a postgraduate B.Ed candidate after passing of the course is eligible to teach at the higher secondary classes, that is, XI and XII standards. The duration of the B.Ed programme was usually[1] used to be one year until recently in 2015 when it was extended to two years. This programme is offered in various centrally funded, state-funded and privately funded institutions.

The Delhi University which has been chosen as a site of inquiry in the present chapter is a public central university located in New Delhi (the capital city of India). This university is one of the premium and largest universities of India which was established in 1922 by an act of the then Central Legislative Assembly of British India. The decision for establishing faculty of education in Delhi University was taken after the Central Advisory Board of Education in 1944 presented post-war educational development report, and it proposed establishment of new teacher training institutions both by the central and by the provincial governments. After this, the educational plan of central government included setting up of faculty of education named as Central Institute of Education (CIE) in Delhi. In the establishment of CIE, a special interest has been taken by the first prime minister and first education minister of India, Pandit Jawaharlal Nehru and Maulana Abul Kalam Azad, respectively. It was hoped that this institution would outturn the model teachers as well as help in solving the existing educational problems of the country. Therefore, Maulana Abul Kalam Azad did not want to delay the running of the institution even though the building for it was not built due to the non-availability of the building material and later due to disturbances in Punjab and then the partition (CIE, 1957). So, CIE was started in tents and a bungalow belonging to the university which finally was inaugurated on December 19, 1947 by Edwina Mountbatten. CIE still is a popular institution for its B.Ed programme and students from different places in the country come to study B.Ed here. The B.Ed programme in Delhi University, apart from CIE, is being run in three of its sister institutions.

Moving further, the present chapter includes the curriculum analysis of B.Ed programme of Delhi University from the years 1981, 2010, and 2015. The 2015 presents the recent reformed curriculum of the B.Ed programme, and 2010 is the one that was in use before. The curriculum of the year 1981 was found by sheer luck as it is not widely available and had been helpful in comparing and contrasting the gaps within the teacher education curriculum framework and actual curriculum, and, locating the shifts in the curriculum of the B.Ed programme of Delhi University.

Teacher Education Curriculum Frameworks and Policy Recommendations

After India gained independence, the first ever commission was the University Education Commission, set up in 1948–49. This commission while recognizing the poor service conditions and status of the teachers in the society had recommended improving both the salaries of the teachers as well as providing them better work conditions. It stated that only those who do not find employment with any other services join teaching and so the quality of school education suffers. It also stated that until the school education will improve the quality of the entrants to the university education will remain low. Therefore, it becomes essential to improve the quality of teacher education and teachers. However, the report had simultaneously defended the discrepancies between the pay of teachers and those in other administrative services saying that teaching is a noble profession, intellectually and spiritually satisfying and devoid of office anxieties, the privileges which people occupying posts in other public services cannot enjoy. Therefore, while recommending an increase in pay of the teachers, the report had also made a note that teaching should not be compared with other public services, and hence, their salaries also should not be comparable (University Education Commission, 1949). Moreover, while recognizing that men and women teachers should be paid equally for the equal work, the commission had refrained from giving it an women empowerment tone as it believed that teaching is in accordance with the nature of women so they should be promoted to take up roles such as teaching, nursing and home management. Therefore, the university education commission had although made recommendations which were needed at the time to ameliorate the condition of teachers, however, the overall approach of it towards teaching as a profession and women teachers was not very progressive. With regard to the curriculum of the teacher education programmes, the University Education Commission (1949) reported that the theory papers taught at different institutions were usually similar, but there were huge discrepancies regarding practice teaching. The theory course usually had compulsory papers on "Principles (or Theory) of Education", "Methods of Teaching", "History of Education", "School, Management and Hygiene". Besides these compulsory papers the students were also to specialize in the methods of teaching of one or more paper. The rest is the practice teaching of whose evaluation differed from institution to institution and where at one place students were to take 60 supervised lessons in school at another, they were not to take even 10 supervised lessons. This variation in the assessment of the practical aspect of teacher education programme has been lamented by the University Education Commission (1949) which then suggested that equal amount of weight and time should be given in assessing both the theoretical and practical aspects of teaching. It also suggested that during the one year course at least twelve weeks of practice teaching should take place. Furthermore, giving priority to the practice teaching experience at school, the commission recommended that at least 50% of the staff at the teacher education institution should have had a direct school experience as

well as it was desirable that M.Ed candidates obtain few years of school experience before joining the programme (University Education Commission, 1949).

After four years of publication of University Education Commission Report (1949), the report of the Secondary Education Commission was released in 1953, which like the previous report has worried over the deteriorating condition and status of school teachers. The report expressed discontent over the recruitment of untrained teachers in school as well as disparities between the selection and recruitment procedures of teachers all over the country. Therefore, it was recommended that the policies regarding selection and recruitment need to be uniform all over the country as well as across different school managements (Secondary Education Commission, 1953). Moreover, like the previous report, Secondary Education Commission (1953) has also highlighted the importance of practical knowledge and inculcation of proper attitudes and habits among the students, which it stated could be done through the personal conduct and attitude of the teachers.

Similarly, after 10 years another commission known as the Education Commission (1964–66) set up which while taking cognizance of the disparate structures in teacher education had suggested about bringing parity in the condition of both the teachers and the teacher training institutions. Moreover, it was suggested that the traditional methods of training teachers should be abandoned to make way for flexibility and syncing it with the needs of the society (Indian Education Commission & Kothari, 1966). The discussions pertaining to education initiated as a result of Education Commission (also known as Kothari Commission) culminated into publication of National Policy on Education (1968) which had emphasized upon the importance of teachers in successfully implementing all educational endeavours vis-à-vis national development. Therefore, National Policy on Education stated that teachers be provided a respectable position in the society and they should receive satisfactory salaries and their work conditions should be adequate. Moreover, the academic freedom of teachers to speak, write, and publish on issues of national and international concerns should be protected (National Policy on Education, 1968).

In spite of various commissions reflecting over the concerns regarding the deteriorating status of teachers and the traditional ways of imparting teacher training, the scenario did not improve much. Moreover, there were thoughts going in to transform the school education of the country and so the national curriculum for school education was being set up. The first national curriculum for school education was released in 1975. After a year of its publication, the National Council for Teacher Education (NCTE) in its annual meeting had expressed a desire to bring reforms in the teacher education as a result of which committees were set up and issues pertaining to teacher education was discussed. The recommendations which emanated from these committees took the shape of the document "Teacher Education Curriculum Framework". This got released in 1978, and it was the first teacher education curriculum framework. This framework criticized the existing curriculum of teacher education for being rigid and traditional. It also noted that in order to make education a transforming agent the current practices need to be discontinued. This framework suggested that a number of courses should be developed in teacher

education for the programme "education as a discipline" and "education as a pedagogy" separately. Besides, it also suggested introducing semester system, making the system flexible, making evaluation completely internal and research methods as an integral component of the teacher education. It also envisioned the role of a teacher that of a social transformer, a guide, a follower, and a leader (National Council of Educational Research and Training, 1978).

Even after having the teacher education curriculum framework and advising overhaul in the teacher education system, much does not seem to change. The National Policy on Education in 1986 and its subsequent review in 1990 have showed that the teacher education is still marred with similar problems. It still was using traditional methodology to train the candidates, there was no interest in developing the affective domain and inculcation of values in teachers and the given practicum was inadequate. The report envisaged removing the abovementioned defects in the teacher education and it has simultaneously recommended preparing teachers for the new thrusts in education such as, education for the differently abled children, activity-based teaching–learning, continuous and comprehensive evaluation, and scientific methods of obtaining knowledge. The recommendations of the National Education Policy to integrate the new thrusts in teacher training also got reflected in the NCTE's annual meeting (National Council of Educational Research and Training, 1988). This is the same year when the second curriculum framework for teacher education got released in 1988 (this document could not be found though).

In 1993, NCTE was made a statutory body by an Act of Parliament and so it got established in 1995. In 1998, the third curriculum framework for teacher education was published by NCTE titled "Curriculum Framework for Quality Teacher Education". Like previous policies and curriculum frameworks, this framework has also lamented that the teacher preparation is still traditional, the balance between theory and practical is inadequate, and there are gaps between the methods advocated and methods employed in the teacher training institutes (Khosla, 1998). Nevertheless, this framework has expanded upon the previous curriculum frameworks and included the areas on alternative system of education, physical education and education of children with special needs. The framework also recommended expansion in the duration of the teacher preparation to two years at both primary and secondary levels. A new feature of "pedagogical analysis of teaching subjects" has been added into the given outline for course content (Khosla, 1998). It recommended several measures some of which include maintaining a link between institutions of higher learning and teacher education institutions, designing curriculum so as to maintain a continuity between the pre-service and in-service teacher education, preparing teachers to use culture-specific pedagogy, enabling teachers to actively cater to the community needs and making research and innovation an integral part of the teacher education at all stages. The framework also insisted on replacing the educational practices borrowed from different parts of the world with that of the indigenous ideas and thinkers. It also suggested a separate programme of teacher preparation at senior secondary which will include two courses: one for academic stream and other for vocational stream. Moreover, the framework recommended encouraging the teachers to realize the constitutional goals and inculcate values among the students.

After two years of the release of the teacher education curriculum framework in 1998, the school education curriculum framework was published in 2000. In order to direct the teacher education in sync with the new ideas put into the school education curriculum framework, the document of teacher education curriculum framework was released in 2004. The prime motive with which the committees for framing up of curriculum for teacher education set-up was to turn the existing institutions of teacher education into quality institutions. During this time, the areas of work education, vocational education, education of children with special needs as well as new techniques and technology were getting focus in education. The underlined idea of education as was manifested through the document was to achieve social cohesion, communal harmony, national integration, and establishment of peace. The teachers were sought to be prepared to integrate indigenous knowledge, to use culture-specific pedagogy, to inculcate values among children, and to establish links with the parents and the community. Moreover, this framework specifically mentioned about appreciating the impact of changes in society due to liberalization, privatization, and globalization. It has looked at the child as a constructor of his/her knowledge and thus has used the term "child-centred" (National Council of Educational Research and Training, 2004). Furthermore, this framework like previous frameworks and reports has recommended on substituting theory dominated methodology with practical approaches to bring a balance, to extend the duration of internship and to encourage the students to make use of action research.

The vision for school education was changing at a faster pace and so new frameworks for school education were getting devised. One such curriculum framework for school education was formulated in 2005. Along with suggesting changes in school curriculum, it also listed few problems in teacher education. Some of such problems as has been identified were discrepancy between the theory and practice and non-availability of criterion to asses pupils' dispositions, habits and attitudes (National Council for Teacher Education, 2009; National Council of Educational Research and Training, 2005). It has also suggested that the teacher educators are the weakest links in the entire teacher education system. Post this in 2009, the "Right of Children to Free and Compulsory Education" got enacted. Both the National Curriculum Framework (2005) and Right of Children to Free and Compulsory Education had pushed for reform in the teacher education. Therefore, in 2009, the fifth and the latest curriculum framework for teacher education got formulated. This framework enlisted some of its immediate concerns in teacher education as inclusive education, gender concerns, information and communication technology (ICT) and e-learning, community knowledge and equitable and sustainable development. It advocated bringing humane and constitutional values to the core of the teacher education and highlighted preparation of teachers as reflective practitioners.

So, all of the policies and the teacher education curriculum frameworks have lamented the poor condition, salaries and status of teachers in the society. Simultaneously, they all have suggested some measures to improve the situation, some among which include removing the isolation of teacher training institutions and linking them with the other institutions of higher education, improving salaries and

work conditions of teachers, bringing uniformity in admission and recruitment criterion of teachers, and bringing parity between the women and men teachers in terms of their pay. These suggested measures have almost been fulfilled except removing insularity of the teacher training institutions[2]; yet, the status of the teachers in the society is not uplifted. Moreover, some of the suggestions mainly those given in the teacher education curriculum frameworks have focused on revamping the teacher education through changing the traditional methods of imparting the teacher education, removing the gap between methods advocated and methods employed, making a proper balance between theory and practicum, adequate practice teaching, availability of sufficient tools to assess the dispositions, habits and attitudes of pupils, preparing teachers to become reflective practitioners and making research an integral part of the teacher education at all stages. Whether these suggestions to reform the teacher education make its way into the actual curriculum of the teacher education programme is examined in the next section.

Implementation of National Curriculum Frameworks for Teacher Education

The different curriculum frameworks on teacher education since 1978 have although emphasized upon some of the common problems in teacher education as already been discussed here, but there also have been noted shifts in these as has been observed by Pandey (2011) with regard to the weightage given to the practicum, issues of real-life problems, change in the structure and titles of the core papers. Whether the same has been observed in the actual curriculum of teacher education of Delhi University is a query this section tries to understand.

Foremost, the first curriculum framework on teacher education in 1978 has recommended that there shall be two different programmes for preparing teachers at the secondary level; first is one year professional education after graduation, and second is four-year integrated programme after higher secondary. While the first kind of programme already existed, the second kind of four-year integrated programme never came to exist except those which were taught in regional colleges of education in India. Secondly, the framework of 1978 has advised that education should either be made a social science discipline or an independent discipline, development of courses to cater to a discipline-oriented teacher education and task oriented teacher education programme, introducing semester system, making evaluation completely internal and making research an integral part of the entire teacher education. None of these suggested measures were implemented in the B.Ed curriculum of 1981–82. In this curriculum, annual system is followed, evaluation is not internal completely, and research does not become a part of the teacher education at least at this stage. Moreover, the proportion of weightage given to the theory and practicum areas as suggested in the framework does not get reflected in the B.Ed curriculum of Delhi University (1981–82). Furthermore, there is no paper on “teacher and education in

the emerging Indian society" as has been envisaged in the framework as well as there is no section on "working with community" for which a special committee was formulated prior to release of the framework (1978). The focus in this curriculum was still on the methods and techniques of teaching a subject and the course of studies for core papers were very briefly and abruptly described. Moreover, minimal attention is given towards the attitudinal and inculcation of values among students. Furthermore, the teacher education curriculum framework 1978 stated that teachers should be prepared to be leaders, social transformers, and socially sensitive. However, the given course of studies of 1981 does not emphasize any of these. The syllabus does not even mention anything about the kind of roles that teachers are to be prepared for. For example, it writes words and phrases like "The Geography Teacher—his qualities and outlook on training and education", "The Civics Teacher—Knowledge, outlook, and skills". But it does not talk about what those qualities, outlook or skills are supposed to be. Therefore, the B.Ed curriculum of Delhi University of 1981–82 does not reflect the suggestions and recommendations made in the teacher education curriculum framework of 1978.

Similarly, the teacher education curriculum framework of 1998 has provided a number of recommendations. For example, it recommended an expansion in the duration of the teacher education programme to two years, which did not get implemented until recently in 2015.[3] It has also included the features of special education, education of alternative systems, pedagogical analysis of school subjects, maintaining a balance between theory and practice,[4] removing the discrepancy between methods advocated and methods employed, using culture-specific pedagogy, enabling teachers to actively respond to the community needs and, making research an integral component of the teacher education. However, on looking up the curriculum of the B.Ed programme of Delhi University of 2010, it was found that it largely was the same curriculum to that of 1981–82 with minor changes. Most of the papers in 2010 were ditto from the 1981–82, only there have been changes in the number of papers in the category of "Methodology of Teaching" and "Compulsory Elective" papers. Although some of the new papers have been introduced in these categories, but some of these followed the traditional patterns and content while some others actually showed new thrusts that were been given in the curriculum frameworks of the teacher education. However, the papers which were developed on the basis of emerging needs and trends were very few in number. Even after the time lapse of 30 years and a plethora of recommendations given in 1998 curriculum framework, 2004 curriculum framework and 2009 curriculum framework, it appears strange that the theory papers and practicum in 2010 carried the same weightage as it carried in 1981–82. Even the titles and structures of the papers were same. Research and community work failed to become the part of the curriculum in spite of every other document suggesting otherwise. Even the pedagogical analysis of school subjects as was suggested in the curriculum framework of 1998 has not been added in the old teaching methodology papers. Similarly, the feature of alternative systems of education did not get reflected in this curriculum as opposed to the curriculum framework. The lethargy of bringing changes in the teacher education curriculum becomes more apparent when the list of colleges offering B.Ed programme in Delhi

University remained same even after there has been an addition in the list 14 years prior to the release of 2010 curriculum. All of this happens in spite of the direction by the National Knowledge Commission to the University Grants Commission (UGC) that the "departments that do not update their syllabus for the two consecutive years shall be asked to provide a justification" (as cited in Sharma & George, 2017, p.43).[5] There is no answer as to why the direction made by the National Knowledge Commission was not adhered. This then also leads to the role of the UGC in making the teacher education departments accountable for being stagnant for such a long period of time.

Finally, in 2015, after the recommendations of the teacher education curriculum framework 2009 and Justice Verma Commission 2012, the duration of the B.Ed programme was extended from one year to two years. Therefore, the curriculum of the teacher education programme had to be completely revamped following the guidelines of the teacher education curriculum framework of 2009. This curriculum has integrated epistemological concerns of the disciplines as was envisaged in the curriculum framework. Furthermore, it has included the gender concerns, inclusive education, constructivism and has focused on the constitutional values and values of peace. However, the larger focus of the curriculum was still on the teaching–learning processes related to understanding of child-childhood and the concerns for preparing a humane teacher which has been stressed equally in the teacher education curriculum framework 2009 seemed to be sidelined. This curriculum seemed to be progressive in comparison with the previous curriculums of the teacher education programme. It also seemed to be largely based on the recommendations of the national curriculum framework of teacher education 2009; however, the actual curriculum still have missed some points which have been repeated over a long period of time. One of those concerns is with regard to making research an integral component of the teacher education programmes. The B.Ed curriculum of the 2015 does not specifically mention anything about conducting a research project as part of the programme. Moreover, the curriculum does not mention anything about conducting a project or discussion on reservation[6] policy as opposed to the teacher education curriculum framework 2009 recommending about it. Furthermore, there have been no conscious effort to evaluate the dispositions, habits and attitudes of the teacher candidates as has been recommended in the framework. One of the best thing that happened in the teacher education system of the country as per the recommendations provided for the last 50 years was expanding the duration of the teacher education programme and giving sufficient time for the practice teaching (however, there have been doubts among the educationists, researchers, educators and practitioners about the efficacy of this current arrangement in the teacher education programme).

Conclusion

It is seen that after India gained independence various attempts were made to bring reforms in the teacher education of the country, be it the structural reforms or at the

level of the curriculum. A big step towards improving the quality of the teacher education programmes through curriculum was taken by initiating the publication of teacher education curriculum frameworks in almost every ten years. These curriculum frameworks along with the policies on teacher education gave some of the common recommendations over a period of time. Some such recommendations included getting rid of traditional methods of teaching, making a balance between theory and practicum, providing sufficient school teaching practice to the candidates, removing the gap between the theory and practice, removing the discrepancy between the methods employed and methods advocated by the teacher educators, making research an integral component of teacher education, emphasizing on attitudinal domain along with the cognitive and inculcation of values. The repetition of these recommendations over a long period of time is in itself an indicator that the suggested measures were not getting implemented in spite of the felt need. This became more apparent after actual curriculums of the B.Ed programme from Delhi University have been analysed in this chapter.

The substantial changes in the actual curriculum of B.Ed programme of Delhi University starting from 1981 did not happen until 2015. Moreover, most of the changes which appeared in the previous curriculums such as that of 2010 seemed superficial, and they were actually in sync with the old ideas (Morgan, 2008). In 2015, one year teacher education programme was expanded to two years and so the reform in the curriculum of teacher education sort of became mandatory. The lethargic or no changes in the actual curriculums of teacher education programme for decades in spite of having policy recommendations, school education curriculum framework, and teacher education curriculum framework is not only reflective of the weak relationship between the social development and the actual academic progress (Lee, as cited in Morgan, 2008) but is also worthy of raising questions on the education system of the country and its administration.

There have been ample evidences that teacher education is intrinsically linked with the school education. Therefore, both of these need to go hand in hand. Hence, this chapter reveals that in spite of having changes in national imagination for teacher education, the same has not been resulting into the changes in the actual scenario. This becomes one of many reasons for stagnancy not into the teacher education of the country but also the school education. If a teacher is not prepared according to the emerging needs of the society as well as the school education, it would be becoming overambitious to demand changes or reforms in the society through the mode of education.

This also shows that there is hardly any attention given to analysing the actual curriculums of either teacher education and school education. Lack of research in this area also indicates towards the complacency of the educationists with the national level reforms. The teacher education departments were not held accountable for not updating their syllabus even after having guidelines for doing the same. Therefore,

the need of the hour as it appears is to constantly check whether the policy recommendations get implemented at the ground level and to have a system of making the teacher education departments accountable for implementation of the given recommendations. Otherwise, if the changes at the ground level occur at its current pace, such as 30 years for any substantial changes (as shown in this chapter) to happen, the educational policies will be a waste and educational change an unachievable dream.

Notes

1. Four regional colleges of India established in the four regions of the country, named as RIE (Regional Institutes of Education) offered four year integrated B.Ed programme leading to the degree like, B.Tech.Ed, B.Sc.B.Ed and B.A.B.Ed.
2. The recent National Education Policy (2020) has advocated measures to bring in the teacher education within the fold of the institutions of higher education.
3. The expansion in the duration of the teacher education programme was a result of the recommendations made in the teacher education curriculum framework 2009 and justice verma commission 2012.
4. It was deemed that the weightage given to practicum is still not sufficient.
5. The National Knowledge Commission got suspended in 2014.
6. Reservation policy in India is an affirmative action meant to reserve certain number of seats in the education, job and politics for the historically marginalized groups of people.

References

Agoston, G., & Nagy, J. (1974). Reorientation of teacher education in the framework of lifelong education. *International Review of Education, 20*(4), 486–496.

Boatman, K. (1972). Reexamining teacher education. *The Journal of Education, 155*(1), 14–22.

Boyle, R. (2011, March). Open the door effective teaching is no secret. *Teacher: The National Education Magazine, 16*.

CIE. (1957). *Decade in retrospect 1947–1957*.

Croft, S.A. (1888). *Review of education in India 1886, with special reference to the report of the Education Commission*. Superintendent of Government Printing.

Denham, C. (1985). The expanding knowledge base of the teacher education curriculum. *Teacher Education Quarterly, 12*(3), 84–94.

Edwards, I. N. (1929). The development of teaching as a profession. *The Phi Delta Kappan, 11*(6), 167–169.

Fox, W., & Gay, G. (1995). Integrating multicultural and curriculum principles in teacher education. *Peabody Journal of Education, 70*(3), 64–82.

Giroux, H. A., Freire, P., & McLaren, P. (1988). *Teachers as intellectuals: Toward a critical pedagogy of learning*. Greenwood Publishing Group.

Hayes, D., Mills, M., Christie, P., & Lingard, B. (2006). *Teachers and schooling making a difference: Productive pedagogies, assessment and performance*. Allen & Unwin.

Holme, J. W. (1923). *Progress of education in Bengal, 1917–18 to 1921–22: Quinquennial Review*. Bengal Secretariat Book Depot.

India Education Commission, & Kothari, D. S. (1966). *Report of the Education Commission, 1964–66: Education and National Development*. Ministry of Education.

Khosla, D. N. (Ed.). (1998). *Curriculum framework for quality teacher education.* NCTE.

McMahon, C. P. (1950). Teacher education in the fifteenth century. *The Journal of Educational Research, 44*(2), 134–137.

Morgan, J. (2008). Curriculum development in 'new times.' *Geography, 93*(1), 17–24.

National Council of Educational Research and Training (NCERT). (1978). *Teacher Education Curriculum: A Framework.*

National Council of Educational Research and Training. (1988). *National Council for Teacher Education: Annual report (January 87 to March 88).*

National Council of Educational Research and Training (NCERT). (2004). *Curriculum framework for teacher education.*

National Council of Educational Research and Training (NCERT). (2005). *National curriculum framework, 2005*.

National Council for Teacher Education. (2009). *National curriculum framework for teacher education: Towards preparing professional and humane teacher*.

National Policy on Education 1968. (1968). Ministry of Education, Government of India.

Pandey, S. (2011). *Professionalization of teacher education in India: A critique of Teacher Education Curriculum reforms and its effectiveness*. www.icsei.net/icsei2011/Full% 20Papers/0007.Pdf.

Secondary Education Commission. (1953). *Report of the Secondary Education Commission, October 1952–June 1953.*Education Commission.

Sharma, R.M., & George, A.M. (2017). Life, ideals and learning(s) to be a 'Teacher' in B.Ed: An analysis of the literature of B.Ed programme. *Journal of Indian Education,* 38–56.

University Education Commission. (1949). *The Report of the University Education Commission, December 1948–August 1949* (Vol. 1).Government of India.

Warren, D. (1998). Waiting for teacher education. *Teacher Education Quarterly, 25*(4), 90–95.

Chapter 10
Teacher Education Research and Development in Indonesia: Preparing Educators for the Twenty-First Century

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Abstract This chapter aims to describe main problems in Indonesian context related to the educational research on teachers' teaching ability and their low professionalism related to competence and professionalism, theoretical review on educational research approach, teaching profession in the twenty-first century, teacher professionalism development and strategy, professional teachers in the era of Industrial Revolution 4.0, government efforts to improve teacher professionalism by giving an example of *PPG* program (*Pendidikan Profesi Guru*—Teacher Professional Education), classroom action research conducted by the *PPG* participants. The CAR is an activity carried out by the *PPG* participants in order to improve their teaching competency. The government's efforts to continue to develop the teaching profession as a strong and respected profession can be seen from the issuance of Government Regulation No. 14 of 2005 concerning teachers and lecturers who seek to develop the teaching profession through legal protection. Other efforts made by the government are the certification program, and the establishment of the *Pusat Kerja Guru*—Teacher Activity Center (*PKG*), *Musyawarah Guru Mata Pelajaran*—Subject Teacher Conference (*MGMP*), and *Kelompok Kerja Guru*—Teacher Working Group (*KKG*).Teachers in the twenty-first century are facing more complex and difficult challenges of their works, for example, an increasing diversity of students and parents, a higher demands of education quality, the higher standard of teaching and learning process and outcomes, etc. Looking back to the previous era, a professional teacher today should have a wider range of teaching competencies, such as teaching and managing class effectively; building, developing, and managing the relationship with students and school community; using technology for more effective communication and instruction; and also becoming a continuous professional learner to adjust himself/herself to the rapid changes and demands of his or her school environment. Consequently, teachers need an effective teaching development to provide helps and support for their professional development. Through CAR, teachers can conduct research on the actual problems they face for the subjects they teach. Teachers

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can immediately take actions to improve or improve learning practices that are less successful in order to become better and more effective in their future teaching and learning in the classroom.

Keywords Teacher · Teacher development · Teaching competency · Teacher professionalism · *PPG* program · Classroom action research

Introduction

In an effort to develop national education in Indonesia, teachers are very much needed in a guaranteed quality standard of competence and professionalism. To achieve the number of professional teachers who can drive dynamics progress in national education requires a guidance process sustainable, right-on target, and effective. Process towards this professional teacher needs to be supported by all elements related to the teacher. In other words, the Indonesian teachers must have the necessary talent, interest, zeal, idealism, commitment, faith, piety, and a noble character. For teachers to be able to develop these attributes, they must undergo formal teacher education before they are certified as qualified teachers.

In line with government policy, the Regulation of the Government of Republic of Indonesia No. 14 of 2005, Article 7, mandated that the empowerment of the teaching profession be carried out through self-development that is carried out in a democratic, just, non-discriminatory manner, and sustainable by upholding human rights, religious values, cultural values, national pluralism, and professional code of ethics. Besides, obeying Article 20, in carrying out professional duties, teachers are obliged to improve and develop academic qualifications and competencies sustainable in line with the development of science, technology, and art. Keeping in mind the weight and complexity of building education, it is very important to make efforts to encourage and empower educators to be more professional. This is to emphasize that for making efforts to build education strong and able to continue making improvements towards a higher quality.

The professionalism of teachers and education personnel is still inadequate especially in terms of scientific fields. For instance, a biology teacher can teach chemistry or physics subjects. Or social studies teachers can teach Indonesian. Quality and the professionalism of teachers is not yet in line with expectations. Many of them are not of high quality and convey the wrong material so they are less able to provide true education quality. The teaching skills of the teachers in Indonesia from several studies are still questionable, such as reported by Loeneto et al. (2019) their meta knowledge (referring to the skills of problem-solving, critical thinking, communication and collaboration, and creativity and innovation) show on the average only 49.85% of the teachers applied the skills.

Meanwhile, the assessment carried out by the Chairman of the Executive Board of the Indonesian Teachers Association (*PB PGRI*) shows the unsatisfactory results of UKG (Teacher Competency sTest) as follows: in 2015, the national average score for

kindergarten teachers was 43.74 points. Primary school teachers had 40.14 points, junior high school teachers 44.14 points, and senior high school teachers 45.38 points. In other words, the recruited teachers were 50% less than the expected standard results. Furthermore, until the 2017 UKG, the average score did not yet reach 70 points. Still in 2020, the national average of UKG score was below the standard.

Director General of Teachers and Education Personnel of the Ministry of Education and Culture stated that so far the government has only had a portrait of the Teacher Competency Test (UKG) for 1.6 million teachers. The minimal passing score for UKG test was 66 (scale of 1–100). Pathetically, there were only 192 people whose competence was above 90, meaning that it was only 8.33% achieving the required standard competency of the teachers.

According to Supranata, the average UKG score was 4.7. In 2018, the strategic plan target was an average UKG score of 5.5. Later in 2019, the average teacher competency would be expected to be 8.0.

Educational Research on Teachers' Teaching Ability and Their Low Professionalism

In Indonesia, education is the right of every citizen. Carrying out education is one of the state's services to its citizens (a public service obligation), aiming to educate them. Education is an important thing that must be considered by the state.

Education is a formal way by the state to educate citizens, so that competitive human resources will be produced. The educational process will produce intellectuals, politicians, scientists, statesmen, teachers, and other professions.

Equality problems can occur due to the lack of coordination between the central governments and regional governments, even in remote areas. This has resulted in disconnection of communication between the central government and the regions.

In addition, the problem of equitable education also occurs due to the lack of power of an educational institution to carry out the educational process, and this could have happened if the education controls carried out by the central and regional governments did not reach remote areas.

In Indonesia, to be professional a teacher must have four competency standards stipulated by the Regulation of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers (hereinafter abbreviated to *PP* No. 14 of 2005) in Chapter IV Article 8.

1. Professional competence, namely the ability of a teacher to carry out matters related to professionalism which can be seen in his ability to develop responsibility, carries out roles well, strives to achieve educational goals, and carries out his role in classroom learning.
2. Pedagogic competence is to master and understand character and identify the potential and learning difficulties of students. Teachers must also be able to

develop curricula in order to create attractive learning designs and utilize technology and information for educational purposes.
3. Social competence, namely the ability of teachers to interact with students, parents, colleagues, and the environment, either directly or indirectly.
4. Personality competence, namely the ability to model a positive attitude.

Students have a desire to make it easier for them to understand the lesson. To achieve this successfully, a professional teacher can do it if she/he is able to involve students in the learning process, be able to treat them fairly and be able to distinguish the differences between each student, able to master the field of knowledge being taught, and relate it to other subjects and relate it to the real world, able to create, enrich, and adapt teaching methods that are of interest to students, and finally able to combine personality competence and social competence.

Another study by Rahma et al. (2020) indicated that teachers' perception of ICT use in teaching and learning process was positively good and it claimed to help both the teachers and students to learn easily since the material is easily accessed through the Internet. In addition, the problems faced by the teachers and students in using the ICT in the classroom showing that while they believed that ICT could bring positive impact on teaching and learning process, there was an insufficient number of computers provided by the school. Somehow, the number of computers was limited. Many of them had no personal computers. Thus, if they needed the computers, they had to go to the ICT Laboratory. The trainings and workshops were only burdened to the senior teachers.

Mulyasa (2007) state that teacher professionalism in Indonesia is still very low, this is because there has been no change in teaching patterns and conventional systems to the competency system and high teacher workloads, and there are still many teachers who have not conducted classroom action research. A study by Syaidah et al. (2018) on teachers' pedagogical competence and professional competence showed that teacher competence provides a contribution proportion of 80.2% to learning outcomes. In other words, successful students learning results quite depend on teacher competence.

Research in the Field of Education

Educational research refers to the systematic collection and analysis of data related to the field of education. Lodico et al. (2010), and Anderson et al. (1998) point out that "research may involve a variety of methods *and* various aspects of education including policy, principal leadership, infrastructure, and the learning process. The most important thing policy, especially the one that applies nationally: the curriculum and national examinations. Other important things to take into account comprise teacher distribution and recruitment policies as well as student learning, teaching methods, teacher training, and classroom dynamics".

Educational researchers generally agree that "research should be rigorous and systematic (Anderson et al. 1998)". Yet, according to Lodico et al. (2010), Lodico et al. (2010), Kincheloe (2004), there is less agreement about specific standards, criteria, and research procedures. Many educational researchers possibly apply various disciplines such as psychology, sociology, anthropology, and philosophy (Lodico et al., 2010; Yates, 2004). Furthermore, Yates (2004) and Kincheloe (2004) point out that methods may be obtained from a range of disciplines. Still, according to Yates (2004), "conclusions taken from an individual research study may be limited by the characteristics of the participants who were studied and the conditions under which the study was conducted".

There is no single "correct" way of conducting research in the field of education. Anderson et al. (1998) outlined ten aspects of educational research as follows: such as.

(1) "Educational research attempts to solve a problem.
(2) Research involves gathering new data from primary or first-hand sources or using existing data for a new purpose.
(3) Research is based upon observable experience or empirical evidence.
(4) Research demands accurate observation and description.
(5) Research generally employs carefully designed procedures and rigorous analysis.
(6) Research emphasizes the development of generalizations, principles, or theories that will help in understanding, prediction, and/or control.
(7) Research requires expertise—familiarity with the field; competence in methodology; and technical skill in collecting and analysing the data.
(8) Research attempts to find an objective and unbiased solution to the problem and takes great pains to validate the procedures employed.
(9) Research is a deliberate and unhurried activity which is directional but often refines the problem or questions as the research progresses.
(10) Research is carefully recorded and reported to other persons interested in the problem".

Approaches

Different purposes affect the nature of the respective research. There are different approaches—basic approach referred to as an academic research approach and applied approach referred to a contract research approach as pointed out by Lodico et al. (2010) and Anderson et al. (1998). In addition, basic or academic research focusses on the search for truth, meaning it concerns with the development of educational theory. The researchers design studies that can test, refine, modify, or develop theories. In general, they are affiliated with an academic institution and are performing this research as part of their graduate or doctoral work.

Teaching Profession in the Twenty-First Century

In the era of the Industrial Revolution 4.0, there is an increase in professionalism regarding the attitudes and commitment of teachers to always improve their quality to have competence in lines with the times. Besides, the main task of the teachers is to educate, teach, guide, direct, train, assess, and evaluate each student. Therefore, the teaching profession is very important.

The Indonesian Ministry of Education and Culture (Kemendikbud) stated that professionalism for a teacher is a necessity that must be fulfilled and used as the main guide in teaching at any level and educational unit. The professionalism of a teacher is also inseparable from fulfilling the competency standard requirements that have been regulated in regulations including the Regulation of Ministry of National Education Number 16 of 2007. To put in a different way, teachers are given the opportunity to develop their potential with students. Therefore, there is a demand for literacy programs in schools which are developed for students as well as an effort to improve teacher professionalism over time.

With the existence of this literacy program, the community labelling of schools such as superior schools or luxury schools and so on which refer to certain schools does not become an obstacle for teachers in strengthening their professionalism with certain patterns.

In fact, the Ministry of Education and Culture is currently developing a teacher competency model so that educators have strong knowledge content in learning. Moreover, in future, continuous professional development will be implemented which requires teachers to continue to improve their abilities and must not stop at certain professional or achievement limits. Teachers must always develop their potential, act as active learners, then be active in the community, and actively collaborate and share information.

In the twenty-first century, teacher work is a complex and difficult job in line with the large and rapid changes in the school environment that are driven by advances in science and technology, changing demographics, globalization, and the environment. Teacher competence in the twenty-first century, professional teachers are no longer just teachers who are able to teach well but teachers who are able to become learners and agents of school change, and are also able to establish and develop relationships to improve the quality of learning in their schools.

In the twenty-first century, humans experience the development of science in all fields. One of the most prominent is the field of information and communication. This seems to make the world have more time because all information from around the world can be accessed instantly and quickly by anyone, anywhere. On the other hand, in the twenty-first century, the problems faced by humans are increasingly complex, such as global warming, global economic crisis, terrorism, racism, drug abuse, human trafficking, low multicultural awareness, gaps in the quality of education, not to mention the pandemic of 2019 coronavirus disease. This era is also marked by increasingly intense competition in various fields between countries and

between nations. All of these things indicate that in the twenty-first century, thorough preparation and solid both concept and application are needed to form superior human resources. For this reason, educational institutions and teachers as the most dominant elements have a significant role in efforts to improve human resources in the twenty-first century.

The teacher paradigm from professional teaching has turned into professional learning, meaning that teachers are not just teaching but also continuously learning (continuous professional learning). Teachers are reflective practitioners who are a key part of evaluating teacher performance in many countries. Reflection starts from describing experiences, understanding and feeling the situation, evaluating and analysing, coming to conclusions, and formulating action plans. Teachers must be able to recognize gaps in their competence as material for compiling self-development plans and undertaking independent learning. Independent learning is an active learning activity, driven by motivation to master competencies and built with the knowledge that is owned. Independent learning has 3 dimensions, namely a social dimension, a pedagogical dimension, and a psychological dimension. Independent learning is done in a way: (1) diligent, continuous, and non-stop, (2) consistent, steady, disciplined, and unreasonable, (3) planned and competency-oriented, (4) focussed on achieving goals, (5) innovative or using new methods, (6) there is a clear follow-up, and (8) it is carried out throughout life. Skills in independent learning contain three main concepts, namely: (a) independent learning, (b) independence, and (c) psychological control. Independent learning can transform a teacher's self-culture and become part of continuous professional development.

A study by Aminullah et al. (2019) shows that the attitudes of the teachers towards the use of ICT in the process of teaching and learning English were positive. However, some of them still faced many problems such as lack of ICT equipment, lack of competency, and also unsupported regulation from the institution. This study indicated that in line with the development of technology, particularly ICT, though the study results showed that the teachers had positive attitude towards ICT use, the teachers and schools had problems in applying technology in their classrooms and schools. These constraints came from the institutions or schools—lack of ICT facility and also from the teachers themselves—not understanding how to operate ICT devices properly. Their schools did not have an ideal regulations towards the use of ICT, especially for English subject, and some schools also did not have enough ICT, while some teachers lack knowledge of ICT necessarily needed in their teaching and learning process in the classrooms.

The challenges of education in the twenty-first century are getting tougher. This requires increasing professionalism regarding the mental attitude and commitment of teachers, especially to improve quality so that they have competencies that are in line with the times.

This above matter is related to the Industrial Revolution 4.0 which has penetrated all sectors. So, it must be addressed wisely because it has fundamentally changed human civilization. Professional teachers will be able to take advantage of advances in information technology, to improve the quality of the teaching and learning process in order to prepare superior human resources.

The task of teachers as educators is to gradually but firmly establish the basic values of character development of students in their lives, including the use of advances in information technology wisely and as an inspiration for their students.

A study by Loeneto et al. (2019) shows that the proficiency of teachers of English in using computers in the teaching and learning process and proficiency of students in using computers in their learning process fall in the categories of novice or moderate users of computer literacy. Half of the majority of the teacher respondents recorded their classroom observation and any inappropriate code of conduct. The remaining teacher respondents stated that in doing these tasks they considered themselves belonging to the novice or moderate or level of proficiency. More than half of the teachers stated that they were in the moderate and expert level of proficiency in doing the tasks of monitoring students' achievement data, students' grades, preparing classroom evaluations, and searching sources of the curriculum. Forty-two per cent to sixty-three point three of the responding teachers stated they were at the moderate or expert level of proficiency in preparing school scheduling template, curriculum, graphs, and charts.

To prepare student teachers to develop their skills and knowledge they do require is not an easy effort since in future these skills and knowledge are not always the same. According to Schleicher (2018), the teachers face difficulty. Challenges of twenty-first century require teachers to be passionate, compassionate, and thoughtful so that they will feel valued and included in a collaborative learning environment.

Teacher Professional Development

Educators or teachers as the main agents in the development of national education are required to have quality standards of competence and professionalism. Professional teachers are not yet sufficient enough so that it needs a process to move the dynamics of national education progress continuously, on target, and effectively (Dasuki, 2010). This process requires support from all parties related to teachers in order to successfully meet the needs of professional teachers.

Enactment of the policy of Regulation No. 14 of 2005 Article 7 is one of the government's efforts in realizing teacher professionalism stipulating that the empowerment of the teaching profession is carried out through self-development carried out in a democratic, fair, non-discriminatory, and sustainable manner to uphold human rights, religious values, cultural values, national pluralism, and professional code of ethics (Dasuki, 2010). Article 20 concerning professional duties states that teachers are obliged to improve and develop academic qualifications and competencies on an ongoing basis in line with the development of science and technology (Dasuki, 2010).

The policy is intended to empower and improve the quality of teachers in a planned, directed, and sustainable manner so that the teaching profession needs to be developed as a profession that is prosperous, dignified, and protected (Komara, 2016). Teachers can professionally carry out their duties safely because these policies are the basis for teachers to take steps to develop their professionalism as educational agents.

Teacher Professional Development

Teacher professional development is a process of activities in order to adjust the professional abilities of teachers to the demands of education and teaching. The development of the teaching profession in the educational environment is directed at professional quality, objective performance appraisal, transparency and accountability, as well as motivating to improve performance and achievement (Putri & Imaniyati, 2017). Professional development of teachers as part of improving the teacher competence quality is expected that teachers have to have the expertise, skills, or skills that meet certain quality standards or norms.

Professional development is the teachers' activity in the practice of science and knowledge, technology, and skills to improve quality, both for the teaching and learning process and the professionalism of other education personnel. Further, Putri and Imaniyati (2017) point out that professional development is a personal improvement made by a person to achieve a professional plan. In other words, profession is an ordinary position or job as is the case with other jobs. Therefore, the development of the teaching profession is an important thing to pay attention to in order to anticipate changes and the large demands on the teaching profession which are mainly emphasized on the mastery of science. Professional development can be defined as a long career process in which educators perfect their teaching to meet the needs of students (Maggioli, 2004).

As a result, teacher professional development has to be carried out repeatedly without any interruption as a step to stimulate, maintain, and improve teacher competence in solving educational and learning problems so as to meet student needs. It is in line with what Dasuki (2010) argues that the development of the teaching profession is also an absolute requirement for the progress of the nation in order to encourage the improvement of the quality of education.

Legal Basis for Teacher Professional Development

One form of the government's efforts to continue to develop the teaching profession as a strong and respected profession in line with other professions is by establishing the Regulation No. 14 of 2005 on Teachers and Lecturers which describes how the government tries to develop the teaching profession through legal protection with certain standards which are expected to encourage professional development of educators (Darmawan, 2020; Dasuki, 2010; Komara, 2016; Matnuh, 2017).

Legal protection is needed especially in a way that relates to society so that the civil effect of the teaching profession gets adequate recognition (Dasuki, 2010). This does not necessarily guarantee the development of the teaching profession individually, because in the individual context, the ability to develop oneself is the most important thing that needs to be done, and it can strengthen the teaching profession (Komara,

2016). Consequently, efforts to continue to empower them are a must so that the self-development abilities of teachers are increasing.

Dasuki (2010) clearly states that legal protection is important but self-development is more important and strategic in professional development efforts based on several reasons, among others, legal protection is important in creating basic conditions for strengthening the teaching profession, but it cannot make the substance of the professional development of educators automatic, legal protection can provide legal power to teachers, but it will be difficult to grow the teaching profession in carrying out the roles and duties in the field of education, and self-development can make the teaching profession aware and continue to empower itself in improving abilities related to its roles and duties in the field of education. Therefore, teachers must continue to strive to develop themselves so that in carrying out their roles and duties they can make a significant contribution in efforts to improve the quality of human resources for the benefit of developing an advanced and moral nation in accordance with the goals of national education.

The legal basis for the development of the teaching profession consists of various policies that have been ratified by law and by ministerial regulations. First, the Regulation Number 14 of 2005 concerning Teachers and Lecturers in article 5 paragraph 1 regarding the profession of teachers and lecturers as part of a special field of work requires the following professional principles that the teachers and lecturers:

(1) Have talents, interests, vocation and idealism,
(2) Have educational qualifications and educational background in accordance with their field of work,
(3) Have the necessary competencies in accordance with their field of work,
(4) Adhere to professional code of ethics,
(5) Have rights and obligations in carrying out their duties,
(6) Earn a determined income in accordance with his work performance,
(7) Have the opportunity to develop their profession in a sustainable manner, and
(8) Obtain legal protection in carrying out their professional duties, and
(9) Have a professional organization that is a legal entity.

Second, the Government Regulation Number 74 of 2008 concerning teachers in Articles 46, 47, and 49 regarding teacher professional development stipulates that

(a) Article 46 stating that teachers have the opportunity to develop and improve their academic qualifications and competencies, as well as obtain training and professional development in their fields,
(b) Article 47 paragraph 2 stating that teachers who have met the qualifications of undergraduate or Diploma IV graduates can develop and improve academic qualifications higher than those specified,
(c) Article 47 paragraph 5 stating that the government and/or local government shall provide a budget for the development and improvement of academic qualifications and competencies, and
(d) Article 49 stating that the development and improvement of the academic qualifications, competence, and professionalism of teachers by in-service teachers

as referred to in Articles 46 and 47 is carried out while continuing to carry out their duties.

Third, the Regulation of the Minister of National Education Number 16 of 2007 concerning standards of academic qualifications and teacher competence and the Government Regulation of the Republic of Indonesia Number 19 of 2005 concerning national education standards stipulate that each teacher has different academic qualifications for each education level and must master the four competencies that have been determined in order to improve teacher professionalism.

Fourth, according to the Regulation of the Republic of Indonesia Number 20 of 2003 concerning the National Education System regarding the development of the teaching profession as follows:

(a) The government and regional governments are obliged to foster and develop education personnel in educational units organized by the government and regional governments.
(b) Education providers by the community are obliged to foster and develop educational staff in the education units they organize.
(c) The government and regional governments are required to assist in the guidance and development of education personnel in formal education units organized by the community.
(d) Article 61 paragraph (3) states that competency certificates are given by the education providers and training institutions to students and community members as acknowledgement of competence to carry out certain jobs after passing a competency test held by an accredited educational unit or certification institution.

Finally, the Regulation of the Minister of National Education No. 18 of 2007 concerning certification for in-service teachers through portfolio assessment and the Regulation of the Minister of National Education No. 40 of 2007 concerning certification for in-service teachers through the educational pathway contain the regulations regarding the program for providing education certificates for teachers who have successfully completed their professional education. Teacher professional education is part of the process of developing and improving the quality of teachers which is still ongoing today. The provision of education certificates is a formal proof of teacher professional recognition given to teachers as professionals (Latiana, 2019).

In addition, Arifin quoted in Dasuki (2010) states that professional Indonesian teachers are required to have (1) a strong scientific basis as an embodiment of the technological society and the scientific community in the twenty-first century; (2) mastery of professional tips based on research and educational practices, namely education science as practical science is not just mere concepts; education is a process that occurs in the field and is scientific in nature, and educational research should be directed at the educational praxis of the Indonesian people; and (3) continuous professional development, the teaching profession is a profession that develops continuously and continuously between LPTKs and educational practice. The weakness in the teaching profession and education science is caused by the disconnection

of pre-service and in-service programs due to rigid bureaucratic considerations or weak education management.

Given these requirements for teacher professionalism, there is a need for a new paradigm to create a professional profile of Indonesian teachers in the twenty-first century, namely: (1) have a mature and developing personality; (2) strong mastery of science; (3) skills to awaken students to science and technology; and (4) continuous professional development. These four aspects are a unified whole that cannot be separated and coupled with other efforts that influence the development of the professional teaching profession (Dasuki, 2010).

Government Efforts to Improve Teacher Professionalism

The government has made efforts to improve the professionalism of teachers, including increasing the qualifications and requirements for higher education levels for teaching staff from school to university levels. The government has made efforts to improve teacher professionalism, including increasing the qualifications and requirements for higher education levels for teachers who do not yet have these qualifications or requirements. If they do not have the required qualifications, elementary school teachers must take the Diploma II equalization program (two-year program), junior high school teachers take the Diploma III education program (three-year program), and high school teachers take the undergraduate program (four-year program). However, these programs do not mean a lot if the teachers lack entropy of the power to make changes.

Another effort made by the government is the certification program. Teacher Professional Education (*Pendidikan Profesi Guru—PPG*) is a higher education after undergraduate education program that prepares students to have jobs with special skill requirements in becoming professional teachers. The *PPG* must be taken for one to two years after a candidate graduates from an undergraduate degree program in education or non-graduate education. The program started in 2005. The graduates of *PPG* will get a degree. Professional education will legitimize the teaching profession. Professional education will also add a *Gr* title after the teacher's name because according to the law, a teacher is a profession, just like a doctor. The aim of *PPG* produces teachers who have pedagogic, social, personal, and professional competencies and are able to develop competencies in a sustainable manner. The program takes 2 semesters or 1 year. It applies to those who want to become professional teachers, both undergraduates from education major and non-education major.

Apart from the *PPG*, to improve teacher professionalism, there are some activities for teachers to participate in such as *PKG—Pusat Kegiatan Guru* (Teacher Activity Center), *KKG—Kelompok Kerja Guru* (Teacher Working Group), and *MGMP—Musyawarah Guru Mata Pelajaran* (Subject Teacher Consultation) which allow teachers to share experiences in solving problems they face in their teaching activities (Darmawan, 2020; Dasuki, 2010).

Professionalization should be taken into account as a continuous process. In this process, pre-service education, in-service education including upgrading, coaching from professional organizations and workplaces, community appreciation for the teaching profession, enforcement of professional codes of ethics, certification, quality improvement of teacher candidates, rewards, etc., together determine one's professional development, including teachers. Thus, efforts to improve teacher professionalism are a shared responsibility between FTTE as the teacher producers, agencies that develop teachers (in this case the Ministry of National Education or private foundations), *PGRI*—Teachers Association of the Republic of Indonesia, and the community.

In conclusion, the development of the teaching profession is very important because teachers have an important role in the world of education. Several attempts have been made by the government to develop teacher professionalism. In addition, teacher professional development is based on various policies such as laws, ministerial regulations, and presidential regulations. This policy is a good step from the government to create professional teachers.

Teacher Professional Development Strategy

Teacher professional development is very important for every teacher especially in the era of digital technology where teachers are faced with a lot of challenges in teaching their students. They need the program to meet the current students' needs of skills and knowledge and to adapt themselves with the development of knowledge and technology to improve their teaching.

Teacher professional development must be designed so that effective results can be achieved. Mizell (2010) put forward three indicators that a teacher profession development program is successful. They are "(a) educators learn new knowledge and skills because of their participation; (b) educators use what they learn to improve teaching and leadership; and (c) student learning and achievement increase because educators use what they learned in professional development" (p.16). All of these indicators can be accessed through some instruments such as: surveys, tests, observations, video recordings, and interviews (Mizell, 2010).

Regarding the teacher professional development strategy in Indonesia, the government has supported the program by reforming the national education in Indonesia covering the national curriculum, 20% of the national budget provided for education, school operational assistance grant (BOS), and the smart Indonesia program. The increase of the national education budget has enabled the Department of Education and Culture, currently changed to Ministry of Education, Culture, Research and Technology, to apply strategies to improve teachers' professional development.

In order to improve teacher professionalism and competence, some policies have been made in Indonesia. There are two programs that have been organized by the

government. They are Teacher Professional Education (*PPG*) and Continuing Professional Development. By participating in the two programs, the in-service teachers will get opportunity to learn various competences they need to be professional teachers.

In 2017, the PPG program had been designed into two. They are pre-service PPG program (*PPG Pra Jabatan*) and in-service PPG program. They become a sole route for a teacher to earn a professional teacher credential. In these programs, teachers will participate in seminars and internships in a school to strengthen their pedagogical competency, topic understanding, communication skills, and character as professional educators.

In the Continuing Professional Development program, the majority of participants are certified teachers. They are encouraged to develop their abilities in understanding the abilities of pedagogy and subject area by enrolling in a 60-h PKB education and training program (Revina, 2019).

Unfortunately, the teacher professional development (TPD) program that has been run in the last four decades does not seem to be effective to develop teachers' competence. Teachers' academic knowledge and pedagogic skills continue to be poor. The level of learning among Indonesian students is still poor. Based on data provided by PISA (Programme for International Student Assessment) in 2018, Indonesian students reading literacy in 2018 was the same as it was in 2000. Indonesian children's arithmetic skills deteriorated between 2000 and 2014 (Beatty et al. 2018).

Innovative Teacher Professional Development

As previously stated, TPD program in Indonesia does not seem to be successful. One of the causes as stated by Ekawati and Kohar(2017) is that the program lacked follow-up activities where teachers may discuss the benefits and challenges of using a learning style, for example, in their classrooms. Revina (2019) also adds that the TPD program such as PKB or PPG is "simply a refreshment of the materials which teachers have previously obtained in college"; therefore, those programs are not effective in developing teachers' competence.

Reflecting on the unsuccessful TPD programs previously, innovative TPD programs must be developed and designed to create "opportunities for teachers to take control of their own learning, deepen their subject knowledge, construct knowledge from previous knowledge and experiences, and develop intellectual community with colleagues" (Ekawati & Kohar, 2017. Similarly, Loucks-Horsley et al. (1996) as cited in Ekawati and Kohar (2017) state that a good TPD program is:

> driven by a clear, well-defined image of effective classroom learning and teaching; provide teachers with opportunities to develop knowledge and skills and broaden their teaching approaches, so they can create better learning opportunities for students; and build or strengthen the learning community of science and mathematics teachers. (p. 3)

To achieve an effective TPD program, the program should consider teachers' needs as well as their abstraction levels on their roles and obligations as educators.

Therefore, the programs should be focussed on five domains. They are: "teachers as innovators; teachers as scientific developers to the community; teachers as network makers; teachers as educational designers; and teachers as entrepreneurs" (Imron, et al., 2020).

Professional Teachers in the Era of the Industrial Revolution 4.0: Challenges and Hopes

Education is an important aspect of life. Through education, human resources can be created and improved in quality. Quality resources are very vital in a country, including in the world of education. Formal and non-formal educational institutions are the key to the nation's civilization. Therefore, the teacher is one of the human resources engaged in education responsible for ensuring the quality of education.

A teacher as one of the elements in ensuring the quality of education must be a professional one. As a professional teacher, s/he must be able to carry out his/her duties and functions well. Professional teachers according to the PP No. 14 of *stipulates that teachers are professional educators whose main tasks include "educating, guiding, directing, training, assessing, and evaluating students in early childhood education through formal education, basic education, and secondary education". In other words, the government has made various efforts to improve teacher professionalism.*

In improving the professionalism of teachers as educators, the government has launched various programs aiming to provide opportunities for teachers to develop and improve their quality. On the top of that, in 2020, the education budget allocation would reach Rp 508.1 trillion, or 20% of the 2020 state budget.

The allocation of this education budget is a very good opportunity for the world of education in Indonesia. With this amount of budget allocations for education, it is expected that education can develop teachers' capabilities and shape their character and civilization of a dignified nation in the intellectual life of the nation. Furthermore, teachers would have faith in God Almighty and noble character, are healthy, capable, creative, independent and responsible as well. A teacher is the heart of education; without the active role of teachers, reform policies on education will not produce optimal results.

The era of the Industrial Revolution 4.0 is one of the hot topics discussed by various groups today, including among the teachers. This era views information technology as the basis of human life. The rapid development of technology has a very fundamental impact on various aspects of human life. Digital technology provides various conveniences in innovating.

This amazing development of digital technology makes the movement and connectivity of humans and machines create a borderless world. This era is believed to shift activities that were originally carried out in the real world to the virtual world. This will affect many fields without exception in the field of education (Suwandi,

2018). This raises many challenges, especially for teachers in learning. Great hopes for universities, especially those that specialize in producing teachers so that their graduates are professional and can answer the challenges of the Industrial Revolution 4.0 intelligently.

Professional Teachers in the Industrial Revolution Era 4.0

Professional teachers are those who have 4 competencies, namely pedagogic, social, personality and professional competencies. Pedagogic competence is a skill that must be possessed by a teacher related to the characteristics of students which include physical, moral, social, cultural, emotional, and intellectual aspects. Social competence is related to the ability of teachers in terms of communication, working in groups, socializing, sympathizing, and having a sincere and pleasant spirit. Personality competence is related to attitudes that show good personality such as being wise, mature, authoritative, and having noble character to imitate. Professional competence is related to scientific mastery competence in accordance with their field (Alwi et al., 2018). This raises a further question of "How are professional teachers in the era of the Industrial Revolution 4.0?".

The era of the industrial revolution 4.0 makes information and technology so easy for anyone who needs it (Sukartono, 2018). Education has undergone tremendous changes. The task of the teacher who used to be a source of knowledge is slowly shifting and even that role will move away from him/her. In the era of the Industrial Revolution 4.0, the role and presence of teachers in the classroom will be increasingly challenging and require very high creativity so that learning is more meaningful (Pannen, 2018). Learning in the twenty-first century requires teachers to be able and have critical thinking skills, digital literacy knowledge and skills, information literacy, media literacy and mastering information and communication technology (Maya & Charles, 2015).In addition, the skills that must be possessed by students in the twenty-first century are life and career skills, learning and innovation skills, and information, media and technology skills (Trilling & Fadel, 2009; Saavedra & Opfer, 2012). Thus, a professional teacher should equip himself/herself with these skills so that students can answer the challenges of the twenty-first century.

Furthermore, the Indonesian Partnership for 21 Century Skill Standard (IP-21CSS) put forward the concept of twenty-first-century thinking in Indonesia (Sukartono, 2018). There are 5 conceptual frameworks for twenty-first-century skills, namely (1) creative thinking and innovation, (2) critical thinking and problem-solving, (3) communication and collaboration, (4) information, media and technology skills, and (5) life skills and career.

Creative thinking and innovation are related to aspects of how a teacher can think creatively, work creatively and implement new innovations in learning. Critical thinking and problem-solving skills are closely related to reasoning skills, good thinking systems, making judgments and decisions and being able to solve problems. Communication and collaboration is related to the aspect of communicating skills clearly and being able to collaborate with others. Information, media and technology skills have aspects of skills to access and evaluate information, use and organize information, analyse and produce media and apply technology effectively.

Life and career skills are of great significance in relation to character building and spiritual values. Character building has two aspects, namely showing scientific attitude behaviour (curiosity, honesty, thoroughness, openness and prudence) and showing acceptance of the moral values prevailing in society. While spiritual value is related to two aspects, i.e. living the concept of divinity through science and internalizing spiritual values in daily life. The complete framework of the twenty-first-century skills concept can be seen in Table 10.1.

In its application, the above skills can also be reflected in the use of language. There are several linguistic phenomena that are very interesting to assess whether we have lived up to the twenty-first-century skills above.

To answer the challenges of the Industrial Revolution 4.0, the Indonesian government has tried to improve the professionalism of teachers through formal education or training organized by the government and educational institutions, for example, *PPG—Pendidikan Profesi Guru* (Teacher Professional Education) attended by both in-service teachers and prospective teachers in the Pre-service PPG Program. Through this activity, teachers and prospective teachers are provided with various materials about learning activities, for example, approaches, methods, or learning models.

Various approaches, methods and learning models have been developed to realize the demands of twenty-first-century skills. Regulation of the Minister of Education and Culture Number 65 of 2013 has formulated that the inquiry learning model (Inquiry-Based Learning), the Discovery learning model, and the problem-based learning model have to be implemented in learning based on the 2013 curriculum stipulated by the Ministry of Education and Culture (Sufairoh, 2016). Thus, professional teachers must understand and apply the various learning models above because they are in accordance with the demands of the Industrial Revolution 4.0.

Table 10.1 Conceptual framework of twenty-first-century skills

Framework of twenty-first-*century skills*	*IP-21CSS*	*Aspects*
Creativity thinking and innovation	4 Cs	• Thinking creatively • Working creatively • Implementing innovation
Critical thinking and problem-solving		• Reasoning properly • Thinking in a good way • Giving judgments and decisions • Providing the right solution
Communication and collaboration		• Communicating effectively • Collaborating well in groups
Information, media and technology skills	ICTs	• Receiving and evaluating information • Managing and organizing information • Using media appropriately • Applying technology appropriately
Life and career skills	*Character building*	• Behaving with a scientific attitude (curiosity, honesty, thoroughness, openness and prudence) • Accepting the prevailing moral values in society
	Spiritual value	• Appreciating the concept of divinity through understanding science • Internalizing spiritual values in daily life

Challenges of the Industrial Revolution 4.0 Era

The challenges of the Industrial Revolution 4.0 era, particularly in the field of education, are related to the various skills that a professional teacher must possess. With the wide open accessibility of the open current flow of information and communication, the development of blended learning patterns is a must in responding to the challenges of the 4.0 Industrial Revolution era. Consequently, a teacher must have: (1) technological knowledge, (2) possess competence about the content of learning materials (content knowledge and (3) pedagogical knowledge).

Data literacy, technology and human skills are very needed. Data literacy is needed to improve skills in selecting and using an enormous amount of data. Technological literacy is needed to utilize digital technology to process data and information. And literacy related to humanity must be mastered to refine soft skills or individual characters so that they can work together in groups, be able to adapt, and be wise in this

information "flood" era (Iswan & Herwina, 2018: Winarso, 2018). This is a challenge that teachers inevitably have to face in the era of the Industrial Revolution 4.0.

Skills in applying various approaches, methods and learning models are needed. The inquiry learning model (Inquiry-Based Learning), the Discovery learning model (Discovery Learning, and the Problem-Based Learning model) are learning models that should be studied and implemented in learning (Maya & Charles 2015). These models can provide the skills to be possessed by students who have character in learning.

On the other hand, the toughest challenge is how to develop a character education model. However, the skills provided in schools to maximize skills and abilities must be balanced with character education to refine character. Character education is an attempt to balance cognitive skills with ethical values for students individually and as citizens (Zubaedi, 2011).Character is a psychological, moral or character trait that shows the identity of a person, both teachers and students.

Character education has three important components interrelated with each other, namely (1) knowing the good, desiring the good, and doing the good (Machsin, 2014). The three elements of character education complement each other. Character education not only teaches what is good and what is not, but more than that, character education tries to gradually and firmly establish habits. Students are accustomed to understand, feel, and do good. This will have a good impact on students in improving their behaviour to show good character.

Hope

In facing the Industrial Revolution 4.0 Era in the field of education, there are some very important hopes raised now and here. First, motivation alone is not enough for professional teachers but there must be a concrete form and a hard effort to create professional teachers in the era of the Industrial Revolution 4.0. Second, teachers must be faced with every innovation and technology transition. Therefore, teachers must be brave and ready to face it, otherwise we will be drowned by this era of disruption. Third, teachers must be creative and critical in facing this digitalization era, both in the learning process and to develop self-skills. Otherwise, the position of teachers as educators will be crushed by the skills possessed by students because they are faster in the world of digitalization.

In learning, it is hoped that a teacher can use various approaches, methods and appropriate learning models. This is in accordance with the demands of the 2013 Revised Curriculum that has been proclaimed by the government through the government regulations. In addition, the greatest hope for teachers is to provide character education appropriately so that they can balance between skills and good character. Thus, professional teachers are teachers who can "hold the world through cyber" but do not abandon character education so that students are intellectually intelligent, emotionally intelligent, and spiritually intelligent. Hopefully future teachers can make this wish come true.

Professional teachers in the 4.0 revolution era have many challenges in the learning process. These challenges must be faced by teachers by improving their skills and being willing to work hard to realize learning expectations in the era of the Industrial Revolution 4.0. Every educational institution will of course also strive to create professional graduates to answer the challenges of the Industrial Revolution 4.0.

Government Efforts to Improve Teacher Professionalism

Through education, human resources can be created and improved in quality. Quality resources are very vital in a country, including in the world of education. Formal and non-formal educational institutions are the key to the nation's civilization. Therefore, the teacher is one of the human resources engaged in education who is responsible for ensuring the quality of education.

It is no doubt that education is a very valuable future investment. The government has committed that education for future generations must be initiated and prepared in earnest. For this reason, the process of seeding future generations must be accompanied by the preparation of professional teachers through a quality and accountable teacher education system.

Teachers as an element in ensuring the quality of education must be professional teachers. As a professional teacher, he must be able to carry out his duties and functions well. Professional teachers according to *PP* No. 14 of 2005, teachers are professional educators with the main task of educating, guiding, directing, training, assessing, and evaluating students in early childhood education through formal education, basic education, and secondary education". This Regulation stipulates that teaching is a profession. For this reason, the government provides some efforts to improve teacher professionalism through Teacher Professional Education Program (PPG).

PPG—Pendidikan Profesi Guru (Teacher Professional Education)

The certification program is one of the government's efforts to improve teacher competence in Indonesia. One of the indicators that someone has been declared worthy and passed the competency test to become a professional teacher is education certification. For vocational teachers, a certificate of competency expertise is an indicator that the vocational teacher is an expert in the vocational field.

With an education certificate, teachers are prepared to face challenges in the 4.0 era. To be able to compete in the era of the industrial revolution 4.0, innovation is needed so that prospective professional teachers are exposed to information technology from an early age and use technology in the learning process. The Ministry

of Research, Technology and Higher Education continues to increase the number of vocational or vocational teachers through the PPG program.

The PPG program launched by the government is in accordance with Regulation of the Minister of Research, Technology and Higher Education Number 55 of 2017 concerning Teacher Education Standards. "The pre-service *PPG* program is intended for graduates who have various backgrounds, namely graduates of undergraduates in education or non-education or Diploma 4 (who have not/not served as school teachers). Meanwhile, *PPG* is intended for teachers who have taught to improve their ability to be professional in teaching in accordance with the Regulation of the Minister of Education of the Republic of Indonesia Number 37 of 2017 concerning Certification of Teachers in Appointed Positions until the end of 2015.

The PPG program is designed systematically by applying quality principles starting from the selection, learning process and assessment. The competency test is expected to be able to produce professional teachers. To accelerate this program, *PPG* is implemented in two forms, namely subsidized *PPG* and self-financing *PPG*. Subsidized *PPG* is the implementation of *PPG* financed by the government. While the self-financing *PPG* is fully borne by students.

The *PPG* program is expected to produce professional teachers according to the development of the industrial revolution 4.0. Because the professionalism of teachers in Indonesia must be able to answer the challenges of advances in science and technology that have an impact on changes in learning patterns and increase student creativity in learning.

The preparation of teachers as a profession is stipulated in the Government Regulation No. 74 of 2008 concerning Teachers. In addition to a teacher must have an undergraduate qualification, that teacher must have a professional teaching certificate obtained through professional education or *PPG*. The Government Regulation No. 74 of 2008 Article 2 states that teachers are required to have academic qualifications, competencies, educator certificates, physically and mentally healthy, and have the ability to realize national education goals.

Furthermore, Article 4 paragraph (1) states that Educator Certificates for teachers are obtained through professional education programs organized by universities that have accredited education personnel procurement programs, both organized by the government and the Community, and determined by the government. In paragraph (2) it is stated that the professional education program as referred to in paragraph (1) is only attended by students who already have the Academic Qualifications of undergraduate or Diploma IV in accordance with the provisions of the legislation.

The *PPG* is expected to be able to answer various educational problems, such as: (1) shortage of teachers, especially in the outermost, leading, and underdeveloped areas, (2) unbalanced distribution, (3) qualifications under standards, (4) teachers who are less competent, and (5) mismatched educational qualifications with the field being taught. Besides, the *PPG* can produce professional teachers and graduates who are excellent and ready to face the demands of the times.

Research Development: Method and Procedure

Stages: Preliminary Study–Development Phase–Model Validation–Effectiveness Test

The type of research mostly carried out by undergraduate students (as prospective teachers of junior and high schools or equivalent) and by postgraduate students, most of whom work as teachers, is development research, namely the development of teaching and learning textbooks, learning modules, media (electronic and non-electronic), and student worksheets. According to Gall (2007) p. 256, research and development

> … is an industry based development model in which in the finding of research are used to design new products and procedures, which then are systematically filed-tested, evaluated, and refined until it meets the specified criteria of effectiveness, quality, or similar standard.

Regarding the learning materials, Tomlinson (2011:66) points out that

> Materials include anything which can be used to facilitate the learning, they can be presented in print, through live performance or display, or on cassette, CDI-ROM, DVD. or the internet.

It is quite obvious that teaching and learning materials must be designed and written in such a way in accordance with the instructional rules because it will be used by teachers to assist and support the learning process of their learners. In addition, teaching materials are a set of learning tools that contain learning materials, methods, limitations, and ways of evaluating which are designed systematically and attractively in order to achieve the expected goals, namely achieving competence with all its complexity (Widodo & Jasmadi, 2008).

In general, there are three main stages carried out in development research, namely: preparation/problem determination/needs analysis, development, and assessment.

In detail, Gall (2007) states that there are ten steps to carry out, namely: (1) research and information collecting, (2) planning, (3) develop preliminary form of product, (4) preliminary field testing, (5) main product revision, (6) main field testing, (7) operational product revision, (8) operational field testing, (9) final product revision, and (10) dissemination and implementation. Jolly and Bolitho in Tomlinson suggest that there are 7 steps that can be taken, namely: (1) identification of need for material, (2) exploration of need, (3) contextual realisation of materials, (4) pedagogical realization of materials, 5) production of materials, (6) student use of materials, and (7) evaluation of materials against agreed objectives. Alessi and Trollip (2001) claim there are three stages, that is Planning, design, dan development, on the whole, there are 18 steps. Tessmer (1993) put forward 5 stages in formative evaluation which include (1) self-evaluation, (2) expert review/expert validation, (3) one-to-one evaluation, (4) small group evaluation, dan (5) field test/experiment research. It is in line with Dick et al. (2005) stating that the three types of formative evaluation are

referred to as one-to-one evaluation, small group evaluation, and field trial evaluation". Specifically, various experts offer their various and dynamic stages to carry out development research. Gall (2007) offers ten steps as follows:

(1) research and information collecting;
(2) planning,
(3) developing preliminary form of product,
(4) preliminary field testing,
(5) main product revision,
(6) main field testing,
(7) operational product revision,
(8) operational field testing,
(9) final product revision, and
(10) dissemination and implementation.

Jolly and Bolitho in Tomlinson (2011) suggest that there are 7 steps that can be taken, namely:

(1) identification of need for materials,
(2) exploration of need,
(3) contextual realization of materials,
(4) pedagogical realization of materials,
(5) production of materials.
(6) student use of materials, and
(7) evaluation of materials against agreed objectives.

Alessi and Trollip (2001) state that there are three stages, that is planning, design, and development.

In assessing the teaching and learning materials, Tessmer (1993) suggests 5 stages including: (1) self-evaluation, (2) expert review/expert validation, (3) one-to-one evaluation, (4) small group evaluation, and 5) field test/experiment research. This stage is similar to what Dick et al. (2005) referring to the three types of formative evaluation: "one-to-one evaluation, small group evaluation, and field trial evaluation".

During the academic year of 2020/2021, many students of undergraduate and graduate (master degree) students of Indonesian Language Study Program of Indonesian Language and Literature Education Department, Faculty of Teacher Training and Education (FTTE) of Universitas Sriwijaya (Unsri)undertook their thesis research on development. Before taking thesis examination, it is compulsory for the students to publish an article relating to their theses (undergraduate and master degree levels) in any relevant journals of education. The following are some examples of the results of research on the development of teaching materials that have been carried out in 2020 and reported by the master degree students of Language Education Study Program, FTTE Unsri, Umiyatun, Development of Student Worksheets in Writing Moodle-Based Scientific Articles in Grade XI of SMA Negeri 1 Parittiga, West Bangka. This development research aimed to:

- produce worksheets based on the Moodle application. It described the results of the needs analysis on the development of Moodle-based scientific article writing worksheets;
- produce a prototype of Moodle-based scientific article writing worksheets in accordance with the results of the needs analysis;
- describe the results of the Student Worksheets alpha test for writing Moodle-based scientific articles;
- describe the results of the Student Worksheets beta test for writing Moodle-based scientific articles; and
- describe the results of product validation using Moodle-based scientific article writing.

The study adopted the three stages of research and development model by Allesi and Trollip (2001) as follows (Fig. 10.1).

And then the three stages were broken down into 14 steps as follows:

Planning:

(1) Determining the Field/Scope of Research Study
(2) Identifying Student Characteristics
(3) Determining and Gathering Resources
(4) Doing Brainstorming

Design

(1) Analysing Concepts and Tasks
(2) Preparing the Prototype
(3) Designing Flowcharts and Storyboards

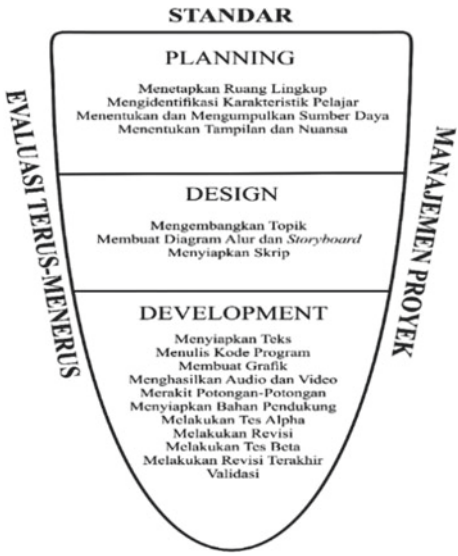

Fig. 10.1 Stages of development model (adopted from Alessi and Trollip Theory)

Development

(a) Combining the parts
(b) Preparing Supporting materials
(c) Carrying out Alpha Test
(d) do Revision
(e) Carrying out Beta Test
(f) Revising Final Results Hasil
(g) Validating Products (Summative Evaluation

The research was conducted at SMA Negeri 1 Parittiga, West Bangka Regency, Kep. Bangka Belitung Islands from 24 February to 30 April 2020. The research subjects consisted of 35 students of Grade XI IPA1 (Science Major). The development procedure consisted of three stages, namely the planning, design, and development stages. The planning stage includes activities to determine the field/scope of research studies, identify student characteristics, determine and collect sources, and conduct brainstorming activities. The design phase included activities to analyse concepts and tasks, develop prototypes, and design flowcharts and storyboards. At the development stage, the activities included combining and integrating parts, preparing supporting materials, carrying out alpha tests, conducting revisions, conducting beta tests, conducting final revisions, and conducting product validation (summative evaluation).

The data were obtained from the questionnaires, interviews, and tests. The questionnaire data were derived from needs analysis, alpha tests, and beta tests. The interview data were obtained from the brainstorming activities with the research subjects, Indonesian language teachers of SMA Negeri 1 Parittiga, and members of the Indonesian Language MGMP (*Musyawarah Guru Mata Pelajaran*-Subject Teacher Conference) of West Bangka District. The test data were obtained from the initial test and final test in the learning process.

The study showed that: (1) based on the results of the needs analysis, it was necessary to develop technology-based supporting teaching materials such as Moodle-based Worksheets to support scientific article writing learning activities, (2) Moodle-based Worksheet prototype consisted of two parts: the introduction and worksheets. The arranged Worksheets consisted of four types that were adapted to the basic competencies that need to be mastered by Grade XI SMA students; (3) the assessment at the alpha test stage showed that the product was feasible and categorized as very good with an average score of 4.36 for material experts and 4.55 for media experts; (4) the assessment at the beta test stage showed that the student's response to the product was quite good with an average value of 3.89; and (5) the product validation stage (summative evaluation) shows that the product was quite effective in improving student learning outcomes based on an N-gain score of 0.49 in the medium category. The following is an example of the resulting worksheet (Fig. 10.2).

The worksheet consisted of four types according to the basic competencies that need to be mastered by the students. In each worksheet there was a summary of the material, presentation of examples, discussions, group assignments, and independent assignments. Worksheet 1 described identifying the information, purpose,

Fig. 10.2 Example of the resulting worksheet

and essence of a scientific article that is read. The features used in this worksheet included summary material, examples, discussions, group assignments, and independent assignments. Worksheet 2 explained the designing information, objectives, and critical importance to be presented in scientific articles. This worksheet contained material summary features, examples, database, and independent assignments. Worksheet 3 described the systematic and linguistic analysis of scientific articles. In this worksheet, there are features of material summaries, examples, discussions, group assignments, and independent assignments. Worksheet 4 described the construction of a scientific article by paying attention to content, systematics, and language. This worksheet had material summary features, examples, workshops, and independent assignments. In addition, in each task feature there are work instructions, questions, and an assessment rubric.

Classroom Action Research to Improve Teacher Competence

Technological advances and the development of today's world require teachers to be able to adapt to change and have various skills such as critical thinking, creative, collaborative, communicative, and so on. *PPG* is expected to be able to improve the quality of prospective teachers and be ready to implement the principles of Independent Learning in carrying out their duties. The implementation of the *PPG* Program is expected to produce graduate teacher candidates who are able to prepare students to face increasingly complex challenges in the twenty-first century and make a positive contribution to realizing sustainable development goals.

In an effort to improve the competence of teachers, especially those who participate in *PPG*, each of these teachers must conduct a classroom action research in their respective classes and report it in the form of a final report. It is contained in the

PPG Implementation Guidelines (2017 that one of the objectives of implementing the Field Teaching Practice is "Students have the ability to plan classroom action research (CAR) activities". Previously, in the definition section, point (2) was also stated, "The intended learning tool review is an activity to review learning tools and learning practice videos that have been made by students at the development stage of previous learning tools, new peer teaching models, CAR, reflection, and RTL". In the Lecturer and Teacher Tutor activities section, it is also stated that there are: (1) explanations of techniques for preparing CAR proposals and their implementation in schools, (2) providing input in the preparation of CAR plans, (3) monitoring the preparation of CAR proposals, and (4) online discussions with students need assistance in preparing the CAR proposal.

In the Introduction section, Field Experience Practice (*PPL—Praktek Pengalaman Lapangan*) is one of the courses in the *PPG* Program which contains teaching and non-teaching training activities, including conducting CAR exercises, which are carried out in a guided and integrated manner to meet the requirements for the formation of professional teachers. *PPL* is held so that *PPG* participants have real and contextual experience in applying a set of knowledge, attitudes, and skills that can support the achievement of the full competence of professional teachers. In the COVID-19 Pandemic Era, *PPL* is carried out online, where preparation, implementation, guidance/monitoring, and reporting are carried out online. The objectives are: a) Improve students' ability to prepare for the implementation of offline and/or online learning and CAR, b) Improve students' ability to apply learning tools and CAR that have been designed, both offline and/or online, and c) Improve students' ability to prepare the implementation of feasible non-learning activities is carried out offline and/or online.

The PPG participants in 2020 conducted a CAR entitled "Improving the Ability to Identify the Values and Main Contents of the Story with the Mind Mapping Method for Grade X Students of Adhyaksa 1 Senior High School of Jambi". The formulation of the problem was whether or not the mind mapping method improve the ability of Grade X students of Senior High School Adhyaksa 1 of Jambi in identifying the values and contents of saga texts.

As we know, mind mapping is a method to maximize the potential of the human mind by using the right brain and left brain simultaneously. This method was first introduced in 1974 by Tony Buzan, a British human potential development expert. Mind mapping can also be interpreted as a process of mapping the mind to connect the concepts of certain problems from nerve cell branches to form a correlation of concepts towards an understanding and the results are poured directly on paper with animations that are liked and easy to understand by the maker. Thus, the resulting writing is a direct description of how the connections in the brain work. Figures 10.3 and 10.4 illustrate a Mind Map (Buzan, 2012).

The CAR was carried out online using WhatsApp class groups and zoom meetings with the students. The data collection techniques used tests and non-tests. The test instrument was in the form of questions that were done by the students in the initial, while, and final activities of the teaching and learning process in the classroom. The non-test instruments were in the form of observations made in its implementation.

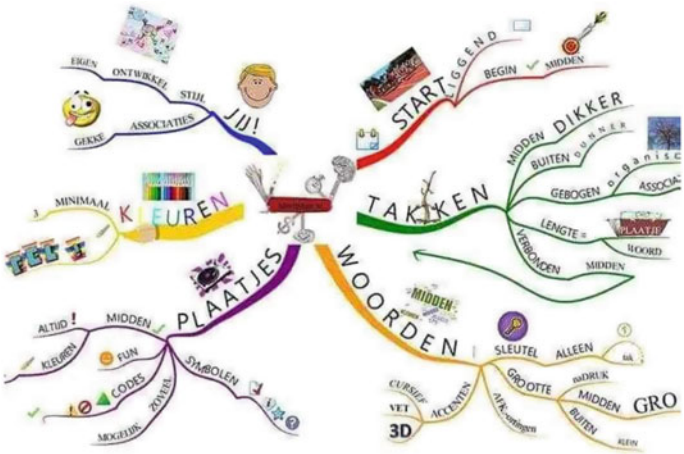

Fig. 10.3 Examples of mind mapping (adopted from Buzan, 2012)

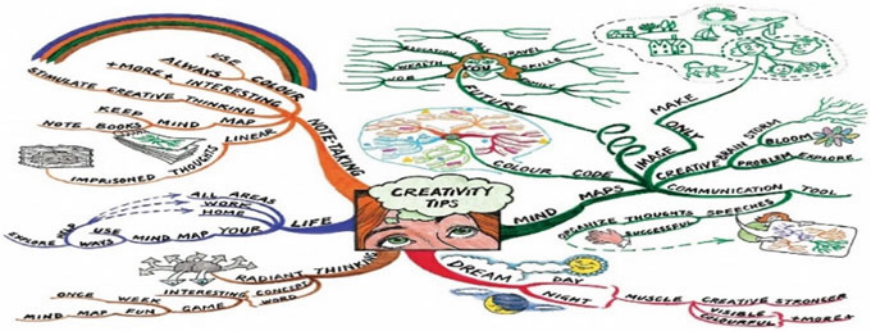

Fig. 10.4 Examples of mind mapping (adopted from Buzan, 2012)

To determine the end of the nth cycle, the criteria for the success of the action were set. The action was declared successful if 70% of the students got an average score of at least 70 in the final test. The mean formula = total student scores/number of students. The minimum attitude value had to be Good (B).

In Cycle 1, the average student learning outcomes and the percentage of completeness increased compared to the results obtained in the test before being subjected to action (pre-action), but still did not reach the passing grade because it was still below 70 and on the average most of the students did not reach 75% of the passing grade. Therefore, the study was continued to the second cycle based on the learning outcomes of Cycle 1. The average student learning outcomes and the percentage of the passing grade in cycle 2 increased compared to those obtained in Cycle 1. Yet, students still needed strengthening in order to have more maximal result. Consequently, the study was continued to the third Cycle. The results of the 3rd cycle

treatment showed an increase in the scores obtained by the students. The average score increased was 6.6, and the average score of Cycle 1 = 66.6, Cycle 2 = 80, and Cycle 3 = 86.6.

Obviously, classroom action research (CAR) conducted by teachers has its own characteristics. It is not to test a hypothesis, as is usually the case with formal research conducted by individuals or institutions. It is a step or a series of processes carried out by the teacher in and during learning. This process is carried out independently where the teacher acts as an internal researcher. The implementation never ends. It is sustainable and forms an iterative cycle of activities.

The teacher realizes that something is wrong and blocks the learning process. A teacher might have these questions in his/her head "What's not right? What's bothering me?" and perhaps other similar questions. These problems are recorded and scheduled by the teachers as a record of the learning problems they run into. The records must be analysed and problem-solving actions must be planned. For example, students' daily test results are very low. The teacher reflects on the flashback of the learning process that has been carried out.

It was noted that students were less enthusiastic about learning. Are they caused by their lack of enthusiasm, inappropriate strategies and methods, or not using media and props.

The teacher plans alternative actions to solve the problems that are considered most crucial. The goal to be achieved by the teacher in doing CAR is to improve the quality of the learning process and results. Unsatisfactory learning outcomes are an indication of a learning process that is having problems. In fact, there is not a single teacher who does not experience obstacles and problems in teaching.

By carrying out CAR activities, several benefits will be obtained for teachers, including:

(1) Written reports on CAR activities can be used as physical evidence that the teacher has written scientific papers. This scientific work can be used by teachers for various purposes such as promotions/classes, participating in outstanding teacher competitions, teacher creativity competitions, and so on.
(2) Teachers are accustomed to carrying out research independently to solve the learning problems they are carrying out. In turn, the teacher will become a reliable learning problem solver so that he deserves the title of a professional teacher.
(3) Can improve the quality of the process and learning outcomes. Usually, a quality process will lead teachers to quality results as well.

Conclusion

The teacher's job in the twenty-first century is a complex and uneasy one along with large and rapid changes in the school environment driven by advances in science and technology, demographic changes, globalization and the environment. Professional teachers are no longer just those who are able to teach well, but those who are

able to become learners and agents of school change, and are also able to establish and develop relationships to improve the quality of learning in their schools. For this reason, teachers need effective professional development such as having competence in mastering the substance of the field of study and scientific methodology, the structure and material of the curriculum in the field of study, and utilizing information and communication technology in learning, organizing curriculum materials in the field of study, and improving the quality of learning through classroom action research.

The challenge of twenty-first-century teacher competence leads the professional teachers to adapt themselves to understand their disciplines from various contexts, as well as being sensitive to the development needs of students and society. The most important thing is that teachers have to race to keep up with the demands of development, not only get involved but act innovatively. A teacher has to be able to formulate, construct, compile, modify and be sensitive to information so that it can be understood as knowledge. The development of ICT brings changes in all lines of life due to the fact that our twenty-first-century learners live in a digital environment full of information flow.

Many countries are reforming educational goals and practices owing to the influence of ICT developments and various forms of educational innovation. The greatest hope of educational innovation is the support and integration of ICT in the learning process, thereby enhancing the quality of the learner's learning experience. Teachers must be actively involved in pedagogical innovation. Teachers not only have a major role in implementing educational reform, but also must be involved in formulating the concept and design of the necessary educational reforms. Herein lies the importance of teachers to also act academically. At the practical level, in carrying out the main task of facilitating learning, every teacher should act based on pedagogical decisions in accordance with the latest learning and learning theories, as well as developmental theories.

The government's efforts to continue to develop the teaching profession as a strong and respected profession in line with other professions can be seen from the issuance of *PP* No. 14 of 2005 seeking to develop the teaching profession through legal protection. The government has made some efforts to improve the professionalism of teachers, including increasing the qualifications and requirements for higher education levels for teaching staff from the secondary level to tertiary institutions. The Diploma II equalization program for elementary school teachers, Diploma III for junior high school teachers and undergraduate for senior high school teachers. Other efforts made are the certification program and the establishment of the *PKG* (Teacher Activity Center and *KKG* (Teacher Working Group). In addition, a teacher who got an educator certification is given a monthly allowance.

References

Alessi, S. M., & Trollip, S. R. (2001). *Multimedia for learning: Methods and development*. Allyn & Bacon Inc.

Alwi, Z., Ernalida, E., & Yenni, L. (2018). *Perencanaan Pembelajaran Berbasis Pendidikan Karakter dan Pendekatan Saintifik: Sebagai Upaya Penyiapan Tenaga Guru Profesional.* Noer Fikri.

Aminullah, A., Loeneto, B., & Vianty, M. (2019). Teachers' attitudes and problems of using ICT in teaching EFL. *English Review: Journal of English Education, 8(1)*, 147–156. https://doi.org/10.25134/erjee.v8i1.2324.

Anderson, G., & Arsenault, N. (1998). *Fundamentals of educational research.* Routledge, ISBN 978-0-203-97822-1.

Beatty, A. E. (2018). *Indonesia got schooled: 15 years of rising enrolment and flat learning profiles.* Retrieved from RISE Working Paper Series: https://doi.org/10.35489/BSG-RISE-WP_2018/026.

Bull, V. (2008). *Oxford learner's pocket dictionary* (4th ed.). Oxford: Oxford University Press, cop.

Buzan, T. (2012). *The ultimate book of mind*. Thorsons.

Darmawan, C. (2020). Implementasi Kebijakan Profesi Guru Menurut UU Republik Indonesia Nomor 14 Tahun 2005 Tentang Guru dan Dosen dalam Perspektif Hukum Pendidikan. *Jurnal Wacana Paramarta, 19*(2), 61–67.

Dasuki, A. (2010). Pengembangan profesionalisme Guru. *Jurnal Manajerial*, *9*(2), 1–9.

Dick, W., Carey, L., & Carey, J. (2005). *The systematic design of instruction.* Pearson/Allyn and Bacon.

Ekawati, R., & Kohar, A. (2017). Innovative teacher professional development within PMRI in Indonesia. *International Journal of Innovation in Science and Mathematics Education, 24*(5), 1–13.

Gall, M. D. (2007). *Educational research (introduction)* (8th ed.). Pearson Education Inc.

Imron, A., Wiyono, B., Hadi, S., Gunawan, I., Abbas, A., Saputra, B., & Perdana, D. (2020). Teacher professional development to increase teacher commitment in the era of the Asean Economic Community. In *2nd early childhood and primary childhood education* (pp. 393–434). Atlantis Press.

Kincheloe, J. (2004). *Rigour and complexity in educational research.* McGraw-Hill International. ISBN 978-0-335-22604-7.

Komara, E. (2016). Perlindungan Profesi Guru di Indonesia. *Jurnal Mimbar Pendidikan, 1*(2), 151–160.

Latiana, L. (2019). Peran Sertifikasi Guru dalam Meningkatkan Profesionalisme Pendidik. *Jurnal Edukasi, 13*(1), 1–11.

Lodico, M. G., Spaulding, D. T., & Voegtle, K. H. (2010). *Methods in educational research: From theory to practice.* Wiley. ISBN 978–0–470–58869–7.

Loeneto, B., Semil, N., & Mardianto, M. (2019). Evaluation of competencies of English teachers and students of public senior high schools in Palembang city using information and communication technology. In *Atlantis Press. Advances in Social Science, Education Humanities Research, International Conference on Progressive Education (ICOPE 2019)* (Vol. 422, pp. 198–204).

Machsin, A. (2014). Implementasi Pendekatan Saintifik, Penamaan Karakter dan Konservasi pada Pembelajaran Materi Pertumbuhan. *Jurnal Pendidikan IPA, 3*(1), 28–35.

Maggioli, G. D. (2004). *Teacher-centered professional development.* Association for Supervision and Curriculum Development (ASCD).

Matnuh, H. (2017). Perlindungan Hukum Profesionalisme Guru. *Jurnal Pendidikan Kewarganegaraan, 7*(2), 46–50.

Maya, B., & Charles, F. (2015). *Skills for the 21st century: What should students learn?* Center for Curriculum Redesign.

Mizell, H. (2010). *Why professional development matters.* Learning Forward.

Mulyasa, E. (2007). *Standar Kompetensi dan Sertifikasi Guru.* PT. Remaja Rosdakarya.

Pannen, P. (2018). Menggenggam Dunia Lewat Cyber. *Ristekdikti: Kreatif dan Inovatif di Era Revolusi Industri 4.0, 8*(I).

Putri, A., & Imaniyati, N. (2017). Pengembangan Profesi Guru dalam Meningkatkan Kinerja Guru. *Jurnal Pendidikan Manajemen Perkantoran, 2*(2), 202–211.

Rahma, S., Loeneto, B., & Mirizon, S. (2020). Teacher's reinforcements affecting students' Willingness to Communicate (WTC): A photovoice in EFL classroom. *Indonesian Journal of EFL and Linguistics, 5*(2), 389–401.

Revina, S. (2019, October 10). *The importance of improving teacher training programmes in Indonesia in order to increase* teacher. https://riseprogramme.org/blog/importance-improving-teacher-training-indonesia.

Saavedra, A., & Opfer, V. (2012). learning 21st-century skills requires 21st-century teaching. *The Phi Delta Kappan, 94*(2), 8–13.

Schleicher, A. (2018). *Preparing teachers for 21st century challenges.* Accessed on April 2019. https://oecdedutoday.com.

Sufairoh, S. (2016). Pendekatan Saintifik dan Model Pembelajaran K-13. *Jurnal Pendidikan Profesional*, 116–125.

Sukartono, S. (2018). *Revolusi Industri 4.0 dan Dampaknya Terhadap Pendidikan Indonesia.* FIP PGSD Universitas Muhammadiyah.

Suwandi, S. (2018). Tantangan Mewujudkan Pembelajaran Bahasa dan Sastra Indonesia yang Efektif di Era Revolusi Industri 4.0. Makalah Kongres Bahasa Indonesia XI yang Diselenggarakan Badan Pengembangan dan Pembinaan Bahasa Kementerian Pendidikan dan Kebuda. *Badan Pengembangan dan Pembinaan Bahasa Kementerian Pendidikan dan Kebudayaan Indonesia*.

Syaidah, U., Suyadi, B., & Hety Mustika, A. (2018). Pengaruh Kompetensi Guru terhadap Hasil Belajar Ekonomi di SMA NEGERI Rambipuji, East Java Tahun Ajaran 2017/2018. *Jurnal Pendidikan, 12*(2), 185–191.

Tessmer, M. (1993). *Planing and conduction formative evaluation: Improving the quality of education and training.* Philadelphia.

Tomlinson, B. (2011). *Material development in language teaching* (2nd ed.). Cambridge University Press.

Trilling, B. (2009). *21st century skills: Learning for life in our time.* Wiley.

Yates, L. (2004). *What does good educational research look like? Situating a field and its practices. Conducting educational research.* What Does Good Educational Research Look Like? McGraw-Hill International. ISBN 978-0-335-21199-9.

Zubaedi. (2011). *Desain Pendidikan Karakter.* Prenada Media Group.

Chapter 11
Teacher Education in Lao People's Democratic Republic

Varadune Amarathithada, Vong Deuan Osay, and Richard Noonan

Abstract This chapter covers teacher education and the characteristics and deployment of school teachers in Lao PDR. The teacher education programs covered here range from early childhood education and development through upper secondary general education. Both pre-service and in-service teacher professional development are covered. Policy and practice concerning inclusive education and other equity issues are also discussed as they relate to teacher education. The historical development of teacher education from the post-revolutionary period to the end of the twentieth century is discussed elsewhere (Amarathithada et al in Teachers and teacher education. Chapter 7 in Noonan (Ed.), pp. 163–190, 2020). The most significant policy and other developments in teacher education in the twenty-first century and current problems and policy issues in teacher education are discussed in depth here. Although the Ministry of Health and the Ministry of Labor and Social Welfare also provide some education and training services, this chapter is limited to the professional preparation of teachers in public and private pre-school institutions and primary and secondary schools operating under the Ministry of Education and Sports (MOES). Both public and private schools are covered.

Keywords Teacher education · Lao PDR · Characteristic · Deployment · Policy · And practice

Abbreviations and Acronyms

ASLO	Assessment of Student Learning Outcomes.
B.Ed	Bachelor of Education.
DESO	District Education and Sports Office.
DHE	Department of Higher Education.

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DTE	Department of Teacher Education.
DTVE	Department of Technical and Vocational Education.
EFA-NPA	Education for All National Plan of Action.
EQASP	Education Quality Assurance Strategic Plan [for 2011–2020].
ESDP	Education Sector Development Plan [for 2011–2015].
ESQAC	Educational Standards and Quality Assurance Center (Ministry of Education).
ESSDP	Education and Sports Sector Development Plan [for 2016–2020].
FOE	University Faculty of Education.
GPIA	Gender Parity Index Adjusted.
IEAD	Institute for Educational Administration Development.
LAOSIS	Laos Statistical Information Service.
LS	Lower Secondary (Grades 6–9).
LSSS	Lower Secondary School Survey.
MDG	Millennium Development Goal.
MOES	Ministry of Education and Sports. (Note that the Ministry of Education was renamed Ministry of Education and Sports in September 2011).
MOPI	Ministry of Planning and Investment.
NCTC	National Charter of Teacher Competencies.
NESRS	National Education System Reform Strategy.
NOUL	National University of Laos.
NRIES	National Research Institute for the Education Sciences.
PA	Pedagogical Advisor.
PDN	Professional Development Network.
PESS	Provincial Education and Sports Services.
PMO	Prime Minister's Office
QA	Quality Assurance.
RIES	Research Institute for Education Sciences.
SITC	Statistics and Information Technology Center (MOES).
STEP	Secondary Teacher Education Program.
STR	Student/Teacher Ratio.
SY	School Year.
TDC	Teacher Development Center.
TEI	Teacher Education Institution.
TESAP	Teacher Education Strategy 2006–2015 and Action Plan 2006–2010.
TTC	Teacher Training College.
TUP	Teacher upgrading program.
TVET	Technical and Vocational Education and Training.
UBE	Universal Basic Education.
US	Upper Secondary (Grades 10–12).
VEDC	Village Education Development Committee.
VEDI	Vocational Education Development Institute.
WAU	World Around Us. (Civics education at primary level).

Introduction

This chapter covers the area of responsibility of the Ministry of Education and Sports (MOES),[1] Department of Teacher Education (DTE), i.e. on teachers serving from pre-school through upper secondary general education. More complete coverage of teacher education in Laos can be found in the following:

- Teachers and teacher education: Amarathithada et al. (2020), Chap. 7, pp. 163–190;
- Teacher education for technical and vocational education and training: Phoumilay and Noonan (2020, Chap. 5, pp. 111–142);
- Non-formal education and lifelong learning: Saleumsouk et al., (2020, Chap. 6, pp. 143–163);
- Post-secondary and Tertiary Education: Moxom and Noonan (2020, Chap. 8, pp. 191–216); and
- Buddhist Education: Vongsopha and Noonan (2020, Chap. 10, pp.245–263).

Teachers play a most significant role in children's education, and many policy issues relate specifically to teachers and teacher education:

- Selection of candidates for teacher education;
- The candidates' employment intentions after completion of the program;
- Available and preferred teaching positions;
- Employment conditions;
- Deployment conditions; and
- Availability of physical facilities and teaching/learning materials.

Although it is more progressive to refer to "teacher education" and "teacher education institutions" (TEIs), the terms "teacher training" and "teacher training college" (TTCs) are still widely used. "TEI" here is a generic term, and "TTC" and "Faculty of Education" (FOE) are used when the distinction is necessary. There are four categories of TEIs:

- Eight provincial and regional Teacher Training Colleges (TTCs) for general education teachers, under the MOES Department of Teacher Education (DTE);
- Four Specialized TTCs under DTE;
- The Vocational Education Development Institute (VEDI), under the Department of Technical and Vocational Education (DTVE), which serves as a Technical and Vocational Education and Training (TVET) teacher education institution; and
- Four University Faculties of Education (FOEs).

Section Emerging Teacher Education Policy below concerns general policy on teacher education. Section Teacher Education Institutions and Programs concerns teacher education institutions and programs. Section Teachers and Teaching/Learning Practices covers teaching and learning methods used in the

[1] Note that in late 2011 the Ministry of Education (MOE) was renamed Ministry of Education and Sports (MOES). In this chapter, the contemporaneous acronym is always used.

schools and TEIs. Section Teacher Recruitment, Employment, Deployment, and Management covers issues related to recruitment, employment, deployment, and management of teachers. Section Issues and Challenges discusses some of the issues and challenges in teacher education and training in Laos today and some of the policy responses. Section Statistical Trends provides some statistical evidence about the teacher corps and current trends in teacher education and training.

Emerging Teacher Education Policy

Education Sector Vision, Strategy, and Planning. The twenty-first century began with a renewed thrust for the quantitative and qualitative development of the education system. Whereas in the past, development of the education system was based on a sub-sectoral approach, the new century began with a program approach across sub-sectors and a sector-wide approach. A major theme was qualitative development, and teacher education and deployment were a centre of focus. The aims for education system development by 2020 were set in key official documents shown in Box 11.1.

Box 11.1 Major Policy Documents for Teacher Education

- Education Strategic Vision up to the Year 2020 (MOE, 2000).
- Education Strategic Planning 20 Years (2001–2020), 10 Years (2001–2010), and 5 Years Development Plan for Education (2001–2005) (MOE 2001).
- Education for All National Plan of Action (2003–2015) (EFA-NPA) (MOE 2005).
- Teacher Education Strategy 2006–2015 and Action Plan 2006–2010 (TESAP) (MOE, 2006).
- National Charter of Teacher Competencies (NCTC) (MOE, 2007).
- Education and Sports Sector Development Plan 2016–2020 (ESSDP) (MOES, 2015).

The seminal documents Education Strategic Vision (2000) and Education Strategic Planning (2001) pointed the way for the quantitative and qualitative development of the education system, including extending compulsory education. Improvement of teacher preparation was a major recurrent recommendation. Most teachers at pre-primary and primary school level, had "8 + 3" or lower qualifications, i.e. completed lower secondary (LS) education followed by a three-year teacher training program. About half of the teachers at secondary level had "11 + 3" qualifications, i.e. completion of upper secondary (US) education followed by a three-year teacher education and training program. At the beginning of the twentieth about half of the teachers had only "8 + 3" or lower qualifications (MOE 2000, pp. 7–46).

Education for All National Plan of Action. The Education for All National Plan of Action (EFA-NPA) (MOE 2005) was developed to meet the EFA goals. It focussed on three main target areas: (1) Access and Participation; (2) Quality and Relevance; and (3) Management. All objectives under the Quality and Relevance program concern activities directly related to either teacher education or the deployment of teachers, as shown in Table 11.1. Education quality and relevance were to be improved by both improving teacher education and providing more equitable and inclusive deployment of teachers.

The EFA-NPA indicated future plans to add one grade to LS, changing the structure from an 11-year system (5 + 3 + 3) to a 12-year system (5 + 4 + 3) to align the Lao school system with the standard in the region. That made improvement of teacher education all the more urgent. The aim was to improve teacher:

- To reform the teacher education curricula in line with the future 5+4+3 school system structure;
- To strengthen both pre- and in-service teacher and staff development;
- To implement national teacher certification and accreditation standards; and
- To transform TEIs into degree-granting institutions.

The aim was to make teacher deployment more equitable and inclusive by attracting more TEI applicants from rural, remote, and other disadvantaged areas and by providing incentives for new TEI graduates to teach in such underserved

Table 11.1 FA-NPA quality and relevance in primary and lower secondary education

No	Objective	Activities
6.1	Improve management and coordination of teacher education delivery	17
6.2	Develop a comprehensive but flexible teacher training curriculum	15
6.3	Capacitate teacher trainers through training of trainers program for different modalities of teacher training	8
6.4	Improve management capacity in TEIs through management training	4
6.5	Provide research to support teacher education development projects	2
6.6	Increase recruitment and retention of teachers, and improve their status through teacher incentives	4
6.7	Effective deployment of trained and professional teachers	10
6.8	Improve quality of pre-service teacher training	9
6.9	Improve quality of in-service teacher training	10
6.10	Provide learning materials and adaptation to local conditions	11
6.11	Improve student assessment systems	5
6.12	Improve management and supervision of schools	7
6.13	Expand health promotion in primary schools (HPS), in collaboration with the Ministry of Health and concerned organizations	8
	Total Activities	***110***

Source MOE (2005, pp. 58–63)

areas. In addition, minimum standards of student learning outcomes were set for Grades 3, 5, and 9.

Teacher Education Strategy and Action Plan. A seminal document guiding the development of teacher education in the early years of the twenty-first century was the Teacher Education Strategy 2006–2015 and Action Plan 2006–2010 (TESAP) (MOE 2006). The aim was to support the quantitative and qualitative development of basic education. The Strategy included continuing professional development, enhancing the status of and incentives for teachers and teacher educators, and improving teaching methods.

National Charter of Teacher Competencies. The TESAP was followed by the development of the National Charter of Teacher Competencies (NCTC) to support career-long professional development (MOE 2007). It also led to the development of a system of accreditation and certification of teachers and a quality assurance (QA) system for TEIs.

National Education System Reform. The restructuring from a 5 + 3 + 3 school system to a 5 + 4 + 3 system was formalized in the Education Law of 2007 for implementation in the 2009/2010 school year (SY). Implementation was guided by the National Education System Reform Strategy (NESRS) 2006–2015 (MOE, 2008). The reform strategy included the improving of the competence and status of teachers. It included upgrading of some of the TTCs to enable the awarding of the Bachelor of Education (B. Ed.) programs in cooperation with the Faculty of Education, National University of Laos (NUOL).

Education Sector Development Plan. The first Education Sector Development Plan (ESDP) (MOES 2011a) focussed on equitable teacher supply, especially assuring that remote, isolated, and underserved communities have access to qualified teachers. This was to be achieved by:

- Providing scholarships for students from such communities to attend teacher training;
- Improving incentive for recruiting and retraining well-qualified teachers to remote and poor districts; and
- Enhancing the status of teachers and their living conditions.

The Education Standards and Quality Assurance Center (ESQAC) was established at MOE in 2008, leading to the Education Quality Assurance Strategic Plan for 2011–2020 (EQASP) (MOE 2010), which covered the whole education system. Program 5 of the EQASP covered the development of a QA system for teacher education, as shown in Table 11.2.

The first Education Sector Development Plan (ESDP 2011–2015) (MOES 2011a) established new target distributions for teacher qualifications. The second ESDP (ESDP 2016–2020) targets represented a stronger focus on qualifications of TEI teachers than of school teachers (MOES 2015). Improvement of teacher education through upgrading of qualifications of TEI lecturers was a strategic priority for improvement of student learning outcomes at school level.

Table 11.2 Quality assurance strategy for teacher education, 2011–2020

Main activities
To Develop
Quality standards for TEIs and FOEs;
Mechanisms for quality self-assessment and internal and external assessment;
Standards for teacher training programs and modules;
A registration system for programs and modules for efficient management; and
Rules for credit transfer between teacher education programs
To Establish
QA units in TEIs and FOEs; and
A council for teacher education institution quality accreditation
To Organize
Internal assessments with assessor teams TEIs and FOEs;
Teacher education external assessors training
Teacher education external assessment
To Strengthen
Self-assessment capacity in teacher education

Source MOE (2010, pp. 9–13)

Teacher Education Institutions and Programs

Pre-service Teacher Education Institutions and Programs

Prior to the National Education System Reform, teacher education for lower secondary school teachers was based on completion of lower secondary followed by a three-year Certificate-level teacher education (8 + 3) or completion of upper secondary followed by a three-year Diploma-level program (11 + 3) intended specifically for teachers at lower secondary level.

Many pre-primary and primary teachers at that time had received pre-service professional preparation based on completion of a 3-year Certificate-level teacher education program following lower secondary school (9 + 3). Today most pre-primary and primary teacher trainees participate in a two-year Diploma-level program (12 + 2). The 9 + 3 program is still important, however, because it enables lower secondary school graduates from poor and remote non-Lao Tai minority ethnic communities to receive teacher education and return to their communities to teach.

Most TEIs no longer offer separate programs for lower- and upper secondary teachers. Instead they offer combined secondary programs, which allows teachers to serve from Grades 6 to 12. Today pre-service education for secondary school teachers is based on 4-year Bachelor degree programs or on Master degree programs.

TTCs offer Bachelor degree programs, and University FOEs offer Bachelor and Master degree programs for secondary school teachers. University FOEs also offer Master degree programs for TTC lecturers to upgrade their qualifications.

Most TEI students in pre-primary and primary programs are enrolled at Certificate or Diploma level, but most students in secondary teacher education programs are enrolled at Bachelor or Master degree level. In the specialized TEIs (Music and Arts, Physical Education) most of the enrolment is at the Certificate or Diploma level.

There are altogether 17 teacher education institutions providing professional preparation:

- Eight regional or provincial TEIs under supervision of DTE;
- The National Art Education Teacher Training College, the National Physical Education Teacher Training College, and two Buddhist Teacher Training Colleges, also under the supervision of DTE;
- Four university faculties of education (FOEs), serving under the supervision of the Department of Higher Education (DHE); and
- The Vocational Education Development Institute (VEDI), under the joint supervision of DHE and the Department of Technical and Vocational Education and Training (DTVE).

The distribution of TTC enrolments by institution and teaching level is shown in Table 11.3, and the distribution of FOE enrolments by degree level is shown in Table

Table 11.3 Enrolments in teacher education institutions 2018/19

TTC	Program Grade Level			
	Nursery	Primary	Secondary	Total
Provincial & Regional TTCs				
Luangnamtha	141	316	387	844
Luang Prabang	217	125	575	917
Khungkhay	116	92	643	851
Bankern	204	92	596	892
Savannakhet	194	201	711	1106
Saravane	303	213	273	789
Pakse	136	123	631	890
Dongkhamxang	573	368	200	1141
Specialized TTCs				
Music and Arts			436	436
Physical Education			471	471
Wat Ongtue Monk TTC, Vientiane			280	280
Wat Thahin Monk TTC, Champasack			298	298
Total TTCs	**1884**	**1530**	**5501**	**8915**

Source MOES (2019a, Table 58, pp. 58–65)

Table 11.4 Enrolments in university faculties of education 2018/19

University faculties of education and institutes	Bachelor's degree	Master's degree
National University of Laos. (Vientiane)	1575	177
Souphanouvong University (Luang Prabang)	564	
Savannakhet University	546	
Champasack University	976	
Vocational Education Development Institute. (Vientiane)*	141	
Total University Faculties of Education & Institutes	**3802**	**177**

Source MOES (2019a, Table 60, pp. 69–74)
* The Vocational Education Development Institute (VEDI) is under the joint responsibility of the Department of Higher Education (DHE) and the Department of Technical and Vocational Education and Training (DTVE)

11.4.

In-service Teacher Education Programs

The continuing professional development of teachers is provided with formal and non-formal programs, self-development, and collaboration among schools, usually at the district level. Following the school system structure reform (from 5 + 3 + 3 to 5 + 4 + 3), teacher upgrading programs (TUPs) are used for raising teachers' formal academic qualifications, especially for teachers with out-of-date 5 + 3 Certificates or 8 + 3 Diplomas. In each province there is a designated In-service Teacher Upgrading Center (ISTUC) for primary school teachers. An ISTUC can be a TTCs (possibly in a neighbouring province), a Provincial Education and Sports Services (PESS), or a District Education and Sports Office (DESO). Teachers with basic qualifications have the right to relevant professional upgrading, which is usually provided by a TTC or an FOE.

"Refresher" programs usually introduce new content, pedagogical methods, or policies for teachers generally. Refresher courses are usually delivered by teams of district or provincial trainers, often Pedagogical Advisors (PAs) or staff from the PESS or a TTC. PAs are well-qualified, experienced teachers at district or provincial level. They are responsible for monitoring, supervising, and supporting teachers at school level. PAs serving at primary level are usually based at the DESO, while those serving at secondary level are usually based at the PESS.

There are several pathways for upgrading the formal qualifications of teachers:

- Professional development programs at TEIs, which are usually organized during the school summer breaks and often continuing for several summers;
- School-based training with internal supervision and the support of the Professional Development Network (PDN); and
- Online programs.

There are also upgrading programs that do not upgrade formal qualifications, including:

- Not-for-credit workshops; and
- Workshops for learning more in-depth about government policies.

To support the new 5 + 4 + 3 school system structure, competency-based curriculum development and assessment methods were introduced. Pre-service programs were updated, and the commitment to Universal Basic Education (UBE) and the Millennium Development Goals (MDGs) was strengthened.

The MOES Institute for Educational Administration Development (IEAD) was established for improving the Ministry's human resource development functions. The Teacher Development Center (TDC; a unit within IEAD) supports development of curricula and instructional materials for all pre-service training programs in support of the new education system (5 + 4 + 3) and competency-based curricula.

MOES also introduced a Bachelor-level Secondary Teacher Education Program (STEP) for lower and upper secondary education teachers, which places a greater focus on soft skills. Under the present system of teacher allocation to schools, MOES determines the number of candidates per province to attend teacher education. After they have completed their education program, they usually return to their home province, take a provincial examination, and are allocated by the provincial and the district authorities to schools (RIES, 2007, p. 64).

Teachers and Teaching/Learning Practices

Primary Teachers' Characteristics and Their Work Situation

Teaching and Learning Standards. The aim of the NCTC is to support good teaching methods through pre-service teacher education programs, practical teaching experience, and in-service teacher education programs. The main categories used for assessment of teacher performance and to guide teachers' professional development include teachers':

- Personal characteristics and professional ethics;
- Knowledge and understanding of children;
- Subject matter knowledge; and
- Pedagogical knowledge.

Teachers can be promoted to higher positions with a salary increment (Sect. 5 below) based on performance assessment.

Table 11.5 Assessments of student learning outcomes (ASLO)

ASLO	Year	Grade	Subjects	Sample size
I	2006	5	Lao language, Mathematics, World around us (WAU)	7450
II	2009	5	Lao language, Mathematics, World around us (WAU)	6188
III	2011	3	Lao language, Mathematics	5860
IV	2017	3	Lao language, Mathematics	17,535

Sources RIES (2007, 2010, 2014, 2018)

Research Institute for Educational Sciences (RIES). The main research unit under MOES is the Research Institute for Educational Sciences (RIES),[2] which regularly conducts curriculum-based nationally representative sample surveys of student achievement. The results of these surveys are reported under the collective title Assessment of Student Learning Outcomes (ASLO).

These surveys also include information about characteristics of teachers and classroom teaching and learning practice (see Table 11.5). The main findings from these surveys are reported below.

The teacher characteristics reported here are based on the findings of the ASLO national surveys shown in Table 11.5 above and other sources as noted.

Basic Characteristics and Conditions of Teachers. At Grade 3 level, approximately 52% of teachers are female, but at Grade 5 level approximately 60% of teachers are male. The mean age of teachers is around 35 years. Primary school teachers have on average about 10–15 years of teaching experience.

Teachers at Grade 3 level consider career advancement, perception of teacher status, and educational outcomes to be most important. Relationships with others are important, especially relationships with the school management and the community. The most important sources of satisfaction for teachers are salary, teaching techniques, and having teaching and learning materials. Very few teachers have a paid second job, although many teachers in rural and remote areas work in farming, and a few provide extra teaching outside school hours (ESQAC & Emblen, 2011).

Most teachers live in their own housing or with their parents, but 10% live in government housing. Living conditions are generally not seen as important sources of satisfaction.

Almost all classrooms have blackboards, a teacher's desk, and a table, but many schools in rural and remote areas do not have electricity or bookshelves. Nearly all students have sitting and writing places and are in non-shift classrooms, but there are too few books in classroom book corners—often not more than about 25.

Most teachers have access to teacher guides, but only half have access to extra reading materials, and less than 20% have access to a Lao dictionary.

Teaching Practices. The teaching load for Grade 3 teachers is approximately 30–35 h per week, typically around 4 h in the morning and 3 h in afternoon (ESQAC & Emblen, 2011). The Grade 5 teaching load is typically 35–36 h per week, and

[2] Formerly named National Research Institute for Educational Sciences (NRIES).

teachers spend approximately 7 h per week checking homework and preparing lessons. Teachers usually meet parents about four times per year.

For teaching the Lao language the most important pupil activities are "Working in pairs or groups to discuss", followed by "quizzes, tests, examinations, etc.", and "learning by heart, reciting tables". "Individual teaching" and teaching in small groups are uncommon approaches.

As goals, "thinking skills" and "basic reading skills" are considered very important, while "enjoy doing an exercise in Lao" or "writing a story" are considered less important.

Almost all Grade 3 and Grade 5 teachers assign homework in Lao Language and Math at least once or twice per week, sometimes as often as 3–4 times per week, and they almost always correct the homework.

Visits by School Principals and Pedagogical Advisors. Pedagogical Advisors (PAs) are selected from among the professional personnel at the provincial and district education offices. The provincial education offices then organize the training of the advisors. The Heads of the District Education Offices decide which schools are to be visited by the PA. According to the regulations, each teacher should be visited by a PA three times per year, but many report that they are visited by a PA less than twice per year. Most teachers view the PA's role as giving advice, but many feel that the PAs contribute little to improving the classroom teaching. Most teachers report that they are visited by the school Principal at least once a term but are seldom observed by other teachers.

Lower Secondary Teachers' Characteristics and Their Work Situation

Lower Secondary School Survey (LSSS). In 2006 the Lower Secondary School Survey (LSSS) was conducted at Grade 6 level and included classroom observation in Lao language classes and mathematics classes (Benveniste et al., 2007).[3] Only about 75% of the teachers had prepared lesson plans, and only half of the teachers reported that they had frequent informal conversations with other teachers about teaching. Nearly half reported visiting another teacher's classroom, but few did so on a regular basis. More than half reported that their lessons were observed monthly by the school Principal, and most reported that the visits were very helpful. Few teachers reported being visited by officials from MOES, the PESS, or the DESO (ibid., pp. 83–84).

Students were usually assigned homework approximately three times per week. Students usually worked individually, rather than in groups. Teachers often gave praise or encouragement but rarely scolded. They often asked students to give opinions. Both teachers and students used the blackboard. Almost 90% of teachers copied lessons from the textbook onto the blackboard. Most teachers reported that they

[3] The LSSS was not based on a nationally representative sample.

emphasized the importance of developing *thinking skills and problem-solving*, but in practice the most common method of instruction was *frontal lecturing, copying lessons on the board, recitation, and memorizing* (ibid., pp. 85–86).

Teacher Recruitment, Employment, Deployment, and Management

Categories of Teachers. There are several categories of teachers:

- "Quota teachers" are civil servants, whose salary is based on a long-term commitment established by the National Assembly and the Ministry of Finance—the "government quota";
- "Contract teachers" are usually employed on a one-year contract, and their salary is determined on the basis of non-binding recommendations by MOES and agreed by the both parties—usually the teacher and the DESO or the PESS;
- "Community teachers" or "village teachers" are employed by the local community. Their remuneration is based on negotiations between the teacher and school or the Village Education Development Committee (VEDC).

These employment categories do not always reflect formal qualifications. There are quota teachers who are underqualified (especially by current standards), and volunteer teachers who are qualified recent TEI graduates seeking a "quota assignment". Such contract and volunteer teachers typically constitute some 8–10% of primary school teachers and 12–16% of secondary school teachers.

Pay Conditions. Teacher pay scales in public schools are nationally standardized. Salary supplement are provided to attract qualified teachers to serve in some areas:

- 30% for remote and isolated area;
- 40% for remote and mountainous areas; and.
- 50% for especially difficult areas.

There are also pay supplements for multi-grade teaching: an increment of 25% for two-grade classes and 50% for three-grade classes.

Teachers are allowed to have some kinds of other paid employment outside the regular working hours. Many teachers tutor students or use their skills in other areas than education. For example, some English teachers work as tourist guides, and some technology teachers provide ICT or other technical support. In rural areas, many teachers receive payment in kind in the form of rice from parents' associations. In some places they may receive land or wood when the community builds a school (Barma & Orac, 2014, *passim*).

Even with salary supplements, there is often a supply and demand imbalance between urban, rural, and remote areas. This is due in part to lack of qualified teachers applying for positions in rural and remote areas (MOES 2019b). More qualified teachers tend to prefer to teach in urban areas, so positions in urban areas are often

"over-subscribed" (Barma & Orac, 2014, p. 18). See also Gender, Ethnicity, and Geography below.

In principle, the main determinant of teacher allocation is the official Student/Teacher Ratio (STR) targets, as shown in Table 11.6. It is sometimes suggested that the teacher shortage in rural and remote areas is due to the small class size in such areas, but the evidence is mixed, as shown in Table 11.7. However, it is inherently difficult to control the actual STR in communities with a small number of children of primary school age. For primary school the STR target is 34:1, but in small schools this can be difficult to achieve. For example, consider a community with 46 children at Grade 3 level. If there is only one Grade 3 teacher, the STR is 46:1, which is too high by 12; if there are two Grade 3 teachers, the STR is 23:1, which is too low by 11.

The conditions in many small rural and remote communities cannot support complete schools (primary schools with all five grades) with one teacher per grade.

Table 11.6 Student/teacher ratios targets by level of educational institution

Type of institution	Education sector development plan 2011	Teacher education action plan 2011	PMO decree 2012
Pre-school	20:1	20:1	15:1
Primary school	31:1	30:1	34:1
Lower secondary school	25:1	25:1	30:1
Upper secondary school	20:1	20:1	25:1
Vocational school	–	–	20:1
Teacher education institutions	–	25:1	–
University	–	30:1	30:1

Sources "Education Sector Development Plan". (MOES 2011a)
"Teacher Education Action Plan 2011-2015". (MOES 2011b)
"Decree on Teacher Civil Servants". (Prime Minister's Office 2012)
Note The PMO Decree covers only public institutions

Table 11.7 Mean class size for remote, rural, and urban primary schools

	ASLO I, 2006		ASLO II, 2009		ASLO III, 2011	
Location	Grades 1–5	Grade 5	Grades 1–5	Grade 5	Grades 1–5	Grade 3
Remote	33.8	26.2	35.7	28.9	25.3	26.6
Rural	31.1	27.7	31.6	26.9	38.2	26.0
Urban	33.5	33.2	27.0	27.6	30.8	29.1
National	32.6	30.5	30.5	27.3	34.4	29.6

Sources RIES (2007, p. 101; 2010, p. 142; 2014, p. 120)
Note These figures are estimates based on large-scale national sample surveys

The two most common solutions to managing STRs so that all children can attend school are *multi-grade teaching* and *shifting* (see Fig. 11.1). Approximately 26–28% of primary classrooms nationwide conduct multi-grade instruction, but the figures vary considerably, from 5% in Vientiane Capital to over 50% in the most sparsely populated provinces (MOES 2020a, p. 11). Shifting (*i.e.* students attend only the morning shift or only the afternoon shift) is much less common. At Grade 3 approximately 8% of students attend shifted classes; at Grade 5 level approximately 3% of students attend shifted classes (RIES, 2014, p. 79; 2010, p.88).

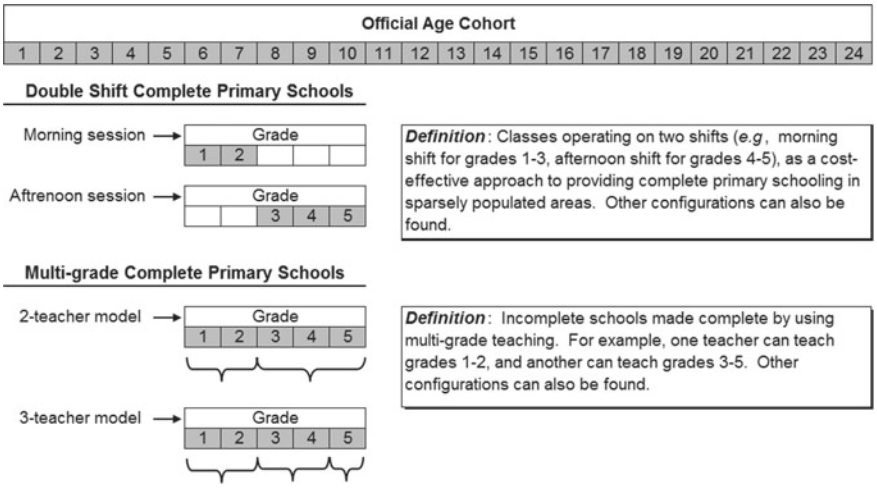

Fig. 11.1 Shifting and multi-grade classrooms

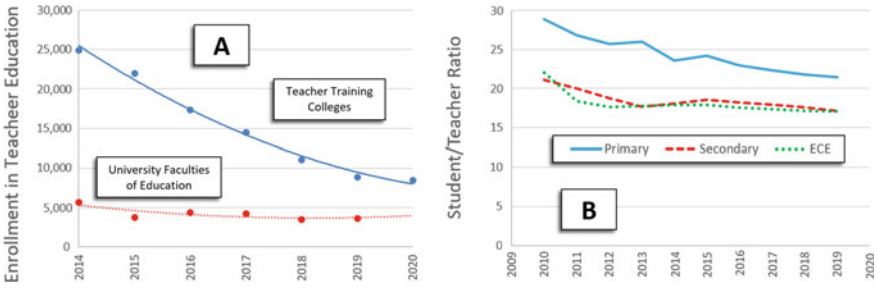

Fig. 11.2 TEI enrolments and student/teacher ratios. *Source* MOES Annual School Census 2013/14 to 2019/2020; LAOSIS 2021

Issues and Challenges

Quality: Pre-service and In-service Education and Training

Practice Teaching. The time allocated to TEI students for actual classroom teaching practice is quite short. The two-year Diploma program for primary school teachers provides only one week of classroom observation in each of first three semesters and 10 weeks of practice teaching in the final semester.

The 2016–2020 ESDP recommends one demonstration school be attached to each TEI, with defined missions and duties for the professional development of teachers (MOES 2015, p. 57). Practice teaching is typically conducted in complete schools (*i.e.* schools with all five primary school grades) and only single-grade classrooms. The conditions thus model "best practices", but some student teachers ("teacher trainees") never experience the kind of multi-grade classrooms and shifting context in which they ultimately will teach.

Facilities. The facilities and resources available to TEIs are often inadequate and outdated. Often they do not allow for practical exercises, they lack science laboratories and ICT facilities, and they have limited access to reading and reference materials. The 2016–2020 ESDP strategy for increasing the quality of teaching in TEIs includes improvement of laboratories, IT facilities, libraries, and student dormitories (MOES 2015, p. 60).

In-service Programs. In-service teacher education is typically based on a cascade approach involving lecture and theory-oriented content that often does not reflect the individual teacher's real conditions and needs.

It is suggested that the approach of internal supervision should involve more school-based professional development. That would provide more effective support for existing school-based teacher professional development, managed by principals and supervised by PAs. Principals' monthly meetings should be coordinated with a TEI in-service planning at district and province level, supported by a professional development network (PDN).

Capacity of TEI Faculties

Inclusive Education and Special Needs. The National Strategy and Action Plan on Inclusive Education was an important step towards Education for All (MOES 2011a), but the number of teacher educators with expertise in "special needs" education is very limited. As a result, the integration of special needs and disability into the pre-service teacher education programs is quite limited. The ESDP 2016–2020 strategy includes developing TEI lecturers' skills for teaching learners with diverse learning needs, such as those whose mother tongue is non-Lao Tai and children with special needs (MOES 2015, p. 58).

Important development goals for TEI lecturers include:

- Improvement of pedagogical knowledge of TEI lecturers for teaching Lao language reading and writing, mathematics, natural sciences, and social sciences;
- Development of skill in the use of laboratories for teaching biology, chemistry, and physics;
- Development of the capacity for classroom-based research and encouraging study for Master's and Ph.D. degrees;
- Improvement of proficiency in the English language and ICT; and
- Development of the capacity of TEI lecturers and encouragement to be active in speaking and writing about education, and provision of consulting services.

Recruitment and Deployment

The Common Lao Perception of School Teachers. In Laos, teaching is regarded as a "noble profession", and teachers are often influential members of their communities. In remote communities they often hold leadership positions and have a significant influence on the social and political development. Nevertheless, teaching is not generally regarded as a "fully fledged profession". In addition, low salaries and minimal power and authority result in the relatively low status of school teaching compared with other professions (MacKinnon & Thepphasoulithone 2014, p. 21).

Gender, Ethnicity, and Geography. Inclusiveness is an integral feature of Lao education policy, and it is thus also a feature of teacher education. The 2011–2015 Teacher Education Action Plan emphasizes "gender balance, geographic, and ethnic distribution", although no specific targets are given for the gender distribution of teachers (MOES 2011b, *passim*). Table 11.8 shows the distribution and the Gender

Table 11.8 Gender distribution of students in TTCs and FOEs

Program	Female	Male	% Fem	GPIA
TTCs				
Pre-school	1884	0	100	2.00
Primary	931	599	61	1.36
Secondary	2262	1754	56	1.22
Secondary Secular Specialist TTCs*	428	479	47	0.89
Sum of Secular TTCs	**5505**	**2832**	**66**	**1.49**
FOEs				
Bachelor level	2205	1597	58	1.28
Master's level	67	110	38	0.61
Sum TTCs and FOEs	**7777**	**4539**	**63**	**1.42**

Source MOES (2019a, pp. 58–65, 69–74)

* Includes Music and Arts TTC and Physical Education TTC but does not include the two Buddhist monk TTCs

Table 11.9 Distribution of ethnic groups in Laos

Ethnic group	%
Lao Tai	62.4
Mon-Khmer	23.7
Hmong–Yao	9.7
Tibeto-Burman	2.9
Other	1.2

Source MOPI (2016. Table P2.7, pp. 121–122), author summation

Parity Index Adjusted (GPIA)[4] by teaching program level for TTCs and FOEs. The most significant gender imbalance at TEIs is at the Pre-school level, where all of the teachers are female. Geography is another source of imbalance, and secondary schools in rural and remote areas often lack qualified teachers (MOES 2019b, p. 3).

Laos is a multi-ethnic society, as shown in Table 11.9. In some areas—typically small towns, rural, and remote areas—language barriers present a significant challenge affecting education participation and quality, especially for very young children. Where children and their teachers are members of the same ethnic group, there is a visibly close relationship between the teachers and children. Where the children and their teachers are members of different ethnic groups, "the children tend to play among themselves rather than demand the attention of the teacher" (MOES 2020b, p. 4).

Financing the Civil Servant Quota. New TEI graduates cannot always be recruited as teachers due to the limited civil servant quota (see Categories of Teachers above), and as a result new admissions into TEIs are sometimes reduced by the authorities. Nevertheless, many TEI graduates are not recruited. The shortage of teachers in rural and remote areas often leads to oversize classes, multi-grade classes, or shifting. These condition are among the factors causing high repetition rates at primary level (MOES, 2019b, *passim*). In late 2020, according to a Prime Ministerial decision, the largest number of new civil servants were to be allocated to MOES, almost all of whom were to be teachers (Vientiane Times, 31 December 2020, p. 3).

Statistical Trends

The Data Set and the Projections

This section provides statistical information on development trends, in some cases with author estimates to 2020. The source of the data set used for most of the tables below is the UNESCO Institute for Statistics (UIS), but the original source of the

[4] Gender parity is indicated when GPIA = 1.0. GPIA < 1.0 shows that the indicator in question for is lower for females than for males. GPIA > 1.0 shows that the indicator for females is higher than that for males.

data used here is the MOES Statistics and Information Technology Center (SITC), unless otherwise noted. The SITC data are used annually to produce the MOES Annual School Census. The advantage of using the UIS data set is that the data are conveniently structured for time series analysis and are based on standardized definitions that facilitate cross-national comparisons. The tables below cover both public and private institutions.

Teacher Deployment and Characteristics

Over the past decade there has been a significant decline in TEI enrolments, raising concern about TEI policies and practices. The decline is due in part to the issues discussed above in Financing the Civil Servant Quota. A closer examination, however, suggests two other developments leading to this decline. First, Laos experienced rising economic growth rate from the early 1990s, accompanied by declining fertility rates, leading in turn to a slight decline in the higher education population cohort from 2012. This same decline in enrolments has also been seen in the whole higher education subsector at large (Moxom & Noonan, 2021).

Second, the rapid growth of employment opportunities in the industrial sector has tended to attract many youth who do not see teacher education as a path to attractive employment opportunities. Despite the decline in TEI enrolments, however, Student/Teacher ratios have also declined at all levels, from pre-school through secondary, as shown in Fig. 11 2 and Table 11.10.

Table 11.11 displays the gender distribution of teachers at each level. At pre-primary level, almost all teachers were women throughout the first two decades of the twenty-first century, although a small number of men entered the profession. At all other levels the distribution was more balanced, but the trend has been towards an increasing proportion of female teachers, approaching gender parity by the end of the second decade.

Table 11.10 Actual and projected student/teacher ratios, by level

	Actual				Estimated
	1999/00	2004/05	2009/10	2014/15	2019/20
Pre-primary	17	15	19	19	18
Primary	30	31	29	24	20
Lower secondary	22	23	20	18	16
Upper secondary	21	28	21	19	18

Source http://data.uis.unesco.org/, accessed 30 November 2018

Table 11.11 Gender distribution of teachers, by level (% female) from 2000

	Actual				Estimated
	2000	2005	2010	2015	2020
Pre-primary	100	99	97	98	99
Primary	43	45	51	51	52
Lower secondary	41	41	47	52	51
Upper secondary	39	44	47	46	51

Source http://data.uis.unesco.org/, accessed 23 February 2021

Table 11.12 Proportion teachers with required qualifications, by level (%)

	Actual				Estimated
	2000	2005	2010	2015	2020
Pre-primary	81.3	81.8	97.5	91.5	90
Primary	76.7	83.4	95.4	98.4	97
Lower secondary	98.5	91.0	99.3	99.5	98
Upper secondary	95.6	89.8	99.4	99.0	98

Source http://data.uis.unesco.org/, accessed 23 February 2021

Teacher Qualifications

At the pre-school and primary levels the proportion of trained teachers has risen considerably since the beginning of the twenty-first century, as shown in Table 11.12. At the secondary level the proportion of trained teachers has remained relatively stable but may have declined very slightly from 2015 to 2020. This possible decline may be a reflection of two factors. First, due to rising qualification standards, some teachers who were classified as "Trained" in 2000 were classified as "Untrained" in the later statistics. Second, with of the education system reform (see National Education System Reform above) and the rapid expansion of enrolment at the secondary level, some teachers who were qualified at a lower level were "promoted" to teach at a level for which they were not formally qualified.

Conclusions

Although faced with considerable challenges, the teacher education system has developed favourably from the beginning of the century. Student/Teacher ratios have improved and the proportion of qualified school teachers has risen even as the number of TEI students has declined. Significant challenges remain, however. One of the most difficult challenges is to provide quality schooling in rural and remote communities,

especially where many children come from homes and communities where the Lao language is not spoken.

Appendix

Appendix: Selected Policy Aims for Teacher Education in ESSDP 2016–2020
By 2020
• 70% of all new trainees are selected by passing entrance examinations, and 30% are quota students awarded scholarships after selection by provinces
• 95% of all contracted teacher trainees are recruited as teachers
• 3 to 5 TEIs prepare teachers for pre-school teacher education
• 5 to 6 TEIs train primary teachers at Bachelor's level
• 6 to 7 TEIs train secondary education teachers at Bachelor's level in selected subjects based on the strength and readiness of each TEI to teach these subjects
• Each TEI has a demonstration school annex, with defined missions and duties in detail for implementation; and
• Each TEI has the capacity to support continuing professional development for general education teachers through in-service training programs

Source MOES (2015, pp. 56–57)

References

Amarathithada, V., Vorabouth, M., & Noonan, R. (2020). Teachers and teacher education. Chapter 7 in Noonan (Ed.), pp. 163–190.

Barma, N. H., & Orac, J. (2014). Tailoring civil service pay analysis and advice to context: Challenges, approaches, and the case of Lao PDR. Policy Research Working Paper 6744. World Bank.

Beneviste, L., Marshall, J., & Santibañez, L. (2007). *Teaching in Lao PDR*. MOE, World Bank.

Educational Standards and Quality Assurance Center and Valerie Emblen. (2011). Research report: Teaching practices and learning outcomes, Grade 3, two remote districts in Bokeo Province. Supported by Plan International. MOE.

Lao Statistics Bureau. (2018). *Lao population projections 2015–2045*. Ministry of Planning and Investment.

MacKinnon, A., & Thepphasoulithone, P. (2014). Educational reform in Laos: A case study. *International Journal of Educational Studies, 1*(01), 19–34.

Ministry of Education. (2000, October). *The education strategic vision up to the year 2020*. MOE.

Ministry of Education. (2001, August). *The education strategic planning, 20 years (2001–2020), 10 years (2001–2010), and 5 years development plan for education at the fifth plenary session (2001–2005)*. MOE.

Ministry of Education. (2005, March 24). *Education for all national plan of action 2003–2015*. MOE.

Ministry of Education. (2006, August 3). *Teacher education strategy 2006–2015 and action plan 2006–2010*. TESAP. No.174/PMO. MOE.
Ministry of Education. (2007). *National charter of teacher competencies*. MOE.
Ministry of Education. (2008, April). *National education system reform strategy (NESRS) 2006–2015*. MOE.
Ministry of Education. (2010, May). *Education quality assurance strategic plan for 2010–2015*. MOE.
Ministry of Education and Sports. (2011a, September). *Education sector development plan (ESDP) (2011–2015)*. MOES.
Ministry of Education and Sports. (2011b, October). *Teacher education action plan 2011–2015*. MOES.
Ministry of Education and Sports. (2015, December). *Education and sports sector development plan (2016–2020)*. MOES.
Ministry of Education and Sports. (2019a). *Annual School Census 2018–19*. Vientiane: MOES. February 22.
Ministry of Education and Sports. (2019b). *Education and sports sector performance annual report 2018–2019 and development plan for 2019–2020*. MOES.
Ministry of Education and Sports. (2020a). *Annual School Census, 2019–2020*. MOES.
Ministry of Education and Sports. (2020b, June 30). *Social assessment report: GPE III learning equity acceleration project (P173407)*. MOES.
Ministry of Planning and Investment. (2016). *Results of population and housing census 2015*. MOPI.
Moxom, N., & Noonan, R. (2020). Post-secondary and higher education. Chapter 8 in Noonan (Ed.), pp. 191–216.
Moxom, N., & Noonan, R. (2021). Higher education in Lao PDR: Challenges and direction. *Higher Education in Southeast Asia and Beyond*, 10.
Noonan, R. (Ed.). (2020). *Education in the Lao People's Democratic Republic: On track for the twenty-first century*. Springer Nature Singapore.
Phoumilay, P., & Noonan, R. (2020). Technical and vocational education and training. Chapter 5 in Noonan (Ed.).
Prime Minister's Office. (2012). '*Decree on Teacher Civil Servants*'. Decree of the Prime Minister, No. 177. Vientiane: Office of the Prime Minister.
Research Institute for the Education Sciences. (2007). *Grade 5 National Assessment Survey* (ASLO I). MOE.
Research Institute for the Education Sciences. (2010, June). *National Assessment of Student Learning Outcome (ASLO II), Primary Grade 5*. MOE.
Research Institute for the Education Sciences. (2014, June). *National Assessment of Student Learning Outcome (ASLO III), Grade 3*. MOES.
Research Institute for the Education Sciences. (2018, June). *National assessment of student learning outcome (ASLO IV), Grade 3*. MOES.
Saleumsouk, K., et al. (2020). Non-formal education and lifelong learning. Chapter 6 in Noonan (Ed.), pp. 143–162.
SEAMEO INNOTECH Regional Education Program (SIREP). (2010). *Teaching competency standards in Southeast Asian countries: Eleven country audit*. SEAMEO INNOTECH.
Vongsopha, S., & Noonan, R. (2020). Buddhist education, Chapter 10 in R. Noonan (Ed.), pp. 245–263.
Vientiane Times. (2020). Govt recruits fewer officials, prioritises teachers and doctors. No. 31 December, p. 3.

Websites

LAOSIS site for general education: https://laosis.lsb.gov.la/statHtml/statHtml.do?orgId=856&tblId=DT_YEARBOOK_E002&language=en&conn_path=I3.
Unesco Institute for Statistics: http://data.uis.unesco.org/.

Chapter 12
Teachers at the Cutting Edge of Educational Change: A Bangladesh Perspective

Manzoor Ahmed

Abstract The writer argues that the important questions about understanding and enhancing teachers' role in the education system may be put under four headings: (*a*) *The quantitative aspects*—the total numbers of teachers required in the national education system, numbers in different categories, demand and supply of teachers and the education workforce, and the significance of the size of the education workforce for personnel preparation through tertiary education; (b) *The qualitative aspects*—general intellectual capability, knowledge, and skills of teachers related to academic disciplines relevant for school curricula, knowledge, and skills about pedagogy, social and emotional maturity, and personal qualities and values orientation of teachers and would-be teachers; (c) *Preparing and orienting the education workforce*—attracting the intellectually capable to the profession, academic and professional preparation for the multi-dimensional role of the teacher and other education workers, orienting future teachers and education personnel to the high standards of the profession and inculcating loyalty to these standards; and (d) *Governance and management of the education workforce*—recruitment and deployment, professional support and supervision, rewards and incentives, enhancing social status, and creating supportive working conditions for teachers in the system. Based on the analysis of the above facets of the teacher's role and how they may be prepared and supported for their role in Bangladesh, recommendations are made for the way forward to re-imagining the twenty-first-century education workforce. Teacher's role in ethics and values education and the teacher as a role model for students are suggested as key elements in this rethinking.

Keywords Teacher professional preparation · Teacher role and performance · Education workforce · Education transformation · Bangladesh

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Introduction

It is generally agreed that teacher quality and performance are the most important determinants of student learning. An OECD study, *Teachers Matter: Attracting, Developing and Retaining Effective Teachers,* based on evidence from 25 countries, examined policies which addressed this question. It drew three broad conclusions.

First, the largest source of variation in student learning is what students bring to the school, their abilities and attitudes and their family and community background. Second, the next most important set of variables that affected student learning is related to teachers—their abilities, behaviour, and performance. Third, also about teachers, is that attention has to be given to understanding better the link between teacher characteristics and student performance. This is somewhat contentious because the indicators commonly used to assess this link (such as, standardized test scores of students and readily measurable teacher characteristics such as qualifications, teaching experience, and academic knowledge) do not adequately explain how teachers influence student learning (OECD, 2005).

The commonly used indicators do not necessarily capture vital aspects such as the ability of teachers to communicate ideas effectively; personality traits helpful for establishing rapport with students, colleagues and parents; and enthusiasm and creativity of teachers to foster an exciting learning environment. There are also issues about how student outcome is best assessed (i.e. reliance mostly on standardized tests in the absence of fairer or more reliable tools), which is then expected to be used as the measure of teacher effectiveness.

Nonetheless, the overall conclusion from the OECD inquiry is that "teacher quality" is the single most important variable, *which is subject to policy intervention by education policymakers and can influence student achievement*. While student characteristics explain the largest variation in student outcome, these are not amenable to policy intervention at least in the short term and have to be taken as "given" by education policymakers.

It is not very helpful to blame poverty of the family and poor home environment or the ignorance and apathy of illiterate parents for poor student performance and learning outcome. It is not helpful as a diagnosis of the problem if the purpose is to find a remedy. Schools have to consider how they can help students despite the given non-school circumstances. It is the job of education advocates and researchers to look at the non-school factors and consider what short-term and longer term measures can be taken to mitigate the negative family and social conditions. These cannot be used as excuse for school or education system inaction. The OECD study concluded that school-level action to compensate for the given student characteristics is best considered by looking at what may be done through teacher mediation and teacher-related interventions (OECD, 2005).

The problem of improving the teacher's role and performance to achieve better student outcome boils down to understanding teacher effectiveness. It is necessary to unpack what the elements of the teacher's job and role are, and how these can be examined and explained in a useful way in order to propose practical measures to improve teacher effectiveness. Teacher effectiveness for our purposes can be defined as aspects of teacher behaviour and performance which can be reasonably linked to student learning outcome.

We suggest that the important questions about understanding and enhancing teachers' role in the education system may be put under four headings mentioned below. The categories and parts of the subsequent exposition are drawn from the writer's work with colleagues on basic education in South Asia including the pivotal role of teachers in educational transformation. (See Richards, Ahmed, and Islam, *Political Economy of Education in South Asia,* 2022.) The categories that structure the discussion of this chapter are:

(a) *The quantitative aspects*—the total numbers of teachers required in a national education system, numbers in different categories, demand and supply of teachers and the education workforce, and the significance of the size of the education workforce and its professional preparation for tertiary education;
(b) *The qualitative aspects*—general intellectual capability, knowledge and skills of teachers related to academic disciplines relevant for school curricula, knowledge and skills about pedagogy, social and emotional maturity, and personal qualities and values orientation of teachers and would-be teachers;
(c) *Preparing and orienting the education workforce*—attracting the intellectually capable to the profession, academic and professional preparation for the multi-dimensional role of the teacher and other education workers, orienting future teachers and education personnel to the high standards of the profession and adherence to these standards; and
(d) *Governance and management of the education workforce*—recruitment and deployment, professional support and supervision, rewards and incentives, enhancing social status, and creating supportive working conditions for teachers in the system.

The Education Workforce—Beyond Numbers

An overall teacher shortage looms large in Bangladesh and in South Asia which puts at risk the Education 2030 promise of providing every child with a good quality primary and secondary education by 2030. UNESCO Institute of Statistics estimates in 2014 indicated that by 2030, South Asia would need to recruit a total of 15 million teachers (4.1 million at the primary level and 10.9 million at the secondary level). This calculation is based on an average pupil–teacher ratio (PTR) of 40, far higher than the world average of 23. There is a legitimate debate about what may be an acceptable pupil–teacher ratio target and what effects this has on student learning.

The UIS projection based on trends in recruitment and realistic possibilities is clearly an underestimate of the numbers needed to ensure education with quality and equity.

A look at UIS data for countries brings out the equivocal nature of PTRs. According to UIS, the average pupil–teacher ratio in Bangladesh stood at 34:1 in primary education and 29:1 (2014 estimates) in secondary education; but an average ratio hides crowded classrooms of 100 or more students as visits to disadvantaged areas would show, which cannot be acceptable to support sound teaching–learning. The Bangladesh overall PTR is significantly higher than in other South Asian countries, but the ratios at the school and classroom level, which ultimately are the meaningful numbers, varied greatly in each country, with unacceptably high PTR in classrooms for substantial proportions of students in South Asia (UIS, 2018). Recent PTRs in selected Asian countries are shown in Table 12.1.

Bangladesh had 548,000 teachers in 126,000 primary schools of different types with a total enrolment of 18.6 million students in pre-primary to grade 5 in 2016. The gross pupil–teacher ratio turns out to be 34 students per teacher, which is high, but also misleading as discussed below. At the secondary level, the mainstream schools had 378,000 teachers with 14.6 million students in grades 7–12. The gross PTR was 39 students per teacher (BANBEIS, 2017).

The gross PTR is misleading in Bangladesh as in other countries. The geographical spread of schools and student populations as well as actual presence of teachers and students in class rooms determine the meaningful ratio for teaching and learning.

Table 12.1 Pupil–teacher ratio in selected Asian countries

Pupil-teacher ratio, primary and secondary school, Selected Asian countries, ca.2017		
	Primary	Secondary
	(Pupil-teacher ratio)	
Indonesia	16.1	15.3
Thailand	16.2	24.2
China	16.6	13.3
Vietnam	19.7	–
Nepal	20.9	28.8
Laos	22.3	18.1
Sri Lanka	22.9	17.4
Philippines	29.0	23.5
Bangladesh	30.1	34.0
India	35.2	28.5
Cambodia	41.7	–
Pakistan	44.8	19.4
East Asia	16.6	13.2
Southeast Asia	18.8	18.2

Source UIS (2018)

The different types of schools and student enrolment in them end up in significant difference in actual numbers of students per teacher. The Primary Education Development Program of the government (PEDP3) had set a target of achieving 46 students per teacher, not exactly the ideal, to be achieved by 2016 in the mainstream government and newly nationalized primary schools (NNPS). These public sector schools served three quarters of primary level students. The 2017 DPE sector performance report shows that by 2016 46% government schools and 50% of NNPS had attained this ratio. Besides the fact that more than half of the schools had not achieved the modest average ratio, in reality it meant that some schools had up to 100 students in a class with a single teacher (DPE, 2017).

At the secondary level the gross PTR is more problematic than at the primary level, because teachers need to be specifically qualified to teach certain subjects. The gross average PTR of 39 reflected a large variation among districts ranging from 28 to 72. These numbers hide the absence of teachers in many schools for even compulsory subjects in the secondary school curriculum.

In summary, teacher supply numbers and pupil–teacher ratio in school education indicate that:

(a) In numerical terms, overall pupil–teacher ratio is significantly higher in Bangladesh compared to other countries, to the point of rendering many classrooms unmanageable for meaningful teaching–learning. There are great variations at the school and classroom level, the level that really counts.
(b) The growth of non-state provisions in the form of private for-profit or low-cost schools which are not subject to government regulations or supervision regarding pupil–teacher ratio is a new factor. It raises the policy issue of what regulatory standards and mechanisms should be applied regarding teacher supply keeping the objectives of learning outcome and equity considerations in view.
(c) At the post-primary level, the curriculum and the subject contents require teachers who are qualified and trained to teach different subjects. A lower pupil–teacher ratio than at the primary level is required at this level due to the need for subject specialization of teachers and curricular flexibility for students. Shortages of teachers in meeting these requirements, especially in math, science, English, and computer skills are found widely.
(d) The gross teacher supply and PTR data generally do not necessarily indicate effective teacher presence in classroom due to other reasons besides problems of distribution and deployment of teachers. These reasons include teacher absenteeism; teachers on leave for different reasons including professional training; and teachers being away from class on non-school duties, such as working on population census operations, duties related to public representative bodies' election, and so on. Effective engagement of teachers in the classroom is often considerably lower than overall PTR may suggest.
(e) The teacher supply and PTR data generally do not recognize the diversity of the teaching workforce that is emerging due to change in pedagogical approaches and the introduction of instructional technology. Larger numbers of IT support

personnel, teaching assistants in a large or multi-grade class, assistants for extra-curricular activities, and counsellors and guidance personnel are needed for effective teaching–learning. Where a greater autonomy in school management is promoted, administrative and management support personnel are being demanded in larger numbers. A simple PTR calculation is not sufficient to assess demand, supply and effective use of the education workforce in the emerging school environment.

An adequate supply of teachers has to be ensured and PTR calculations are useful. But, it is obvious that the qualitative dimensions have to be brought into consideration, because mere numbers will not produce the desired outcomes in learning results with quality and equity.

Attracting the Talented to the Teaching Workforce

It may seem obvious that the teacher of a school subject should know a lot about the subject, especially at the secondary level, where teachers are responsible for teaching specific academic subjects. But it is often taken as given that teachers, by virtue of being appointed as teachers, are sufficiently knowledgeable about the contents they are expected to teach (Haggart, 2016).

Teachers' subject matter knowledge appears to be a neglected area and deserves some discussion. It can be logically argued that the subject matter knowledge of teachers is related to three factors: a. Whether the future teacher goes through a general school and tertiary education program with a well-rounded and balanced curriculum containing the subject matters regarded important in the school curriculum; b. whether the general education program at school and tertiary level that would-be teachers go through are of sufficient quality to build a sound foundation of essential subject matter knowledge; and c. whether the would-be teacher has been at the top end of the class in school and college, which would be an indication of his/her knowledge level of the subject matters and general intellectual capability.

Some Bangladesh data point to a dilemma about teacher qualifications—that high academic credentials actually may be counterproductive.

Intellectual capability and competence to do a good teaching job depend arguably on the performance and achievement of the person in the respective public examination for obtaining the academic credential. About two-thirds of the primary teachers had the second division in HSC and the second class for the Bachelors' degree (out of three "divisions" or "classes"). For secondary, it was 56 percent and 61 percent respectively. More than a third of the Bachelors' degree holders among both primary and secondary teachers had the third class (CAMPE, 2015). A pertinent question is whether a person with a 3rd class/division bachelor or masters would be a more effective and capable teacher than one with a 1st division SSC or HSC qualification. Ultimately, the concern is how to attract intellectually more capable people into the teacher preparation programs and then to keep them in the profession.

Bangladesh does not have a mandatory pre-service teacher development and education program. It does not have provisions for education as an area of study within the undergraduate degree program, though teaching and education sector is the largest single employer of college graduates. The common pattern is to send teachers for pedagogy training after teachers are employed in school. For primary level teachers it is an 18-month Dip-in-Ed. course, and a one-year B.Ed. course for secondary teachers. The nature of pre-service teacher preparation, and how in-service training and upgrading and supervisory support of teachers complement and re-enforce each other remain an important policy concern. The quality of the training at both levels is also a problem. At the secondary level, more than 40 percent teachers received the degree from non-government institutions affiliated with the National University. The quality of instruction, other quality criteria regarding teaching and instructors, and management are supposed to be overseen by the National University. The National University cannot effectively exercise this oversight (CAMPE, 2015).

The Bangladesh situation highlights issues of reliance on high academic credentials, a lack of established standards and the absence of an effective strategy regarding the approach for pre = service academic and professional preparation of teachers. (See more discussion below.) The prevailing model of teacher training of about a year's duration after a person with general education qualification of a college degree is appointed raises questions. Does this lead to scraping the bottom of the barrel of graduates for teacher recruitment, since school teaching is not the preferred occupational choice for college graduates? With an emphasis on nominal academic credentials, how intellectually capable young people can be attracted to the teaching profession is another concern in teacher selection and recruitment.

Ultimately effective performance in the multifaceted role of the teacher cannot be unrelated to intellectual capability of the would-be teachers. Their own success and performance as students during their educational career; and leadership, creativity and achievement orientation they demonstrate as students are likely to be the predictors of their success as teachers. In other words, "the best and the brightest" among the young people may be regarded as the ideal entrants to the teaching profession. We return to this question later in this chapter.

Preparing the Education Workforce

The discussion above supports the proposition that p*reparing and orienting the education workforce* entail: (a) attracting the intellectually capable to the profession, (b) providing for adequate academic and professional preparation for the multidimensional role of the teacher, and (c) orienting future teachers to the high standards that need to be set for the profession and inculcating loyalty to these standards.

Professional Teacher Preparation in Some High Performing Countries

A comparative study in six well-developed education systems (Korea, Singapore, China, Hong Kong, Japan, and USA) sheds light on teacher preparation and qualification. The study was conducted under the auspices of the Consortium for Policy Research in Education (CPRE) comprising seven top research and academic institutions in USA (Columbia, Harvard, Pennsylvania, Northwestern, Stanford, Michigan and Wisconsin-Madison). The study concluded that there were three sources of the problem of underqualified teachers—inadequacy in the pre-employment requirements and standards for teachers, failure of teachers to meet even the insufficient standards, and problems about how teachers are utilized once they are on the job arising from poor human resource management in the school system (Ingersoll, 2007).

Interestingly, these are the kinds of concerns which come up frequently in the education quality discourse in Bangladesh and other South Asian countries. The inadequacies found in the high performing countries and often brought up in South Asia were in the depth, breadth and rigour of college or university teacher training courses; entrance requirements to these courses; and government licensing and certification standards for teachers. The remedies called for reforms and higher academic standards in the institutional preparation programs and government licensing requirements.

The failure of the teaching force to meet existing requirements and standards arose, as noted in the study, from deficiencies in the student teachers' intellectual capability, weakness in previous academic preparation and performance, not completing sufficient coursework in an area of concentration, deficits in professional pedagogic training, and being allowed to teach without obtaining a certificate or license. There is a tension between the need to apply high entry requirements and to ensure an adequate supply of incoming teachers, especially with a high level of teacher turnover.

The discussion above about the adequacy of teacher numbers and their preparation in Bangladesh and the contrast and commonalities with high performing countries lead to four observations.

(a) The large population and the consequent numbers of students, institutions and education personnel in Bangladesh, its overall economic status, and the resources in the public sector set a limit to what it can do and aspire in professionalizing the education personnel. Despite the limitations, if the sights are set with a clear policy perspective and longer term goals, change can be achieved. Practices in high performing countries regarding professional development, support and incentives offer pointers to new approaches in a developing country like Bangladesh.

(b) Exceptionally in South Asia including Bangladesh, the pattern is of college graduates with general tertiary qualifications to be appointed as teachers first and then sent to pedagogy training usually of a year's duration—a sequential

model rather than the concurrent or integrated approach. This pattern has led to attracting less capable people to teaching—an outcome that does not benefit the education system or the teaching profession. At the same time, any straitjacket approach that limits professional entry to motivated people by rigidly restricting lateral pathways and centralized imposition of curricula beyond a broad framework will also be counterproductive.

(c) There is a need to look at professionalization of education personnel as a continuum including identification and selection of future teachers; enrolling them in professional preparation programs that address all essential elements; followed by professional support, incentives and application of performance standards. A fragmented and disconnected approach is often the norm.

(d) There is a growing prominence and popularity of the private and commercial providers of school education which is a contrast to more advanced and high performing systems in which primary and secondary education is largely a public service. A parallel growth of private sector teacher training with serious laxity in quality assurance poses new problems in respect of professional development and applying professional standards to education personnel.

New Thinking in Bangladesh

> Recognition of these concerns and the broader challenge of improving learning outcomes along with the expansion of educational access have prompted discussion of new thinking about teaching as a profession and professional preparation for school teaching. The key elements, in broad outline, which have to be examined and elaborated further, of a teacher development initiative are indicated below. The proposition, essentially advocating a "concurrent" instead of the prevailing "sequential" approach to teacher preparation, was presented in a public forum and has generated public discussion. (Ahmed, 2018)

The development and implementation of the interconnected components of this initiative will require various measures including the following:

(a) A pre-service teacher preparation program incorporated into the undergraduate degree program with education as a subject. As noted, Bangladesh does not have a pre-service teacher education program, although school teaching is the single largest field of employment of college graduates.

(b) Education as a discipline can be introduced in selected degree colleges under the national university by working out the academic program and syllabus, faculty qualifications and degree requirements. Students will receive a BA or BSc degree depending on the combination of other subjects taken along with education. Students fulfilling specified requirements may also receive a teaching certificate or diploma, along with the degree, as is the practice in many countries.

(c) Academic and other quality standards required under the National University and UGC regulations (often not fully enforced) have to be strictly enforced

in the colleges selected for this initiative. Financial and personnel provisions have to be made for this purpose.

(d) The pre-service education course is proposed to be labelled as a regular degree program (BA or BSc) rather than B.Ed., so that prospective students are not forced to make an irrevocable choice of teaching as an occupation, which may be perceived as unattractive by many young people. The assumption is that in the face of competition for entry into degree colleges with a reputation, the prospect of a general degree and some incentives will attract good students to the education course, even if they have to sign a five-year bond to serve as a teacher. Induction into a prestigious national teaching service corps would be an added attraction (see below).

(e) A new National Teaching Service Corps (NTSC) with attractive remuneration and a career ladder is seen as a way of creating a national cadre of teachers. In a few years, spread around the country with at least 2 to 3 such teachers placed in a school (both government and government-assisted ones), they will create a nucleus of quality education personnel in schools and help bring about a qualitative change in teaching–learning in schools.

The hidden agenda in this initiative is that after serving as a teacher for five years, and the attraction of the national teaching service corps, many of the young people will be motivated to continue in the teaching profession. Other than the qualified graduates of the new education undergraduate course, those with outstanding performance and qualifications among current teachers meeting set criteria also may be inducted into NTSC.

This initiative calls for out-of-box thinking and has a chance of succeeding only with high level interest and commitment of the government policymakers. The development and trial may be started with donor support, but ultimately its effective implementation, replication, deriving the expected benefits and finally its sustainability will depend on policy support as well as the willingness to commit regular resources for it in the education budget.

Governance and Management of the Education Workforce

"Teacher management is at the heart of the national strategies implemented to achieve the educational goals set by the international community…In this context, teacher management represents a significant challenge for developing countries striving since the 1990s to cope with high additional needs for teachers" (Best et al., 2018, p. 3.).

Recruitment and deployment, rewards and incentives, enhancing social status, and creating supportive working conditions for teachers in the system are key elements of effective governance and management of the education workforce. The numbers and quality attributes of the teaching workforce and how they are professionally prepared and supported, discussed above, delineate essential conditions for ensuring the teaching–learning process to produce the desired learning outcomes. These do

not necessarily add up to sufficient conditions for effective teacher performance until supportive and enabling measures are taken. These enabling conditions concern effective personnel management including recruitment and deployment of teachers in the school system and rewards and incentives to encourage the best performance. Equally important, especially from the point **of** view of attracting talented people to teaching and keeping them in the profession, is the perception of social status of teaching as a profession.

Teachers for the Next Generation in Bangladesh

Campaign for Popular Education (CAMPE), a civil society advocacy forum, undertook a study in 2015 titled "Quality Education: Teachers for the Next generation". Primary data were collected from a sample of 500 primary and secondary level teachers and from 125 focus group discussions (FGDs) with different stakeholder groups held in 25 districts. This rapid appraisal looked at educational preparation and professional training of primary and secondary teachers, teachers' economic status and income, supervision and evaluation of teachers, and teachers' perceptions and expectations about their work. Some findings pertinent to governance and management of the education workforce are noted below.

Adequacy of Numbers. The sample survey data showed in some secondary classes there were around 100 students, and many primary classes had 50 or more students. To achieve the primary and secondary level education to an acceptable standard teacher–student ratio, and learning time in school, the number of teachers need to be doubled in the country from the present number of approximately one million within the time horizon of a decade. Such an expansion in personnel, ensuring at the same time their quality and necessary professional support for them, will be a major challenge.

Career Path. Curiously in Bangladesh, the basic designation for the teaching position is Assistant Teacher; there is no formally designated position of "teacher". Almost all teachers enter the profession as an Assistant Teacher and retire from work as an Assistant Teacher. There is no career ladder for teachers that may allow them to become a teacher, senior teacher, subject coordinator, team leader, department head, etc. This is undoubtedly a serious demotivating factor for the teaching profession.

Academic Credentials and Teacher Performance. Whether formal academic qualification translate intellectual capability and good teaching remains a moot point. The question of a teacher with a 3rd class/division bachelor or masters be a more effective and capable teacher than a teacher with a 1st division SSC or HSC qualification remains a pertinent question (see Table 12.2). So is how to attract and retain intellectually more capable people into teaching.

Pedagogy Training and Performance. There is a political concern about the way pre-service teachers are prepared, and how in-service training and upgrading and

Table 12.2 Division/class of teachers in diploma/degree

School	Division/class	SSC (%)	HSC (%)	Bachelors (%)	Masterss (%)
Primary	1st	38.1	14.9	2.8	15.7
	2nd	54.3	66.8	63.1	74.1
	3rd	7.7	18.3	34.1	10.2
Secondary	1st	43.7	23.2	3.2	8.6
	2nd	47.6	56.0	61.0	78.6
	3rd	8.7	20.8	35.7	12.9

Source Rapid sample survey 2015 cited in CAMPE (2015)

supervisory support for teachers complement and re-enforce each other. A "sequential" model of initial teacher training is the practice, teachers being sent for training after they are recruited and deployed in a school.

Actually, most primary teachers receive a long (year-long formal Certificate in Education course) and various short training courses. At the secondary level, close to a half have the long training (year-long B. Ed.) and a majority receive various short training. The importance of professional pre-service preparation, in-service training and on-the-job professional development is undisputed. But whether these have an effect on performance of teachers and learning results for students depend on two factors—the quality and relevance of the training itself and the conditions and supportive environment in school to make use of the skills and knowledge acquired from the training. The information about the working condition and work environment for teachers probed in the study indicates major difficulties in this respect.

Annual Sector Performance Report 2014, produced by the Directorate of Primary Education, candidly admitted that national primary education development programs, PEDPII and III, accorded high priority to continuous professional development of teachers, yet it was not clear what the impact of these trainings were, particularly in behaviour change of teachers in adopting new practices (DPE, 2014).

Work Burden. Teachers' workload is an important factor for motivation in teaching and teachers doing their job properly (Box 12.1).

Box 12.1 Class Size and Workload Based on a Sample Survey

Average class size for teachers of primary and secondary respectively are 48 and 83.

Average number of periods per week: primary teacher - 27.35; secondary 21.77.

Besides classes taught daily, workload includes preparation for class, correcting homework, and non-teaching activities of teachers which all add to the burden of teachers.

The conscientious teacher has a long and exhausting day every school day.
Source: Rapid sample survey 2015, CAMPE (2015).

There is a substantial diversion of teacher's time to non-teaching activities, which adds to their workload. In primary schools, with 80 percent of the schools running in double shift, total learning contact time was found to be less than half of the international standard of about a thousand hours in a year.

R**emuneration and incentive and teacher's performance**. The sample survey data showed that there was a pecking order among public sector school teachers—the government primary school (GPS) teachers had the highest level of remuneration (being placed on the civil service salary structure); next were the secondary teachers whose employers were their school managing committees and who received government salary subvention. The newly nationalized primary school—NNPS—teachers (until 2013, these were Registered Non-government Primary Schools—RNGPS) were at the bottom of the ladder (Box 12.2).

Box 12.2 Salary and Income of Teachers

A pecking order exists among public sector school teachers' salary.

GPS teachers have the highest level of remuneration (being placed on the civil service salary structure); next are the secondary teachers whose employers are their school managing committees, but recipients of government salary subvention;

NNPS (until recently RNGPS) teachers are at the bottom of the ladder. Decision to bring RNGPS under full government management would improve their situation.

Low teacher salary prompts them to seek ways of supplementing income with non-teaching work and to rely on earning by other members of the household.

They augment income with private tutoring/coaching. Ushering students to paid private tutoring then becomes a matter of self-interest, and ethical dilemma.

An average primary/ secondary teacher's family income in Bangladesh is around the poverty line (assuming this to be $1.25 or BDT 100 per day per person), if the teacher has to look after a four-member family with her/his salary.

It is not surprising the teacher's spouse and family have to augment the family income to make ends meet. This is one important factor, though not the whole story, for low professionalism and performance of teachers and the poor learning outcomes for students.

Source: CAMPE, Rapid sample survey 2015.

Low salary prompts teachers to seek ways of supplementing their income with non-teaching work and to rely on earning by other members of the household, as empirical evidence from the survey showed. Overall, teachers were not able to meet their household and family expenses from their own salary as a teacher. Teachers and their families engaged in all kinds of income earning activities to earn a living income for their families. Private tutoring/coaching was one of the ways of supplementing teachers' income (Box 12.3).

Performance evaluation and professional support for teachers. A plethora of personnel including the head teachers, upazila (sub-district) education officers and the assistant officers, upazila resource centre instructors, school managing committee members, and district level officials was named as supervisors and evaluators by the teachers in the sample. What all these supervisory and evaluation encounters with teachers amounted to in respect of improving teacher performance and achieving better student outcome were a moot point.

A number of questions arise in this regard: Are there consistent messages from different supervisors and evaluators to the teachers; is there continuity in the advice given and ideas shared with teachers; is there a mechanism for follow-up to see if supervision and evaluation made a difference; and are there opportunities for remedial measures to help teachers? The answers to these questions are largely not positive. There are also concerns about the capabilities, skills and competence of people placed in the position of supervisors and evaluators.

How to attract the meritorious to teaching. Focus group discussion with stakeholders including teachers, parents and school committee members considered ways to attract talented young people into the teaching profession. FDGs came up with four suggestions:

(a) "Standard" salary and benefits have to be offered to attract bright people to teaching and keep them in the profession;
(b) Job status and social status have to be improved: Apart from the salary structure, "devaluing" by society of school teaching as an occupation has to be countered.
(c) Recruitment system for teachers should be transparent and fair; a special teacher recruitment commission should have the task of recruiting teachers centrally for the nation; existing quota system in recruitment (such as for women, ethnic minorities, freedom fighters' families) should be reviewed to determine whether and to what extent this is necessary and useful.
(d) An attractive career path, that does not exist now, should be established to attract capable people into teaching.

A key recommendation of the report was for an integrated approach for teacher preparation. It was suggested that a "genuine" pre-service teacher education program making it part of the four-year undergraduate program with education as a subject within the degree program in general degree colleges should be introduced. This is justified on the ground that a large proportion of college graduates are employed in teaching and education-related jobs (CAMPE, 2015). The form such an initiative might take has been described in the previous section.

A Broad Vision for Teachers' Professional Development

Fernando Reimers and his colleagues at Harvard Graduate School of Education argue for adopting a comprehensive view of teacher development. Looking at large-scale efforts at building teacher capacity in six countries in their diverse contexts (Cambodia, Colombia, England, India, Mexico, and the USA), they conclude that current and would-be teachers need support in "an ambitious range of cognitive and socio-emotional domains essential for our times" (Reimers, 2020, p.20). They argue that the continuum of professional development of teachers is part of a system in which other societal processes influence the quality of teachers. They have proposed a protocol to create a shared vision of a coherent continuum to support teacher quality.

They reasoned that "only so much initial teacher education can do if the criteria to attract and select teachers into the profession are not aligned with professional standards. Similarly … there were limits to the extent to which in-service professional development could remedy deficient initial teacher preparation". Their proposed protocol for the continuum of teachers' professional development contains seven actions to achieve systemic coherence and alignment:

1. Build a narrative about improving teaching quality as a national priority
2. Map and audit the system of programs and policies that sustains teaching quality.
3. Develop a strategic teaching quality framework and professional standards that create coherence in the system which supports teacher quality.
4. Empower teachers as professionals; develop career pathways.
5. Ensure a robust pipeline of qualified entrants into teaching.
6. Support highly effective initial teacher preparation.
7. Support developmental professional trajectories for teachers that produce highly effective teaching (Reimers, 2020, p. 20).

Implementing the protocol requires translating each of these seven steps into a clear sequence of activities, and an implementation plan that would help execute the steps and transform practices. The six-country review of Reimers et al., which led them to propose the teacher development protocol, does not say in which of the countries the programs worked "in terms of achieving their intended results or in terms of being able to stay the course for a sufficiently long period to transform the culture of schools and transform them into 'learning organizations'". But they claim that these have shown it is possible to design programs that aim at professionalizing teaching at scale and to formulate operational strategy that governments can implement (Reimers, 2020, pp. 25–26).

The discussion above about the problems, challenges and approaches to the much-needed transformation of teacher development in Bangladesh is broadly in alignment with the steps conceived by Reimers and colleagues. Within the space of this chapter, further exposition cannot be undertaken of the proposed protocol's application in Bangladesh. Taking cue from the hopeful note sounded by Reimers, we expound below on teachers' role in inculcating ethics and values among students. We also

suggest that conceptualizing the teachers' role in this light would enhance teachers' professional role, performance, status and social esteem, which would lead to better student outcomes.

Ethics and Values Education and Teachers

Enhancing teachers' professionalism and efficiency and effectiveness of governance and management of the teaching personnel cannot be separated from the purposes of education and the teachers' role in realizing those purposes. SDG 4.7 targets indicate the range of education objectives in the context of sustainable development, balancing the needs of the current and the future generations. There is an expectation that school is the setting where young people can learn and practice ethics and values. The reality is that society sets the boundaries of what schools can do. A pertinent question is: Does governance and management of teachers help or hinder in creating the conditions for teachers to play their role in respect of teaching and inculcating ethics and values in school?

Education Watch, sponsored by the Campaign for Popular Education (CAMPE) in Bangladesh, examined the question of ethics and values in schools for its 2017 report, publicly launched in May 2018. A survey was undertaken of 64 primary and secondary public system institutions in 8 divisions. Responses were also collected with a values survey instrument from 1400 students, 576 teachers and 1280 school committee members and parents (CAMPE, 2018).

The values survey comprising 47 items asked for agreement, disagreement or no response on nine "domains" of ethics and values. The nine domains are related to a wide array of beliefs and value propositions—from individual and personal beliefs to being active and engaged in upholding ethics and values (Box 12.3). There are methodological issues of how ethics and values content for teaching may be determined and examining their implications for teachers' preparation, role and behaviour. The methodological issues including those in the Education Watch study and the need for further research is discussed by this writer in a recent article (Ahmed, 2020).

Box 12.3 The Nine Domains of Ethics and Values in Education (EVE)

The following nine domains of ethics and values were proposed as the basis for categorizing the issues from which the analytical framework and the survey instrument for the EVE study were derived.

1. *Personal beliefs about ethics and values as a human being*—The important sub-topics of this domain help explain its nature: purposefulness in life, spirituality and the human condition; positive attitudes about life and future; honesty in personal conduct, being upright, and self-esteem; compassion and empathy for others; importance of performance standards

("anything worth-doing is worth-doing well"); appreciating and participating in creative, artistic, and aesthetic expressions; and commitment to fairness and a just society. *This domain about personal morality may be seen as an anchor for the individual that influences how a person perceives and internalizes other domains.*

2. *Interpersonal relationships*—Respect for and acceptance of differences, belief in human rights and dignity for all, mutual trust and empathy in the process of one human being interacting with another.
3. *Responsibility as a member of community, society and a nation*—Being mindful of civic duties and responsibilities; abiding by law; promotion of common interests of community, society and the nation; respecting diversity in society and plural identities of people; promoting societal obligation to the disadvantaged and those with special needs; love for country and nation and appreciation of national history and culture.
4. *Responsibility as a global citizen belonging to the human community*—Respect for other cultures and traditions; promoting human rights and dignity for all; respect for and belief in common humanistic values and norms; respect for international laws and treaties; and responsive to and supportive of people in crisis and danger anywhere.
5. *Building a just and democratic society*—Equity, equality and inclusiveness; freedom of faith, belief, speech and opinion; rule of law; promoting democratic practices and behaviour; respect for rights and needs of minorities.
6. *Protecting environment and the planet*—Love for nature, protecting planet's resources; balancing needs of present and future generations; living by sustainable lifestyle, promoting biodiversity, and preventing cruelty to animals.
7. *Gender justice, norms and attitudes*—Gender equity and equality; non-discrimination, preventing gender barriers and gender-based denial of freedom; gender equality in personal, social, economic and political roles; fair gender representation in art, culture and creative spheres.
8. *Attitude towards children*—Societal obligation to children, respect for children's rights, protection of children, and listening to children, mutually supportive child–adult interaction.
9. *Action to uphold ethics and values*—Being active and engaged and standing up individually and collectively to uphold and promote ethical principles and moral values.

Source: CAMPE, Ethics and Values in School: Capturing the Spirit of Education, 2018.

Not unexpectedly, it was found that what happens in schools, especially in respect of students' opportunity to learn about and participate in ethics and values education (EVE) is influenced by society and state, often in a negative way. A didactic and

prescriptive approach in pedagogy prevails, telling students what is right or what should be done. The school experience does not create the opportunity in the lessons and in co-curricular activities to use reasoning and thinking about ethical issues and moral conduct. Memorizing for tests instead of real learning is a part of this syndrome.

The physical environment, buildings and classrooms, playgrounds and the premises, and co-curricular activities have been found not to meet requirements in two-thirds of schools for children to flourish in academic learning and moral and ethical development. A recurring theme in the responses was the general degeneration of ethics and values in society, community and family that posed insurmountable obstacles to promoting ethics and values among young people. The larger society, what happens in most families, and what children see around them do not set good examples. For instance, students, often with the support of their parents and teachers, are engaged in cheating in examinations and chasing leaked question papers. Students are compelled to go to private tutors or coaching centres by their teachers. When asked if teachers can be seen as role model for ethical and moral conduct, three quarters of students did not see this as realistic. Half of the teachers did not see themselves as the role model for their students.

Leon Festinger, the American social psychologist, had come up a half century ago with the theory of "cognitive dissonance", to explain why people held simultaneously, knowingly or unconsciously, contradictory beliefs and attitudes. Festinger theorized that this was to seek a psychological comfort zone by rationalizing opportunistic or immoral conduct (Festinger, 1957).

The values survey revealed several categories of cognitive dissonance among respondents. Eighty-seven percent believed in a "greater purpose" of human existence, but 83 percent saw becoming wealthy and earning fame were the most important objectives in life. Ninety-one percent agreed that people have multiple identities based on language, ethnicity, geography, religion and other characteristics; at the same time, three quarters believed that religion is the most important identity of a person. Eighty-five percent respondents—students, teachers and parents—believed that resorting to unfair means to score high marks in examinations is not acceptable, but 49 percent thought "honesty is the best policy" is not practical in society today. Close to 90 percent respondents believed that social barriers prevented equal performance of girls and boys in life and society, but about 40 percent, of both sexes, believed that "light beating of wives when they disobeyed their husband" was acceptable (primary school students were not asked this question).

What can schools and teachers do given the barriers and obstacles presented by the larger social environment of the school? The report argues that in the general climate of pessimism, a positive message is the potential role of the teacher, individually and collectively. His/her professional competence, motivation and ethical position can determine what the school can do, even overcoming the barriers imposed by society and state. A message of hope is that young people themselves look upon the future positively and are willing to be engaged in action and stand up for ethics and values in school and in community. The teachers and parents have to find ways to take advantage of young people's idealism. The report concludes that promoting ethics

and values through schools and the teacher's role in it need not be a fool's errand (CAMPE, 2018).

Teachers at the Cutting Edge of Change in Education

Taking off from the discussion of ethics and values education and the teacher's central role in it, the argument can be bolstered that teachers stand at the cutting edge of change in the education system. Teachers, and more broadly the education workforce—including leaders and managers at the policy end to counsellors, co-curricular organizers and IT technicians at the implementation end—can bring about the transformation in schools and the broader learning systems, if they begin to visualize themselves as the actors in their roles in a transformation process. This argument, given the common challenges of the education systems and teachers' role and performance, would be relevant broadly for South Asia.

With eyes on practical actions for change, an array of recommendations was made in the ethics and values education study. Several of these were about teachers' role and creating conditions for teachers to perform in achieving the purposes of education. While morality and character building are central elements of promotion of ethics and values, it embraces building human capabilities and skills, effective governance and management of the education system, effective pedagogy and learning approaches, and assessing student learning and performance of teachers and schools. In other words, the action ideas that emerged from the ethics and values education research have relevance for the cutting edge role of teachers in educational change. The key action points are underscored below (see CAMPE, 2018.)

1. A didactic and prescriptive approach in teaching–learning is a much discussed and widely recognized problem in our pedagogy and school culture. Creating opportunities through school experience to develop and practice students' reasoning capabilities for problem-solving in general, and recognizing moral dilemmas and issues, is the challenge for our schools. With a recognition that this challenge should be addressed, there is need for actions in a sustained way in which teachers should have a direct role and involvement:
2. Teacher training curricula and content need to focus beyond pedagogic techniques and teaching cognitive elements of learning on students' development in the spheres of ethics, values and social and emotional development. An important part of it would be making teachers self-critical about their own values and beliefs.
3. Teachers and schools need to have a regular and strong line of communication with parents about how their children can be effective learners and on matters of promoting ethics and values in school, not just to handle specific problems of individual students when these arise.

4. The social context set the limits on what schools can do in respect of promoting ethics and values. Yet, stakeholders point to the individual role of the teacher—his/her capabilities, professional competence and ethical position. It is necessary to ensure that school teaching is not the last occupational choice for the graduates of tertiary education, and that young people are intellectually and emotionally prepared to take teaching as a profession. An integrated "concurrent" approach of general college education and professional preparation can allow a longer duration to help shape young minds of would-be teachers intellectually, emotionally and ethically to prepare themselves as the role model for their students.
5. At least seven pairs of cognitive dissonance (holding simultaneously contradictory beliefs and attitudes) were found in the values survey. In many situations of moral dilemmas, moral reasoning and judgement have to be exercised. It is necessary to consider how educational content and experiences prepare learners to handle moral dilemmas and prepare teachers to help learners.
6. Although, teachers in Bangladesh had high positive scores on the values domains, about half of the teachers did not see themselves as role model for their students and the majority of students did not consider it realistic to think of teachers as role models. Concerted effort and strategies have to be applied to enhancing teachers' self-esteem and encouraging them to look upon themselves as role model for their students.

Conclusion

This chapter began with the premise that a system of education cannot be better than its teachers. It intended to explore how teachers could contribute to improving learning outcomes in terms of quality and equity in education; how teachers could be supported to do their job well; and why policy and programs regarding teachers' job, performance, professional development and support needed to be re-examined. It also argued that professional development of teachers subsumes enhancing teachers' self-esteem and teachers looking at themselves as role models for their students.

These topics add up to a rather broad agenda of conceptualization, understanding, planning, commitment and action, which are needed to be addressed systematically and in a concerted way. In this chapter, the topics have been examined by reviewing evidence regarding problems and practices in the education system. It has been argued that teachers, professionally prepared and supported, can determine to a large extent what the school can do in the larger social setting, and even overcome to a degree the constraints imposed by society and the state structure. Teachers' personal and professional qualities, to the extent teachers can be the role model for the students, are the threads that weave together the many actions proposed for transforming education through the mediation of the education workforce. The implication is that the teacher's role, preparation, performance standards and status in society have to be thought about in a new way.

References

Ahmed, M. (2020). Understanding and promoting ethics and values education: The methodological challenge. *Prospects, 48*, 115–134.

Ahmed, M. (2018). "In search of the ideal teacher," Asiatic Society Public Lecture, 17 November, 2018, (*Adarsha Shikkhoker Shandhaney*, Monograph in Bangla). Asiatic Society.

BANBEIS (2017). *Bangladesh education statistics 2017*. Bangladesh Bureau of Educational Information and Statistics.

Best, A., Tournier, B., & Chimier, C. (2018). *Topical questions on teacher management. IIEP Background Paper*. International Institute for Educational Planning.

CAMPE (2015). *Quality education: Teachers for the next generation.* Campaign for Popular Education.

CAMPE (2018). *Ethics and values in school: Capturing the spirit of education*. Education Watch Report 2017. Campaign for Popular Education.

DPE. (2014). *Annual sector performance report 2017*. Directorate of Primary Education.

DPE. (2017). *Annual sector performance report 2017*. Directorate of Primary Education.

Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.

Haggart, K. (2016). How important is subject matter knowledge for a teacher? *Edutopia,* George Lucas Educational Foundation.

Ingersoll, R. M. (Ed.). (2007). *A comparative study of teacher preparation and qualifications in six nations*. University of Consortium on Policy Research in Education (CPRE).

OECD. (2005). Teachers matter: Attracting, developing and retaining effective teachers. Organisation of Economic Cooperation and Development. www.oecd.org/education/school/34990905.pdf.

Reimers, F. M. (Ed.). (2020). *Empowering teachers to build a better world: How six nations support teachers for 21st century education.* Springer.

Richards, J., Ahmed, M., & Islam, S. (2022). *Political economy of education in South Asia: Fighting poverty, inequality and exclusion.* University of Toronto Press.

UIS. (2018). UIS education data release, September 2018. UNESCO Institute for Statistics. http://uis.unesco.org/sites/default/files/documents/ip55-uis-education-data-release-september-2018_1.pdf.

Chapter 13
Teacher Education Development in China: A Historical Account with Contemporary Implications

Yang Liu

Abstract This chapter offers a historical review of the changes of teacher education in China dated back to the early 1900s. The status of teacher education, teaching profession, and the impact of policy-induced changes were addressed. As mainly affected by the major social and historical events of China, national educational reforms, policy focus, and instructional practices in different historical phases share distinctive features. This chapter elaborates on these features and further discusses the current challenges, future trends, and challenges of teacher education in China. This chapter argues for more creativity and exploration to the building of modern teacher education with Chinese characteristics.

Keywords Teacher quality · Historical phases · Policy-induced changes · Trends and challenges · Innovation

Introduction

The world has learnt about teacher quality in China through Shanghai, one of its leading metropolises as well as the window of the nation. The vitality of Shanghai teachers is in full display of their self-efficacy in teaching as reported in Organization for Economic Co-operation and Development (OECD) report on Teaching and Learning International Survey (TALIS) 2018. Chinese educators' tenacious pursuit of education excellence has also been demonstrated by the outstanding performance of their students in OECD's Programme for International Student Achievement (PISA), a large-scale test assessing fifteen year olds in the functional literacy of reading, mathematics and science. The 2018 TALIS report has depicted a number of features of Chinese teachers, including the younger ages (39 years old on average); open-minded to new ideas (92%); and much more confident in their own subject knowledge, pedagogy, and instructional practice (89% of Shanghai teachers had undergone professional training). Educators and researchers worldwide acclaimed the quality

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of Shanghai teachers, praising their professional skills and attitude, willingness to collaborate with colleagues, as well as readiness to work under the direction of school leadership (Friedman, 2013; Tan, 2013; Tucker, 2011). Meanwhile, dissenting opinions were also put forward, including teachers' intentional training of students to perform in standardized test (see, e.g. Fallows, 2010); the force-feed learning with excessive homework, unload responsibility on parents, emotional costs of good test performance (Qiu, 2013), diminishing academic skills in senior years of tertiary schooling (see, e.g. Loyalka et al., 2021).

Teacher quality varies notably across the vast territory, which are caused by economic and social inequality among the geographic regions of the nation. Shanghai is a big cosmopolitan city with 16 subordinate districts and a population of 24.87 million. Shanghai's heavy investment in education is evident in its rising spending on basic education, with an annual increase of 10% on average. In 2019, the annual expenditure was about USD 10 billion which is RMB 64.77 billion (Commission, 2020). In contrast to the impressive professionalism of Shanghai teachers as portrayed in the TALIS reports, the educational level of basic education teachers in the remote and economic backward areas is still low, which is "far from being able to meet the strategic task of building a high-quality education system". During the national campaigns of reforming the educational system, teachers were caught between the limitations that imposed by "structural forces and the dynamics" that were generated by the advancement of the education system (Lo, 2019, p. 2). Although a multi-level teacher professional development standard has been preliminarily constructed, there is no standard requirement for teacher lifelong development. Teachers' role, identity, and function in the educational system have not been altered in a significant manner (Lo & Ye, 2017).

The government has endowed teacher education the pivotal position in the national strategy. *China's Education Modernization 2035 plan* (2019) sets the direction "to build a contingent of highly qualified, professional, and innovative teacher force". Also, as stated in the report of 19th National Congress of the Communist Party of China, "To strengthen teachers' ethics, to train a contingent of high-quality teachers, and encourage the whole society to respect teachers and value education". The CPC Central Committee and the State Council hereby issued the roadmap to attain the above goals. *The Opinions on Comprehensively Deepening the Reform of Teacher Team Construction in the New Era* set an ambitious schedule for teacher education, "By 2035, the comprehensive quality, professional level and innovation ability of teachers will be greatly improved, and tens of thousands of teachers will be trained as educators, and to form scientific and efficient managerial systems and mechanisms for teachers, and modernization of the governance capacity". Teacher training in China is facing an unprecedented and also complex situation.

The research for this chapter is informed by findings from documentation research, textual analysis, and bibliometric studies of Chinese teacher education. Primary sources for this research include policy documents, historical records, and bibliometric data retrieved from China National Knowledge Infrastructure (CNKI) database pertaining to teacher education of P.R. China. Secondary sources include research findings cited in selected books and journal articles on the subject.

This chapter sought to examine the factors that account for the understanding teachers and teacher education development of China:

(1) The historical features that exerted influence on the development of teaching and teacher education reforms.
(2) The challenges and new demands that teacher education system is facing in the new era.
(3) A discussion on the design of the keeping the competitiveness and structuring of high-quality teachers forces.

Historical Development of Teacher Education in China

China's long continuous history as a country and culture surely has a profound influence on the character of teachers raised in it. Speaking of historical features, people are talking about much more than a teacher education system alone, it also includes teachers' community as well as the history of that community. Teacher education in modern China sprouted in the "Hundred Days Reform" period, at the end of the Qing Dynasty. Since the "*Presented School Regulation (《奏定学堂章程》)*" promulgated in 1904, the nation's teacher education system has experienced a hundred years of changes from "replicating Japan", "learning from the USA", "imitating the Soviet Union" to "creating Chinese characteristics" (Chen, 2002). The development of Chinese teacher education has successively experienced five phases (Yang, 2016b):

Phase 1: The Establishment of an Independent but Closed Normal Education System (1897–1921)

The word "normal teacher" first appeared in the Western Han Dynasty, when Yang Xiong connected "*Teacher (师)*" and "*Model (模范)*" for the first time in the *Act of Learning of Fa Yan (《法言学行》*), which stated the due requirements for teachers. China's normal education in the true sense of the word, together with the modern schooling system, was introduced into China from Japan at the end of the nineteenth century. It had been widely accepted by academia that normal education in China was germinated in that turbulent era, in which reforms in the field of education were at the core of the social situation at that time (Zeng, 2016). People with breadth of vision realized the importance of rejuvenating the country through education, and the overall education quality relies on the training of a certain scale of teachers.

Since the mainstream education ideology at that time was "Traditional Chinese values aided with modern Western management and technology ("中学为体, 西学为用")", a number of new-style schools were established nationally in accordance with the philosophy. Founded in 1863, the Kuang Fang-Yen Kuan (上海广方言馆) was the first foreign language college in Shanghai and a new school with distinctive Shanghai

characteristics. And Shanghai Telegraph School (上海电报学堂) was founded in 1882, the first telegraph and communication school of the country. The No.3 Public School (三等公学) was found in 1896, an indicator of the westernization took place in the curriculum, pedagogy, and school management. However, it has been commonly assumed that the morality and philosophy of education were still centred around the traditional Chinese values at this stage.

It was noteworthy that the first normal school in China, named Nanyang Public School (南洋公学), was founded in Shanghai in 1897. The school created a precedent for classifying into primary, secondary, and tertiary three different levels of education. All three levels of the training objectives, training specifications, and quality standards are clear, which consolidate the future development of teacher education. It also emphasized China's morality-oriented education tradition as well as the cultivation of actual teaching ability. It played an active role in the development of modern teacher education. The school duplicated the open teacher training mode in western countries and aimed to cultivate new teachers for new schools. The school ran for six years in all, trained 71 teachers, and symbolized the beginning of the normal education in China.

Another salient feature of this phase is that moral education and cultivation of personalities of teachers became a central issue in the teachers' training. This notion had grown in importance as the curriculum laid great emphasis on human ethics as the foundation of all subjects. The 'moral education' themes not only took up a large proportion of the training activities, students were also required to put their conceptualization into practice. Although it might be seemed to be politicalized and ethicized, it was of great benefit to form a tradition of teachers' professional ethics. Meanwhile, foreign languages subjects were also set up in the curriculum. Attaching importance to the imparting of educational theory and the training of actual teaching ability, to some extent, it reflected the characteristics of teacher's professionalization.

There was a remarkable resemblance between the teacher education of China and Japan in this period of history. Therefore, lack of originality in the educational philosophy might be considered as one of the drawbacks in this phase. Although emphasis had been placed on the training of teachers' subject knowledge as well as the pedagocial competence, the course content was rather complicated and the academic burden was so heavy that students' independent development was affected. Despite its many drawbacks, it had achieved certain results in a short period of more than ten years. The teacher education in this historical period laid a foundation for the development of teacher education in China, both in form and content.

Phase 2: An Open Normal Education System Initially Formed (1922–1948)

A much-debated question was taking place across the nation at that time concerning whether normal education should maintain an independent ideological status in the

educational system. After a long debate, the reconstruction of higher normal education system had been widely recognized (Yang, 2016b). In November 1922, the government of the Republic of China promulgated *Renxu System of School Education* (《壬戌学制》) and introduced the "6–3–3" schooling system. Under the general principle and spirit of promoting democracy and upholding freedom, the educational system had undergone major reforms and transformed into the American schooling system.

In early 1920s, Nanjing KMT government exercised strict control over the normal education and redefined the goal and course content of teacher education, for the purpose of consolidating regime. Normal education at the time was placed in a subordinate position. Normal Education Colleges and universities were asked to merge into ordinary universities and converted into universities. The independent status of normal education particularly the tertiary level had been weakened, and subsidies for normal students have been suspended, leading to a severe brain drain and decrease of teaching quality.

In this stage, learning from the American normal education system became the mainstream, and the tertiary-level teacher education was initially formed and developed. Although there was an inclination to nationalize the normal education system, the status of normal education was obviously weakened, and the development of normal education fell into a low ebb.

Phase 3: Reconstruction of the Old and Closed Normal Education System (1949–1977)

Since the founding of the People's Republic of China, in order to meet the urgent needs of people, teacher education policies were implemented and centred around teachers' pre-service training and in-service training reforms. Efforts were laid on the training of teachers' knowledge and ability, improving their formal schooling, and the goal includes to enhance teachers' comprehensive quality, to improve the quality of the normal education, and to promote the development of the education of all types and at all levels. On the basis of "to discard but keep the finer part" from the old educational experience, comprehensively learning the educational experience of the former Soviet Union and carrying out the teaching reform, a large number of qualified teachers were trained, so that the development of education could meet the needs of the political and economic development at the time. China sought to explore the path of an independent development, with its educators began to reflect on the all-round copy of former Soviet Union. However, a series of problems began to arise, including the remains of empiricism and neglect of production and labour education. Teacher education system at that stage appeared to be relatively closed.

In December 1949, the first National Teacher Work Conference was held, marking the beginning of the construction of independent teacher education system in the People's Republic of China. Due to the serious shortage of resources at that time, it

was difficult to make up the gap in the quantity and quality of teachers in a short period of time only by relying on formal teacher education. It had decided to train teachers by combining formal normal education with a large number of short-term training programs. All major administrative regions shall set up at least one normal college directly affiliated to the Ministry of Education. Teachers' colleges have been set up in all provinces (municipalities and autonomous regions) and most urban districts to train secondary school teachers. The teachers' college and the teacher's college of the former ordinary university are also gradually set up independently. Subsequently, in October 1951, the Administrative Council promulgated *the Decision on the Reform of the Academic System*, which for the first time provided a policy basis for the stratified training of teachers in normal colleges at all levels in the form of laws and regulations. Teachers' education was divided into four levels: teachers' college, teachers' school, primary teachers' school, and early childhood teachers' school. The above system helped construct a relatively complete framework for the independent teacher education system. In July 1952, the *Provisional Regulations for Normal Schools (Draft)* was promulgated, which unified the educational tasks, length of schooling, and curriculum of secondary normal schools, establishing the standards for the development of secondary normal education and establishing the norms for running a new type of secondary normal school. During this period, normal colleges at all levels developed synchronously and gradually formed a three-level teacher education system consisting of secondary teachers, secondary teachers' colleges, and normal colleges, all together played an indelible role in the construction of primary and secondary school teachers.

With the aim of changing the uneven quality of teachers in the early years of the founding of the People's Republic of China, the state paid more attention to the on-the-job training of primary and secondary school teachers. In 1951, the First National Teacher Education Conference discussed the quality of in-service teachers for the first time and put forward suggestions to strengthen in-service training and further education for primary and secondary school teachers. The circular of the *Further Education of Primary and Secondary School Teachers* issued by MOE in 1952 clearly required all major administrative regions to set up teachers' further Education Colleges and all localities to set up normal colleges to strengthen the in-service training of primary and secondary school teachers. In 1953, the Directive of the State Council on Rectifying and Improving Primary Education and other documents specifically aimed at the development of primary and secondary education were issued successively, which promoted the improvement of the in-service training mechanism for primary and secondary school teachers. The decade 1966–76 was the most chaotic since the founding of the nation. The development of teacher education was once paralysed. During this period, many leaders and excellent teachers in normal colleges were persecuted, and the development of teacher education as a whole was at a standstill.

The teacher education system based on China's actual conditions is becoming more standardized and complete. The teacher education during this period was subject centred, which emphasized more on subject matter knowledge, and teacher's role is more about transmitting knowledge. In the course of teaching reform, normal

colleges at all levels widely adopted the educational philosophies and experiences of the Soviet Union, including the syllabus and teaching materials. Teacher education gradually updates the old teaching content, teaching organization, and teaching method from the doctrines, viewpoints, and method of Marxism. The MOE required all levels of education authorities to adopt multiple emergency approaches of training in-service teachers to familiarize themselves with the content of courses to be taught, as in "learning what you will teach and making up what you lack" (Liu, 1993). However, the social status of teachers has been significantly improved, and the society has formed a trend of respecting teachers and valuing education. From a cognitive psychological perspective, the subject-centred model did not provide prospective teachers with opportunities to learn and understand how children think about subjects (Zhou, 2014, p. 507). Teachers might consider less on how to adapt their instruction based on children's pre-existing knowledge and ways of thinking. Even so, it should also be noted that teacher education during this period was dominated by national planning, and the degree of teacher autonomy was low. Although the quantity of teachers in the country had grown rapidly in the short term, the quality of teachers varies considerably.

Phrase 4: Restoration, Adjustment, Consolidation, and Improvement (1978–1995)

Facing the challenges of international competition in the twenty-first century, the degree of strong national strength depends on the quality of citizens. In October 1992, the 14th National Congress of the Communist Party of China proposed to attach great importance to the training of teachers and legal system construction, and the perfection of relevant legislation, and aimed to promote China's education and social modernization into a new stage of development. To fulfil the new requirements, the government deepened educational reform in different levels of education, particularly at basic and higher level. During this period, teacher education gradually became professionalized and legalized, and relevant laws and regulations were also gradually improved. The promulgation of the Teacher's Law in 1993 and the Education Law in 1995, respectively, marked the normalization and rule of law in the construction of teachers, thus better supporting and guaranteeing the formulation and implementation of teacher education policies.

High quality of education of one nation relies on a large volume of qualified faculty resources. This is normally the case especially when dynamics of change and innovation are to be found in the curricular system of pre- and in-service teacher training programs. But there was a huge gap between the professional level of teachers' pre-service training and post-service training institutions. For instance, the main pre-service training institution in Shanghai at that time was East China Normal University, while the main post-service training institution was Shanghai Institute of Education. The level of training they provide is completely different.

As early as 1981, East China Normal University had the right to confer doctoral degrees in 12 specialties. After Shanghai began to fully implement the education of primary and secondary school teachers since 1990, The demand for high quality post-service teacher training had increased significantly.

Additionally, it was called on by the nation to emancipate mind and to initially start the "open mode" of teacher education. The emancipation of educators' thoughts was also encouraged. Mental health education was also integrated into routine teaching. It was imperative that the curriculum fully reflects the theoretical knowledge and practical skills of education and be conducive to the national requirements of controlling the number, specifications, and practical functions of teacher training. In the mean time, a teaching style of respect, inspiration, collaboration, and joyfulness was welcomed and shared among the teachers and students (Zhou, 2014). The teachers were no longer merely been regarded as the subjects of training and of reform activities; they had the opportunity to explore and reflect on practice and were empowered as agents of change (Zhou & Liu, 2011).

Phrase 5: Towards a Comprehensive, Tertiary-Level Oriented, Professionalized, Integrative Teacher Education (1996–)

During this period, the main contradiction of China's educational development has shifted from the lack of educational opportunities for the masses to the imbalance of educational development in vast geographic areas. Equality and quality assurance have become the biggest challenge facing the development of education in China. The building of high-quality teachers was also regarded by the national government as a "fundamental livelihood project". As promulgated in the *Education Revitalization Action for The Twenty-first Century Cross-century Gardeners Project* (Ministry of Education, 1998). The policy maintained that in order to achieve the teacher education reform and development goals of the twenty-first century, not only to continue to push forward the teachers cultivate the open degree, but also will continue education into the system of teacher education, teacher education pre-service after integration development began to be taken seriously. The reform measures during this period greatly promoted the improvement and development of teachers' continuing education system and laid a foundation for the establishment of the integrated training mechanism of both pre-service and post-service sessions.

The State Council released two documents, the "*Action Plan to Revitalise Education for the Twenty-first Century* (Ministry of Education, 1998)" and "*Decisions to Deepen the Educational Reform and Improve Quality-Oriented Education in an All-round Way*". The first document established goals for education and proposed to improve teachers' educational credentials. The second document required implementing quality-oriented education in primary and secondary schools, which generated a necessity for increasing the highly qualified teaching force and encouraged comprehensive universities and other institutions to join teachers' education.

The Ministry of Education presented the document "*Suggestion on Restructuring the Teacher Education Institutions*" in 1999 and changed the closed three-level institutions to an open two-level system. MOE also required that teacher training and preparation to be gradually implemented at the higher education level. In this vein, reform measures include to make secondary normal schools merged with three-year professional teacher colleges or transformed into vocational schools. Some specialized teacher institutes upgraded to independent four-year universities or merged with other normal or comprehensive universities. The consequence of the reconstruction was that the number of normal schools decreased sharply, from 875 in 1998 to 196 in 2007; the number of professional teacher colleges decreased from 154 in 1998 to 45 in 2007; the number of normal universities and colleges increased from 75 in 1998 to 125 in 2007 (Zhao, 2008, p. 80). The statistics showed that there were 2742 institutions that prepared initial teachers in 2007, among them, 366 (13.3%) institutions were normal universities, normal colleges or normal schools, 2376 (86.7%) were institutions that did not have "normal" in their names (Zhao & Zhu, 2010, p. 51) so were not specialist teacher education institutions.

The "openness" could also be manifested as the transition of the university–government–school partnership to a school–university–enterprise–government pattern. Scholars also argued that teacher preparation organized by secondary schools could hardly achieve the objective of open system policy. Furthermore, the open system led to the supply exceeding the demand for beginning teachers (Zhao & Zhu, 2010). The overall implementation of the open system policies seemed to be inconsistent, as many historic secondary normal schools have been shut down, whereas many secondary vocational schools have been integrated in teacher education system improperly.

In 2018, the CPC Central Committee and the State Council issued the *Opinions on Comprehensively Deepening the Reform of Teacher Team Construction in the New Era* (hereinafter referred to as the opinions), the first policy document specifically focusing on teacher team construction, which is of great historical significance to the development of teacher education in China. Subsequently, according to the Opinions, the Ministry of Education and other five departments issued the *Action Plan for Revitalizing Teacher Education (2018–2022)* (hereinafter referred to as the Plan). The promulgation of "Opinions" and "Plans" means that China's teacher education has entered a new historical period. The Party, the state, and the education authorities have planned the construction of teachers from the perspective of national development strategy and teachers' historical mission, which to a greater extent reflects the latest achievements in the development of teacher education policies in the new period of China.

For more than one hundred years of development, the development of teacher education in China reflects a historical progress of the nation's deepening of the understanding of the nature, character, status, task, and goal of teachers as well as the education system.

Prominent Challenges Facing Current Teacher Education

In view of the past history and the contemporary progress of teacher education of China, there are a number of potential reform tendencies that can be foreseen.

To Optimize the Governance Capabilities of Teacher Education by Law

Formulation of teacher-related policies falls within the purview of the Central Committee of the Chinese Communist Party and the State Council, People's Republic of China. Although a few scholars would be invited to the discussion on related policy issues, opinions from frontline educators are rarely considered essential to a comprehensive perspective on teacher-related issues (Lo, 2019).

Policy implementation employs a top-down approach, which leaves either little or infinite room for local authority's interpretation (Lo, 2019; Lo & Ye, 2017). As a directive issued by the CCP Central Committee, the state's top-down approach allows policy formulation and implementation to move with impressive speed. Such an approach largely assumes policymakers' blueprints to be feasible for a great diversity of educational contexts. In accordance with local needs and financial strengths, the local educational departments develop their own action plans and specific regulations on teachers and teacher education. This aspect has mainly reflected itself as the legal documents, and policies are difficult to be implemented, or to be misimplemented, and even over-implemented.

As there could be numerous issues raised in official directives, a simile called "a thousand threads make one needle" phenomenon (Zhu, 2018, p. 1) was used in referring to the disconnect between those who formulate the policies and those who are supposed to implement them (see, e.g. Zhu, 2015, p. 2). In addition, it is difficult to determine whether the measures set out in the document are within the purview of the government or schools (Lo & Ye, 2017). In the situation where administrative authority is higher than professional authority, teachers' salary and various resources and appraisal system are in the grasp of administrative departments of government, which makes teachers more dependent on the government (Zhu, 2015, 2018). Local officials and schools may also feel confused especially when a directive is too broad, frontline educators could only act according to their own perceptions, willingness, and capabilities. To improve the governance structure and optimize the governance mechanism is the key issue to be solved and the core research content of teacher education governance research. Breakthroughs need to be made as in the source of governance structure, system, and mechanism of the comprehensive reforms of teacher education in China (Zhu, 2019).

Coordination and Balance Between Different Teacher Education Resources

Economic disparity that exists among the country's 1335 counties manifests the unbalanced distribution of funding for schools in Mainland China. The inequality might be caused by the uncertain designation of the proportion of financial responsibility that each level of government should shoulder, and educational expenditures become a thorny issue in the division of financing responsibilities among the authorities at different administrative levels (Du, 2018). There is still a shortage of high-quality teacher education resources in some areas, schools, and subjects, which cannot meet the needs of teacher education development. The current teacher education system in China has 'three tracks', namley normal colleges, comprehensive colleges, and vocational colleges; and 'four levels', namly technical secondary school, junior college, undergraduate and graduate school, and "pyramid" characteristics. Although in terms of the quantity of colleges, non-normal colleges are much larger than that of normal colleges, but in terms of the number of students, the population size of normal college students is far greater than the number of comprehensive colleges.

The challenge facing normal education institutes comes from the domestic comprehensive universities, as the graduates of latter enjoy more popularity in the job market (Zhu, 2015, 2018, 2019). First-class teachers depend on first-class teacher education institutions. A total of 137 universities were classified as the first batch of "double first-class" construction, among which 42 are world-class universities (36 of Class A, 6 of Class B) and 95 are world-class universities. But there are only two 'world class' normal universities, out of the total quantity of 42. These comprehensive universities have education and relevant disciplines, but they assume no liability for training teachers. There is relatively unbalanced distribution of teacher education resources in the first-class tertiary institutes. Compared with urban areas, the shortage of quality teaching resources in rural areas still exist. There is an imbalance in the allocation of teacher resources among different types of schools, especially kindergarten teachers.

Discipline construction needs restructuring. Since the integration of normal colleges and universities, the curriculum of teacher education needs to be restructured. Current curriculum pays more attention to teachers' content knowledge, while the pedagogical content knowledge has been marginalized (Zhu, 2019). On the average, the percentage of teaching hours for general education courses, subject matter courses, and educational theory courses accounts roughly for 21%, 72%, and 7%, respectively. Similarly, the in-service training schools place a heavy emphasis on courses in the subject matter areas which account for 50% of the total teaching hours, whereas general education courses account for 10%, pedagogy/psychology and practicum take 35%, and professional development offers 5% of the total instruction hours (Guo, 2002).

To Inject Innovative Force to Teacher Professional Development

With fewer faculty employment types and lack of diversity in job placement, the mechanism of professional development of teachers on the whole needs to be systematized and renovated (Hongzhuan Song, 2008, 2010; Zhu, 2019). For instance, the posts of university teachers in China are mainly categorized into teaching-oriented posts, teaching-research posts, and research-oriented posts, with 13 levels in total. The vast majority of teachers are teaching and research positions, which are required to undertake teaching, research, and social services at the same time. But the reality is that most teachers are not able to "wear all three hats" very well. With the increase of university functions and diversified development, the university organization is becoming more and more complex, thus poses higher demands for teachers. Many of the areas that are required by modern universities require full-time commitment and increasing expertise. Stressful work environments and situations may affect the practices and motivation of teachers and principals and even student achievement (OECD, 2020). Three most prevalent sources of stress are being responsible for students, keeping up with changing requirements from local, municipal/regional, state or national authorities and having too much administrative work to do.

Teachers of elementary and secondary schools in China accept training through two major types of institutions, at three different levels: pre-service and in-service teacher training at the four-year tertiary level, at the two to three years of junior college level, and at the secondary level of teacher training institutes. Those training could be rather monotonous, as attending courses and seminars in one of the dominant methods for realizing teachers' professional development. Although teachers are requested to participate this kind of training, most of them believed the most impactful training approach for them is peer learning and coaching. Apart from the sound academic training, what teachers need most is the support of principals. But due to the lack of school autonomy, principals have a strong sense of powerlessness when facing the need to guarantee the rights and interests of teachers and professional support. Teachers' initiatives and innovative orientation are considered essential to the development of student creativity, and this is increasingly viewed as a fundamental prerequisite for the development of the training philosophy as well as for the career development of individual teachers (Song, 2021).

Establishing a Competitive Teacher Education System with Chinese Characteristics

Teachers are primary driving force of education development. Qualified teachers are key to the maintaining of a high education quality of the nation, pre- and in-service teacher training programs that offer the mobility for the system. In accordance with "*the Law of Education*" and "*the Law of Teachers*", placing emphasis on the system's

reform is in order to get rid of current misfits. Future teachers must take the initiative to act as multiple roles in the classroom, and they are not mere deliveryman of content knowledge, but also as thinkers, leaders, mentors, and innovators of education.

Exploration of Teacher Education Governance

"Teacher education governance" requires that the state (the government), universities (teacher education), market (personal) and primary and middle schools teacher education consumers, social organizations (teachers and teacher education professional organizations), civil and other multiple entities participating and collaborating in the face of the teacher education of public affairs assume corresponding responsibility of new management and service mode; to maximize the public benefit of teacher education is not only the goal of teacher education governance, but also the fundamental representation of "good governance" of teacher education (Yang, 2016a, p. 92).

"Good governance" seeks after the optimum jointing point between the two extremes, namely internationalization and domestication (T.-P. Yang, 2011, p. 518). Internationalization refers to the expansion of one's own vision and to learn from other countries' experiences, attempting to follow or even to lead the global trend. The domestication means selecting the pathway for the development of teacher education in real condition of one nation or district. The exploration of a systematic integration of internationalization and domestication is both of global trend and of great value to the continuous improvement of modern teacher education governance.

The modern teacher education system with Chinese characteristics suggests a wide range of subordinates, including Chinese teacher tradition, role and responsibility of the government, teaching mode and resources, advanced concepts, policies, laws and regulations, norms and procedures, etc. Teacher education institutes of all levels should persist in searching for the beneficial enlightenment and experience worldwide to the improvement of teacher education governance capability (T.-P. Yang, 2011; Y. Yang, 2011). However, emphasis should be placed on the local, social, economic, and educational realities of various educational contexts on the vast territory, and caution should be applied when interpreting distinctive features within particular developing phases.

It is also necessary to balance the contradictions of the macroscopic guidance from the ministry of education and multifaceted situations of the local regions, as well as to coordinate between the discipline and school types (such as liberal arts college), etc. Other factors may include teacher education providers (such as normal universities, education department), local comprehensive colleges born after "merging" and "upgrading". To fully demonstrate how education authorities at all levels, colleges of education and liberal arts, teachers' professional organizations, jointly participate in teacher education governance, the responsibilities and rights of stakeholders, their division of labour and cooperation relationship, and the experience and lessons of governance practice. In order to integrate and draw on the advanced

experience of governance mechanisms from other countries in terms of the characteristics of teacher education governance structure, diversity of methods, integrity and relational thinking characteristics, teacher educators must have an advanced top-level policy design of teacher education that is also localized and suitable for the teaching and learning of different disciplines. When transplanting the advanced notions of teacher education governance from foreign countries, the domestic conditions of China, different provinces, regions, or even different school types need to be adequately considered.

To highlight teacher education providers' independent role in taking an objective view and chasing opportunities to provide services with their own characteristics, Chinese teacher educators must effectively integrate various resources to cater the "specifically-oriented aim" and "non-specifically-oriented aim" altogether (T.-P. Yang, 2011, p. 527). The system needs further innovation, so as to widen the channels for teacher education. An equal, cooperative, and balanced governance mechanism of teacher education is required in every link of the chain, including consistent entrance examinations organized for selecting students, wide training calibres, as well as strict and comprehensive evaluation system. In view of all that has been mentioned in the process, a principal determining characteristic of teacher education governance could be its professionalism. However, in a broader perspective, the mainstream characteristic has gradually been replaced with innovativeness. It manifests the strategic transition teacher education at higher levels.

Innovation in Teacher Preparation and Training

The notion of advocating the "combination of stage-by-stage education and life-long education' embodies the openness and unity of teachers" education and professional development (T.-P. Yang, 2011, p. 530). A sociological opinion states that a plateau period exists in the development of any career, and both teachers and students are likely to become close-minded and conservative as the occupational fatigue, weariness, and laziness increase. In-service education is of an effective solution to the fatigue, as it provides them with opportunity to practice introspection and to learn and make progress themselves. Prospective teachers' in-service training is neither the once for all approach that occurs in normal universities, nor is it the one consists of two independent sections, namely pre-service training and in-service training.

The deepened value of teachers' development lies in its being the prerequisite for facilitating the growth of students. Teachers will have to organize effective and efficient instructional activities to meet students with different interests and competence levels. Excellent teachers' professional knowledge structure is not a simple sum of knowledge, but the integration of a variety of knowledge constructs as well as professional skills. It is a multidimensional and multi-level dynamic knowledge system (T.-P. Yang, 2011; Y. Yang, 2011). The role of teacher education is to make

teachers practice, reflect on their own learning, and eventually store in the cognitive structure. Through integrating various knowledge constructs, active recombination and transformation of knowledge elements could authentically contribute to the effects of any type of teacher training programs.

Teacher education curriculum needs to be specifically designed and implemented according to levels, types, and needs of various education institutes. Since the twenty-first century, a series of core concepts including "connotative development", "curriculum reform", and "school-based development" have become crucial philosophies guiding local schools and the implementation of curriculum reform. Measures include the curricular construction and reform of the teacher education departments in normal universities. Contents of teacher education curriculum need to be timely updated according to the hot spots of education reform, the latest discoveries of in natural sciences, social, and humanistic sciences, and the contents of curriculum system should be updated in due course. A paucity of curriculum research unravels a number of arenas, such as the principles regarding teacher education specialty, the principle of correlating theoretic studies and practice, holistic design of teachers' career development path, putting teachers' education into practice stage by stage and establishing a study-oriented, lifelong teacher education mechanism, pre-service education and in-service education, degree education and non-degree education, school-based training, distance education, etc.

The Dialectical Relation Between Standardization and Multiplicity

Standardization is the core philosophy which exists in the modern teacher education system (Han, 2012). It has also been practised by countries all over the world as a manner of quality assurance. China's long history and culture had a tremendous impact on its standardization of teacher education. Teachers were considered to be "models of human beings" as early as in the West Han Dynasty. Modern teacher education is not merely a process of approving and issuing teachers' teaching qualifications, but also to enhance their professional calibres. Its process could also suggest the tendency of systematizing and standardizing of the teaching specialty (Han, 2012). Therefore, great efforts should be placed on examining and inheriting the fine traditions in educational philosophies of our country. Meanwhile, to improve relevant supporting laws and regulations so as to make teacher education to be adapting to the current situation. Meanwhile, the entire system of teacher education, in which the policy formulation, qualification authentication, and conferral together with further education need to be linked and made to complement each other and to be reinforced gradually (Yang, 2016a, b). Standardization also needs to be strengthened in all links of the training teacher educators.

The modern teaching education, in essence, is of multi-dimensions, multi-levels and multi-specifications, personalized, and differentiated (T.-P. Yang, 2011, p. 532).

Its objectives and demands, structures and functions, contents and forms, evaluation and assessment, systems and regularities, etc., vary according to the changes of time and place. Similarly, requirements will never remain unchanged for teacher educational standards as well as qualities of teachers in all development phases. It would be necessary to see an overall and coordinated plan for the general development of education, together with different guidance and specific implementation roadmaps for different contexts. Teacher education researchers and practitioners need to further explore the training mode of teacher education, in which all standardization and multiplicity features need to be fully coordinated

Conclusions

To sum up, teacher education in modern China set afoot in the late 1890s, matured in the mid-1980s, and had undergone vicissitudes for over 100 years. During the past 20 years, China's modern teacher education has witnessed unprecedented situations, challenges, and opportunities. It is worthwhile to look back into its process of its development history and to critically comb through its experience and lessons, gains, and loss. Not only does the reflection shed light on the current practices of teacher preparation and training, but also to have the eyes on the future, to integrate the global vision and native sense, and eventually to build the modern teacher education system with salient Chinese characteristics through creativity and exploration.

References

Chen, Y. (2002). *教师教育研究 [Teacher Education Reserach]*. East China Normal University Press.

Commission, S. M. E. (2020). *Guanyu 2019 nian shanghai shi gequ jiaoyu jingfei zhixing tongji qingkuang de gonggao [Announcement on the Statistics on the Implementation of Education Funds in Shanghai in 2019]*. Retrieved from http://edu.sh.gov.cn/xxgk2_zdgz_cwgl_01/20201103/4692cd35e4d5448ba41533873e2e66da.html.

Du, P. (2018). Wanshan zhongxiaoxue jiaoshi gongzi he baozhang jizhi tuijin gao suzhi jiaoshi duiwu jianshe [Improve the salary system and assurance mechanism secondary and primary school teachers to promote the construction of a teaching force of high quality]. *Huadong Shifan Daxue Xuebao (Jiaoyu Kexue Ban) [Journal of East China Normal University (Educational Science Edition)], 4*, 40–42.

Fallows, L. (2010). On those 'stunning' Shanghai test scores. *The Atlantic*. Retrieved fromhttp://www.theatlantic.com/national/achive/2010/12/on-those-stunning-shanghai-testscores/67654/

Friedman, T. L. (2013). The Shanghai secret. *The New York Times*. Retrieved from http://www.nytimes.c0m/2013/10/23/opinion/friedman-the-shanghai-secret.htlm.

Guo, C. H. (2002). The current issues and research on teacher education curriculum design in China. In Q. L. Li & Y. M. Chen (Eds.), *International comparative studies on teacher education curriculum*. Education Science Publishing House.

Han, X. (2012). Big moves to improve the quality of teacher education in China. *On the Horizon, 20*(4), 324–335.

Liu, Y. (1993). *Book of major educational events in China (1949–1990).* Zhejiang Education Publishing House.
Lo, L. (2019). Teachers and teaching in China: A critical reflection. *Teachers and Teaching, 25*(5), 1–21.
Lo, L., & Ye, J. (2017). The historical context of the role and status of scholars and teacher in traditional China. In X. Zhu, L. Goodwin, & H. Zhang (Eds.), *Quality of teacher education and learning* (pp. 157–192). Springer.
Loyalka, P., Liu, O. L., Li, G., Kardanova, E., & Li, Y. (2021). Skill levels and gains in university STEM education in China, India, Russia and the United States. *Nature Human Behaviour*, 1–13.
Ministry of Education, P. (1998). *Action plan to revitalise education in the twenty-first century*. Retrieved from http://old.moe.gov.cn/publicfiles/business/htmlfiles/moe/s6986/200407/2487.html.
OECD. (2020). *TALIS 2018 results (volume II): Teachers and school leaders as valued professionals*. Retrieved from TALIS, OECD Publishing, Paris. https://doi.org/10.1787/19cf08df-en.
Qiu, A. (2013). The real Shanghai secret. *Education Revolution.* Retrieved from http://www.educationrevolution.org/store/real-shnghai-secret/.
Song, H. (2008). Sleeping giant: Chinese teacher education system past, present and future (I). *On the Horizon, 16*(3), 137–142.
Song, H. (2010). Sleeping giant: Chinese teacher education system. Past, present and future (II). *On the Horizon, 18*(2), 110–123.
Song, H. (2021). Towards the construction of teacher professional development system based on learning in the new era. *Research in Educational Development, 4*, 1–1.
Tan, C. (2013). *Learning from Shanghai: Lesson on achieving educational success.* Springer Singapore.
The State Council, P. (2019). China's education modernization 2035. Retrieved from http://www.gov.cn/zhengce/2019-03/19/content_5374889.htm.
Tucker, M. (2011). *Surpassing Shanghai: An agenda for American education built on the world's leading systems*. Harvard Education Press.
Yang, T.-P. (2011). Strategic examination on and thinking of the systematic reform of Chinese teacher education. *US-China Education Review B, 4*, 516–533.
Yang, Y. (2011). On the cost of teacher education reform [教师教育改革代价刍议]. *Contemporary Education Sciences, 11*, 24–27.
Yang, Y. (2016a). Research of teacher education governance: Values, contents and methodology [jiaoshi jiaoyu zhili yanjiu: jiazhi neirong fangfa]. *Teacher Education Research, 28*(6), 90–95
Yang, Y. (2016b). *教师教育学 [Teacher education]*. Beijing Normal University Publishing Group.
Zeng, Y. (2016). *中国教师教育史 [History of teacher education in China]*. The Commercial Press.
Zhao, M. (2008). Teacher education institutions in transition. In X. Zhu & H. Yan (Eds.), *Education reform in China for 30 years: Teacher education* (pp. 79–120). Beijing Normal University Press.
Zhao, M., & Zhu, X. (2010). Reform of teacher preparation system. *China Higher Education Research, 25*(1), 50–53.
Zhou, J. (2014). Teacher education changes in China: 1974–2014. *Journal of Education for Teaching: International Research and Pedagogy, 40*(5), 507–523.
Zhou, J., & Liu, K. Y. (2011). Development of action research in china: Review and reflection. *Asia Pacific Education Review, 12*(2), 271–277.
Zhu, X. (2015). On the three-track multi-level system of teacher education in China. *Teacher Education Research, 27*(6), 1–7.
Zhu, X. (2018). On the problems facing the construction of teachers' team in China [当前我国教师队伍建设面临的问题刍议]. *Research in Educational Development, 38*(1), 1–1.
Zhu, X. (2019). Challenges faced by teacher education in normal colleges. *Teacher's Journal, 11*(1), 26–27.

Part II
Subject-Specific Teacher Education

Chapter 14
The Trends and Highlights of Mathematics Teacher Education Research in Korea

JeongSuk Pang and JiNam Hwang

Abstract The purpose of this chapter is to analyse the overall research trends of mathematics teacher education in Korea. We collected 595 research articles on teacher education published in seven domestic professional mathematics education journals since their inception. Using topic modelling based on latent Dirichlet allocation algorithms, ten research topics were extracted and named as follows: teacher knowledge, teacher belief, problem-solving, statistical literacy, curriculum and textbook, teaching and learning, student thinking, assessment, university education, and professional development. The most frequent topics included *teaching and learning* and *professional development*, whereas the least frequent topics were *curriculum and textbook* and *assessment*. Each topic was illustrated with the three research articles with the highest proportions of words from the topic. Given the quantitative growth in mathematics teacher education research since 2000, a time series analysis was also conducted to explore how the prominence of each topic has changed over the last 20 years. Some topics, such as *statistical literacy* and *teaching and learning*, showed an increase in prevalence over time, whereas others, such as *teacher belief* and *university education*, showed a decrease. Based on these results, the chapter concludes with several implications and issues for further consideration to expand teacher education research and enhance teachers' expertise in the Korean context.

Keywords Mathematics teacher education · Korean teacher · Research trend · Professional development · Topic modelling

Introduction

The demand for effective teacher education increases day by day in an attempt to promote students' meaningful learning in school mathematics. A better-prepared and better-taught teacher is essential to enhance students' mathematical learning. Many approaches and challenges in mathematics teacher education exist, such as

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strengthening teacher knowledge, beliefs, and identity (Potari, 2020), employing multiple tools and processes (Llinares, 2020) and promoting collaborations among various kinds of participants (Lloyd, 2020).

Teacher education in Korea begins with recruiting the best students to become teachers. Whoever wants to become a teacher must enter a specific university with a teacher preparation program. Due to its social stability, popularity, and level of respect in the Korean culture, the teaching profession accepts only outstanding high school graduates into this specific university. After successfully completing a four-year teacher preparation program at the university and obtaining a teaching certificate, a pre-service teacher must pass a competitive National Teacher Employment Test to work at a public school. The test requires pre-service teachers not only to have profound knowledge of content and pedagogy but also to demonstrate the skilful performance of lesson planning, implementation, and reflection (see Pang (2015) for the details of teacher preparation programs and teacher employment). These processes for teacher recruitment and preparation contribute to improving the overall quality of pre-service teachers.

In-service teachers in Korea participate in one-time qualification training and yearly duty training throughout their teaching career. Qualification training is for teachers who have at least three years of teaching experience to obtain an advanced teaching certification. Duty training is for teachers to expand their educational knowledge and practice. Besides these ordinary training programs, several professional approaches are used to enhance teacher expertise, such as holding instruction-research contests, appointing master teachers who can provide teaching consultation, and facilitating the professional learning community among teachers (Pang, 2016). Since these training programs and approaches have strengths and weaknesses in practice, professional development programs for in-service teachers still have plenty of room for improvement.

Korean mathematics teacher education research began to spread gradually in the 2000s, and the number of research papers has continued to increase ever since. However, little is known in the international community regarding what research topics have been investigated on mathematics teacher education in the Korean context. This chapter analyses (a) what topics related to teacher education have been published in domestic mathematics education journals and (b) how the proportion of research on such topics has changed over time. In the study described in this chapter, we used a computational method known as topic modelling, which allowed us to discover a data-driven set of words that indicated a particular topic. As such, this chapter addresses the trends and highlights of Korean mathematics teacher education research and is expected to provoke subsequent discussions on approaches and issues concerning better teacher education.

Review of the Literature on Mathematics Teacher Education Research in Korea

Since this chapter focuses on examining the trends of mathematics teacher education research in Korea, this section briefly reviews prior research that analysed such trends. Most prior studies included teacher education research as one of the main research topics in analysing the overall trends of Korean mathematics education research. For instance, Ha et al. (2010) reported that about 8% of the papers on elementary mathematics education published between 2004 and 2009 dealt with teacher education. Similarly, Park and Kim (2011) showed that about 9% of the papers concerning secondary mathematics education published between 2005 and 2009 related to teacher education including teacher knowledge, thinking, or belief. The researchers also claimed that domestic studies focused mainly on the teacher knowledge of specific mathematical contents, whereas international studies during the same publication period dealt with various topics such as pre-service teachers' responses or changes across different classroom contexts. More recently, Kim and Pang (2017) analysed that about 12% of the papers on elementary mathematics education published between 2010 and 2016 related to teacher education. These prior studies had the advantage of exploring some trends in mathematics education research but were limited to the papers published at a particular publication period.

Most recent efforts have sought to identify the comprehensive trends of Korean mathematics education research with much more research papers. For instance, Pang (2020) presented an analysis of 3044 peer-reviewed papers published in domestic journals over the last 20 years in terms of publication year, topic, research method, and target research population. Teacher education research was one of the popular topics, accounting for about 16% of the total research. Among teacher education research, the following four sub-topics were studied with similar frequencies: (a) teacher knowledge or understanding of mathematical concepts or principles, (b) teacher preparation programs or professional development programs, (c) implementation or analysis of lessons, and (d) teacher beliefs or values. In addition, Pang (2020) showed that pre-service secondary school teachers were the most popular research subjects among groups of teachers.

In another case, Shin (2020) compared the domestic and international research trends of mathematics education using topic modelling with 4750 research papers. The topic "pre-service teacher" was found to appear most frequently in both domestic and international research among the 23 topics identified in the study. Shin (2020) explained that the common top words that best characterized the topic were "teacher, preservice, knowledge, teaching, elementary, program, school, secondary, pedagogical" (p. 72). Shin reported that numerous studies have been conducted regarding teacher education programs for elementary or secondary pre-service teachers, as well as many studies to investigate these teachers' knowledge. In addition, one of the differences between domestic and international studies regarding mathematics teachers was that the professional development of in-service teachers appeared as one independent topic only in international studies.

Note that the above-mentioned studies dealt with the overall trends of Korean mathematics education research so that any topics or issues related specifically to teacher education were only briefly analysed. A few studies have focused mainly on the trends of mathematics teacher education research. For instance, Sunwoo and Pang (2019) analysed 220 research papers on mathematics teacher education published since 2000 in three domestic professional journals. They evaluated the papers in terms of publication year, topic, research method, etc. Regarding publication year, the number of research papers on mathematics teacher education increased in the 2010s. Regarding research topics, the most frequent topic was teacher orientation, specifically teacher beliefs or perceptions about mathematics teaching and learning. Other frequent research topics included the development and implementation of teacher preparation programs, followed by a survey of mathematics teachers' content knowledge, along with their pedagogical content knowledge (PCK). Regarding research methods, the most popular was the survey method, followed by the case study method and document analysis along with critique, review, or summary. Sunwoo and Pang's study (2019) provided a detailed analysis of mathematics teacher education research but was limited to dealing with specific journals published by one professional mathematics education organization in Korea.

Building on these prior studies, we analysed all the research papers dealing with teacher education published in all of Korea's professional mathematics education journals. Specifically, we used topic modelling based on latent Dirichlet allocation (LDA) algorithms[1] (Blei, 2012; Foster & Inglis, 2019) rather than an a priori coding scheme defined by researchers. This approach allowed us to identify which of the different topics related to a paper was important and how it changed over time. Topic modelling classifies topics based on the frequency of the simultaneous appearance of words in a paper so that many papers can be analysed effectively, assuming that words appearing at high frequencies are the paper's keywords. As reported in this chapter, this analysis of the topics and their changes over time provides teacher educators and researchers with insights into mathematics teacher education research in Korea.

Overview of the Analysis

Research Papers Selected for Analysis

Seven domestic journals focusing on mathematics education in Korea were selected for the analysis described in this chapter. The journals are currently listed on the Korea Citation Index of the National Research Foundation, which ensures that the research articles published in the journals have a high quality in Korea. All of the research

[1] Topic modelling is an analytical method that uses natural language processing techniques to cluster latent topics that a particular document implies. LDA is unsupervised learning that estimates the topics implied in a document based on probability. (See Foster and Inglis [2019] and Shin [2020] for the details of topic modeling used in mathematics education research.).

Table 14.1 Number of research papers on teacher education in each journal

Journal	Number of research papers (number without abstracts)
The Mathematical Education	140(14)
Journal of Educational Research in Mathematics	122(6)
School Mathematics	121
Journal of the Korean School Mathematics Society	102
Communications of Mathematical Education	63(17)
Journal of Elementary Mathematics Education in Korea	43
Education of Primary School Mathematics	41
Total	632(37)

Table 14.2 Number of research papers on teacher education by publication periods

Publication period	Number of papers on teacher education with an English abstract
1971–1989	1
1990–1999	15
2000–2004	52
2005–2009	99
2010–2014	190
2015–2020	238
Total	595

articles focusing on teachers (either pre-service or in-service teachers; either elementary or secondary school teachers) or teacher education were selected in each of the seven journals. At first, 632 research articles were collected, but 37 of them without an English abstract were excluded for the subsequent topic modelling analysis (see Table 14.1). Consequently, 595 research articles were analysed.

The Mathematical Education, the oldest mathematics education journal in Korea, has been published since 1963, but the first article on teacher education was not published until 1971.[2] Table 14.2 shows the number of research papers on teacher education by publication periods. Note that studies on teacher education have increased sharply over the last 20 years.

[2] The article deals with the quality of teachers, direction and content of teacher training, and re-education of in-service teachers according to the modernization of elementary school mathematics (Koo et al. 1971).

Data Collection and Analysis

One of the issues researchers should consider when collecting data for topic modelling is determining which of the collected papers will be utilized for analysis. We used the abstract to represent the full text of each paper due to the convenience of collecting and analysing abstracts (Griffiths & Steyvers, 2004). Some papers were written in English, and all pre-processing of words should be the same to compare research trends using the LDA method. Consequently, we collected the English abstracts of the 595 research articles selected for the analysis.

We used the package in NetMiner 4.4.3 by Cyram to calculate possible topic models.[3] As is common in topic modelling, we conducted pre-processing by refining the unstructured text data into an adequate form prior to the main analysis. Capital letters were converted to lowercase letters, and numbers, punctuation marks, and special characters were removed. The *NLTK 3 Cookbook* is a guide for natural language processing that uses the Natural Language Toolkit (NLTK) of the Python 3 programming language. Based on the list of "stop words" of the *NLTK 3 Cookbook* (Perkins, 2014), we removed all words that were not topic specific, such as pronouns, conjunctions, prepositions, auxiliary verbs, adverbs, or articles. Various tenses of verbs were converted to the present tense. All plural nouns were converted to their singular forms. As the LDA algorithm does not consider the context, words with similar meaning were converted to one word (e.g. the words pupil, child, and learner were converted to the word student). In addition, words frequently appearing in an English abstract, regardless of its content, were excluded (e.g. paper, study, research, purpose, result). Words that were included in almost all papers (e.g. teacher, mathematics, education) and words that were regarded as inappropriate for topic modelling(e.g. important, enough, certain, different) were also excluded.

In using topic modelling based on the LDA algorithm, we set the parameter to $\alpha = 0.1$. We used Gibbs sampling and set the number of iterations to 1000 (Griffiths & Steyvers, 2004). There is no rule of thumb when determining the number of topics in advance, but a major criterion for choosing is whether the resulting topics are interpretable (Jacobi et al., 2016). Therefore, we adjusted the number of topics several times to ensure the words in each topic were significant and adequate. Specifically, we checked the 2D Spring Map and cosine similarity (Cao et al., 2009).While experimenting with different numbers of topics for the 2D Spring Map, we found that ten topics were as an appropriate choice (see Fig. 14.1). The cosine similarity was less than 0.1 when the number of topics was ten, which was deemed appropriate for the number of topics.

In topic modelling, the higher the probability value of each word, the more likely it is to represent a particular topic. In this study, the topic name was determined using the top ten words identified by the algorithm. Topic modelling has the advantage of revealing words related to a topic without any predetermination by researchers, but it has the disadvantage of having no clear definition of the topic (Günther & Domahidi, 2017). In addition, words sometimes express a topic intuitively but appear rather

[3] http://www.netminer.com/

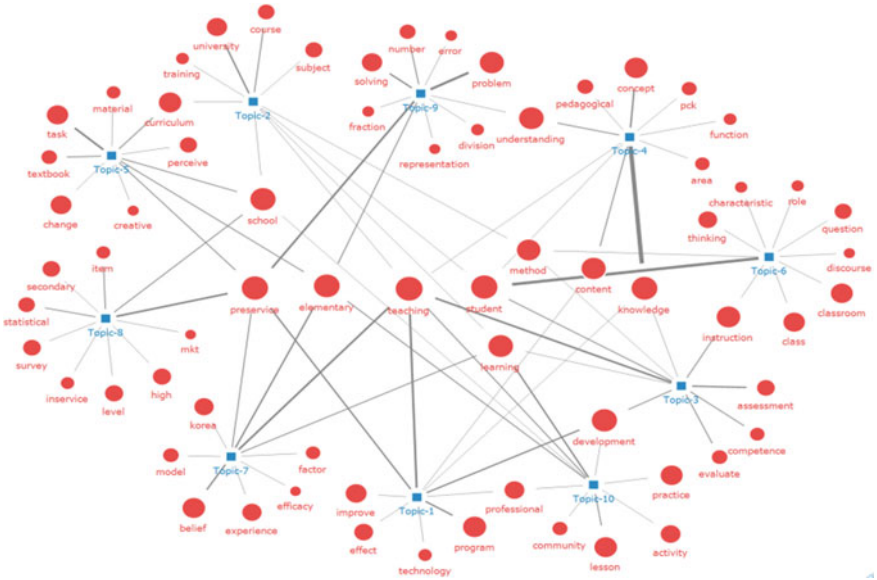

Fig. 14.1 2D Spring map with $K = 10$

abstract (Blei et al., 2003). Faced with this issue, we reviewed three papers that best represented each topic, based on the results derived from topic modelling, to understand in what context the words were used (Foster & Inglis, 2019). A review of both the top ten words and three representative papers led us to determine the appropriate topic names. For example, the top ten words used most frequently in Topic 4 were knowledge, concept, content, understanding, PCK, pedagogical, function, teaching, student, and area in that order. We checked three research papers with the highest proportions of words from the topic (i.e. Kim & Kim, 2002; Pang & Jung, 2013; Shin, 2008). We subsequently named the topic—*teacher knowledge.*

In analysing the topics of the 595 subject papers, we used the topic distribution of each paper that resulted from LDA analysis, which is different from a traditional coding scheme in which researchers determine each paper as dealing with one particular topic and count the frequency of that topic. For instance, if a research paper is related to three topics, and if the topic distributions were 45% for Topic 1, 40% for Topic 2, and 15% for Topic 3, then we counted the frequency as 0.45, 0.40, and 0.15, respectively, for each topic. In addition to identifying topics, we evaluated how they changed over time. Given that studies on teacher education have quantitatively increased since 2000, the data from 2000 to 2020 were examined through time series analysis to identify any changes in the prevalence of the topics over the past 20 years.

Results of the Analysis

Overall Analysis of Research Topics on Mathematics Teacher Education

The ten topics obtained through the topic modelling are shown in Table 14.3, which includes the top ten words and three representative articles for each topic. The ten topics span four broad categories: (a) teacher knowledge and belief (two topics); (b) teacher competence (two topics); (c) teaching practice (four topics); and (d) teacher education (two topics). The results of the topics are described below under these categories.

Teacher Knowledge and Belief

The topic *teacher knowledge* was characterized by the words knowledge, concept, content, understanding, PCK, pedagogical, function, teaching, student, and area—listed here in order of descending prevalence—from the most prevalent of the top ten words to the least (as are the other word lists in this section of the chapter). The three articles with the highest proportions of the topic's words deal with various kinds of teacher knowledge needed for teaching, such as mathematical content knowledge (Kim & Kim, 2002), PCK (Shin, 2008) and teacher knowledge enacted in mathematics teaching (Pang & Jung, 2013). Specifically, Pang and Jung (2013) introduced the Knowledge Quartet framework originally developed in the UK and applied it to analyse a Korean elementary school teacher's knowledge revealed while teaching how to find the area of a trapezoid.

The topic *teacher belief* was characterized by the words teaching, elementary, belief, preservice, learning, model, Korea, factor, experience, and efficacy. All three representative articles are concerned with mathematics teachers' efficacy beliefs. In particular, Ryang (2013a; b) developed a Korean version of the mathematics teaching efficacy beliefs instrument originated in the USA and provided empirical verification for both elementary and secondary pre-service teachers. As implied by the characteristic words and representative articles, the topic's popular target research population was elementary pre-service teachers.

Teacher Competence

The two topics named *problem-solving* and *statistical literacy* are concerned with teacher competence. *Problem-solving* was characterized by the words problem, preservice, solving, elementary, number, division, fraction, understanding, error, and representation. All three of the topic's representative articles analyse elementary pre-service teachers' various problem-solving abilities or processes focused on proportional reasoning (Choi, 2016), error types concerning mathematical problem

Table 14.3 Analysis of research topics related to mathematics teacher education

Topic	Characteristic words (top ten)	Three papers with the highest proportions of words from the topic
Teacher knowledge and belief		
Teacher knowledge	knowledge, concept, content, understanding, PCK, pedagogical, function, teaching, student, area	A study on teachers' knowledge of mathematics: With respect to the concept of function (Kim & Kim, 2002) An analysis of teachers' pedagogical content knowledge on probability (Shin, 2008) "The knowledge quartet" as a framework of analyzing teacher knowledge in mathematics instruction (Pang & Jung, 2013)
Teacher belief	teaching, elementary, belief, preservice, learning, model, Korea, factor, experience, efficacy	Development of the mathematics teaching efficacy beliefs instrument Korean version for elementary preservice teachers (Ryang, 2013a) Examining the relationships among elementary mathematics teachers' self-efficacy beliefs, constructivist beliefs, and years of experience (Hwang et al.,2020) Developing the mathematics teaching efficacy beliefs instrument Korean version for secondary prospective mathematics teachers (Ryang, 2013b)
Teacher competence		
Problem-solving	problem, preservice, solving, elementary, number, division, fraction, understanding, error, representation	Proportional reasoning strategy of preservice elementary teachers (Choi, 2016) Analysis on sentence error types of mathematical problem posing of preservice elementary teachers (Huh & Shin, 2013) An analysis on the elementary preservice teachers' problem-solving process in intuitive stages (Lee, 2014)
Statistical literacy	preservice, school, statistical, item, high, secondary, survey, inservice, MKT (i.e. mathematical knowledge for teaching), level	An analysis on the statistical literacy of secondary mathematics teachers and adults: Focused on the level of understanding in a poll results (So et al., 2020) Study on preservice teachers' statistics reasoning ability (Lee, 2011) Preservice secondary mathematics teachers' statistical literacy in understanding of sample (Tak et al., 2017)

(continued)

Table 14.3 (continued)

Topic	Characteristic words (top ten)	Three papers with the highest proportions of words from the topic
Teaching practice		
Curriculum and textbook	task, curriculum, textbook, school, elementary, preservice, perceive, change, creative, material	Preservice secondary mathematics teachers' understanding and modification of tasks in mathematics textbooks (Lee & Kim, 2013) Preservice secondary mathematics teachers' modification of derivative tasks (Kim & Lee, 2016) Task modification of preservice elementary teachers: Focus on geometric tasks (Park, 2018)
Teaching and learning	learning, lesson, elementary, teaching, practice, school, community, activity, development, professional	A case study of teacher learning and the process of developing elementary mathematics instruction (Pang, 2004) Case study of elementary mathematics lessons by a professional learning community among teachers (Kim et al., 2017) Reporting the activities of learning community on elementary mathematics lesson (Na, 2010)
Student thinking	student, question, class, thinking, classroom, discourse, instruction, role, characteristic, method	Interaction patterns between teachers-students and teacher's discourse structures in mathematization processes (Choi, 2020) An analysis of student engagement strategy and questioning strategy in a peer mentoring teaching method (Choi et al. 2016) Analysis of effectiveness of teacher-centered instruction stressed on mathematical thinking processes (Kim & Lee, 2005)
Assessment	teaching, assessment, instruction, evaluate, development, competence, student, knowledge, method, learning	The study on the investigation of the mathematics teaching evaluation standards focused on teaching and learning methods and assessment (Hwang, 2011) The study on the investigation of the evaluation standards for mathematics teaching according to the teacher's opinion research (Hwang, 2013) The investigation of the mathematics teaching evaluation standards focused on mathematical competencies (Hwang, 2018)

(continued)

Table 14.3 (continued)

Topic	Characteristic words (top ten)	Three papers with the highest proportions of words from the topic
Teacher education		
University education	university, course, method, student, curriculum, school, teaching, training, subject, learning	A study on development of curriculum and teaching–learning method for department of mathematics education at teachers college (Shin, 2003a) A proposal on contents and teaching–learning programs of algebra related courses in teachers college (Shin, 2003b) A study on the Russian national curriculum for training of mathematics teachers at universities (Han & Shin, 2003)
Professional development	teaching, preservice, program, development, technology, professional, knowledge, effect, content, improve	The research on pedagogical content knowledge(PCK) focused on instructional consulting for secondary beginning teachers (Choi & Hwang, 2009) A study on utilization of teaching–learning portfolio for improvement of teaching competency of preservice mathematics teacher (Kang, 2014) A study on professional development for mathematics teachers: Based on the investigation of professional development programs in foreign countries (Kwon et al., 2012)

posing (Huh & Shin, 2013), and intuitive knowledge (Lee, 2014). As implied by the characteristic words and all the representative articles, this topic's popular target research population was elementary pre-service teachers. By analysing not only correct responses but also errors or misconceptions in teachers' problem-solving processes, the papers provide us with implications on how to enhance teachers' problem-solving competence through teacher preparation programs.

The topic *statistical literacy* was characterized by the words preservice, school, statistical, item, high, secondary, survey, inservice, MKT, and level. All three of the topic's representative articles analyse various facets of statistical literacy, such as the meaning of statistical items and expressions included in a poll result (So et al., 2020); statistical reasoning ability, including the understandings of probability, means, independence, sample variability, correlation, and causality (Lee, 2011); and the understanding of sample, specifically along with key statistical notions such

as representativeness and variability (Tak et al., 2017). The findings of these articles demonstrate a lack of statistical literacy for pre-service and in-service teachers, suggesting that teacher education programs may need to be redesigned to promote statistics education in secondary schools.

Teaching Practice

The four topics within this category relate to the practice of teaching mathematics, from lesson planning to assessment. The four topics were named: *curriculum and textbook*, *teaching and learning*, *student thinking*, and *assessment*. *Curriculum and textbook* was characterized by the words task, curriculum, textbook, school, elementary, pre-service, perceive, change, creative, and material. As evidenced by the topic's most characteristic word, "task", all three representative articles deal with teachers' understanding and modification of tasks from mathematics textbooks. For instance, Lee and Kim (2013) showed that pre-service secondary mathematics teachers had difficulty modifying low-level tasks into high-level tasks. However, according to Kim and Lee (2016), when asked to modify derivative tasks from a textbook, pre-service secondary mathematics teachers had meaningful learning opportunities to understand the intention of the curriculum and textbook, tasks' cognitive demands based on the conceptual understanding of the derivative, and the importance of anticipating students' various responses. In a similar vein, Park (2018) analysed how pre-service elementary teachers could modify the questions, examples, contexts, and tools of geometric tasks from a textbook.

The topic *teaching and learning* was characterized by the words learning, lesson, elementary, teaching, practice, school, community, activity, development, and professional. All three representative articles are concerned with teacher learning in a professional community in which elementary school teachers have an opportunity to discuss their lesson planning, implementation, and reflection. For instance, Pang (2004) analysed what three teachers learned who attempted to implement student-centred teaching practices while participating in a year-long project. Kim et al. (2017) investigated the positive aspects of a professional learning community, such as effective lesson preparation and the enhancement of teaching expertise, with five teachers at the same school. The researchers also examined the limitations of superficial reflection on the lessons rather than insightful comments for subsequent lessons. Na (2010) elaborated on the activities of a learning community with four teachers and one university researcher, including establishing the community's objectives and content, writing a critical essay on mathematics lessons, and reflecting on the community's activities.

The topic *student thinking* was characterized by the words student, question, class, thinking, classroom, discourse, instruction, role, characteristic, and method. All three representative articles are concerned with teaching methods to promote students' mathematical thinking or participation. Choi (2020) analysed different types of discourse structure based on the interaction pattern between students and a

teacher who was eager to promote student engagement. Choi et al. (2016) also analysed how a teacher promoted student engagement and achievement in mathematics by employing various student engagement strategies and questioning strategies in a peer mentoring teaching method. Kim and Lee (2005) demonstrated that even teacher-centred teaching methods, as long as they explicitly emphasized students' mathematical thinking, effectively enabled students to better understand mathematical content and attain high achievement.

The topic *assessment* was characterized by the words teaching, assessment, instruction, evaluate, development, competence, student, knowledge, method, and learning. All three representative articles were written by the same researcher, and all dealt with the development of mathematics teaching evaluation standards. In 2011, Hwang focused on the evaluation standards regarding "teaching and learning methods" and "evaluation". Hwang revised the instructional evaluation framework in 2013 based on teachers' use to reflect on their mathematics lessons. More recently, in 2018, Hwang refined her instructional evaluation framework for mathematics lessons, emphasizing six competencies: problem-solving, reasoning, communication, creativity or convergence, data processing, and attitude and practice.

Teacher Education

The two topics *university education* and *professional development* were found to relate to teacher education. *University education* was characterized by the words: university, course, method, student, curriculum, school, teaching, training, subject, and learning. All three of the topic's representative articles are concerned with the curriculum or course and teaching–learning methods at the universities for pre-service teachers. Shin (2003a) reported on the development of the curriculum and teaching–learning method for pre-service mathematics teachers, and Shin (2003b) specified the contents and methods of teacher preparation programs' algebra-related courses. Han and Shin (2003) described the Russian national curriculum for training pre-service mathematics teachers. All of these articles resulted from a particular research fund to support the reorganization of programs for pre-service mathematics teachers and to improve teaching–learning methods used in university education.

The topic *professional development* was characterized by the words teaching, pre-service, program, development, technology, professional, knowledge, effect, content, and improve. The three representative articles are concerned with various attempts to improve teachers' professional development. For instance, Choi and Hwang (2009) developed instructional consulting programs focusing on rich PCK and applied them to early-career secondary mathematics teachers. Kang (2014) developed the teaching–learning portfolio, emphasizing systematic self-reflection and improvement in teaching competence, and applied it to pre-service mathematics teachers. Kwon et al. (2012) investigated the strengths and weaknesses of five professional development programs in foreign countries to find implications for a Korean professional development program. The study revealed that foreign countries' programs emphasized mathematics teaching methods or teachers' knowledge

of students' understanding rather than teachers' mathematical content knowledge. Foreign programs also emphasized activities directly connected to school mathematics, collaboration between teachers and teacher educators, long-term visions and planning for teachers to be researchers and learners, and regular analyses and the sharing of substantial changes.

Overall Topic Distribution and Its Changes Over the Last 20 years

Table 14.4 shows the overall topic distribution of the study's 595 research papers. *Teaching and learning* (12.0%) has been the most studied, followed by *professional development* (11.8%), *student thinking* (11.4%), *teacher belief* (10.4%), *teacher knowledge* (9.8%), *statistical literacy* (9.5%), *university education* (9.5%), *problem-solving* (9.3%), *assessment* (8.1%), and *curriculum and textbook* (8.1%).

As the number of research papers on teacher education has increased since 2000, with data from 2000 to 2020, we conducted time series analysis to identify changes in the topics' prevalence over time. In Fig. 14.2, the horizontal axis represents the year, and the vertical axis represents the weight of the topic to all research papers of the year. Each curve is a regression line used to estimate changes in the associated scatterplot. Table 14.5 shows the results of a linear regression analysis of each topic's prevalence to explore statistically significant changes by time series. If the p-value is significant at the 95% significance level and the regression coefficient of a topic is positive (or negative), the topic is a hot (or cold) topic, which means that it has been increasing (or decreasing) in interest (Griffiths & Steyvers, 2004).

Table 14.4 Overall topic distribution

Topic	Frequency	Percentage
Teacher knowledge	58.2	9.8
Teacher belief	62.0	10.4
Problem-solving	55.4	9.3
Statistical literacy	56.8	9.5
Curriculum and textbook	48.2	8.1
Teaching and learning	71.5	12.0
Student thinking	67.9	11.4
Assessment	48.4	8.1
University education	56.7	9.5
Professional development	70.0	11.8
Total	595	100

Note The numbers in this table was rounded up from the second decimal place

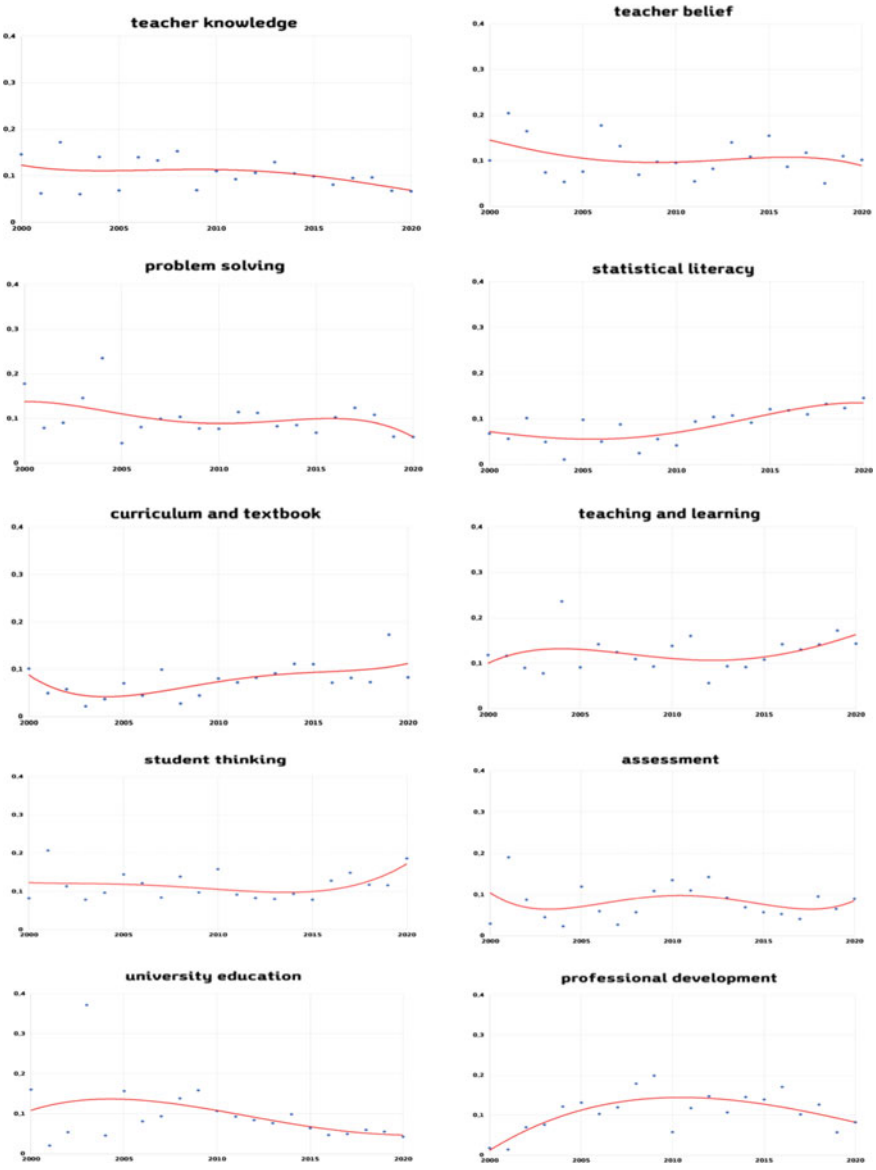

Fig. 14.2 Trends of topics by time series

The topics *teacher knowledge* and *teacher belief* were found to be decreasing over time. While both topics were studied a lot in the early 2000s, they were studied less frequently in the late 2010s. The topics relating to teacher competence showed varying trends over the last 20 years. *Problem-solving* was studied a lot in the early 2000s, but its prevalence tended to decrease in the late 2010s. In contrast, *statistical*

Table 14.5 Results of time series regression analysis

Topic	Regression coefficient	*p*-value	Hot/cold/–
Teacher knowledge	−0.199	0.100	–
Teacher belief	−0.146	0.348	–
Problem-solving	−0.264	0.089	–
Statistical literacy	0.421	0.000	Hot
Curriculum and textbook	0.293	0.012	Hot
Teaching and learning	0.095	0.511	–
Student thinking	0.047	0.726	–
Assessment	0.027	0.868	–
University education	−0.478	0.074	–
Professional development	0.257	0.145	–

literacy was not studied much in the early 2000s, but it has had a stable upward curve since 2010. In fact, this topic turned out to be a hot topic (see Table 14.5). To be clear, both problem-solving and statistical literacy are related to the mathematics competencies expected to be promoted through school mathematics in Korea. In fact, Korea's most recently revised mathematics curriculum (MOE, 2015) highlights statistical literacy more than previous versions. Consequently, studies on teachers' statistical literacy have been quantitatively expanded so that teachers are ready to develop their students' data processing abilities.

The four topics related to teaching practice show different patterns in terms of their prevalence over the last 20 years. The topic *curriculum and textbook* was not studied much in the early 2000s and, in fact, was the least frequent among the ten topics (see Table 14.4). However, since the mid-2000s, the topic has been on a modest upward curve, making it a hot topic (see Table 14.5). Teachers should understand the intentions of the mathematics curriculum and how to reconstruct tasks in mathematics textbooks for high-quality instruction, so the proportion of studies on such a topic has been increasing. The two topics *teaching and learning* and *student thinking* are among the top three topics (see Table 14.4) and, in fact, have been consistently studied over the last 20 years. Figure 2 shows that both topics had a distinct upward curve in the late 2010s. These trends imply that more recent studies tend to analyse teacher learning through actual teaching practice and the student thinking or discourse revealed in mathematics instruction. *Assessment* had the second-lowest frequency among the topics (see Table 14.4) and showed a rather low, flat profile over time without a clear increasing or decreasing trend.

The final two topics, related to teacher education, showed differing patterns. The topic *university education* was studied a lot in the early 2000s but has decreased in

prevalence since the mid-2000s. On the other hand, the topic *professional development* was the second most frequent topic (see Table 14.4), and it showed a steep increase in prevalence in the 2000s but a small decrease in the 2010s.

Reflections on and Implications for Mathematics Teacher Education Research in Korea

This chapter has presented the results of topic modelling that comprised all the research papers on teacher education published in the professional mathematics education journals in Korea. Building on the results, this section describes reflections on and implications for Korean mathematics teacher education research.

First, an in-depth study needs to be conducted on what competencies are necessary for mathematics teachers, along with concomitant revisions to the national mathematics curriculum. There have been substantial studies on teacher knowledge and beliefs in mathematics teacher education research (Park & Kim, 2011; Sunwoo & Pang, 2019). As evidenced by this study's time series analysis, however, such studies have decreased in prevalence over the last 20 years. In contrast, the topic of statistical literacy has dramatically increased in prevalence, partly because the most recently revised national curriculum (MOE, 2015) emphasizes data processing competency based on statistical literacy as one of the mathematics competencies. As the directions pursued in school mathematics change, so does the competence required for teachers to activate such directions in their lessons. Further studies are needed to explore how mathematics teachers must be supported for the effective implementation of the core competencies.

Second, mathematics teacher education research needs to be closely linked to the issues and approaches of actual teaching practice. As such, the following finding from the current study is a desirable one: four of the ten topics related to teaching practice, i.e. to lesson planning, implementation, and assessment. Moreover, three of the four topics (*curriculum and textbook*, *teaching and learning*, and *student thinking*, excepting *assessment*) have increased in prevalence over the last 20 years. Regarding the topic *curriculum and textbook*, teachers' understanding of task modification has been prevalent. Given that thoughtful lesson planning is a "premier teaching skill" (Stiger & Hiebert, 1999, p. 156), more studies should investigate lesson planning beyond mathematical tasks to cover various aspects that teachers should consider in advance, such as anticipating students' multiple approaches, preparing for instructional support, and raising essential questions linked to the learning goals (Smith & Stein, 2018).

The topic *teaching and learning* has been studied with the highest frequency in Korean mathematics teacher education research and showed increasing prevalence over time. Note that all three of this topic's representative papers included teachers jointly designing, implementing, and reflecting on their lessons in the context of the professional learning community. The optimal environment to improve teacher

expertise is a classroom, with continual support from the learning community. What and how teachers learn from their learning community need to be investigated further, as does how to help the community operate effectively (Chapman, 2014; Pang, 2016).

The topic *student thinking* also showed increasing prevalence, specifically over the late 2010*s*. Korea followed a traditional instructional approach focused on teacher-centred teaching practice. However, there have been many attempts in Korea to change such a teaching practice into student-centred teaching practice, emphasizing student thinking or ideas, questions, communication, discourse, etc. In this respect, the topic *student thinking* is expected to continue its recent trend in popularity, along with the topic *teaching and learning*.

Third, further analysis of teacher preparation programs is essential in Korean mathematics teacher education research. The current study found that the topic *university education* peaked in 2003, supported by the National Research Foundation of Korea (Shin, 2003a), and its prevalence has continued to decrease since then. Shin (2020) found that the topic "pre-service teacher" was reported to be the most frequent topic, and Pang (2020) found that pre-service teachers were studied more often than in-service teachers. If we look back on the ten characteristic words for each topic of this current study, the word "pre-service [teacher]" was included in five topics: *teacher belief*, *problem-solving*, *statistical literacy*, *curriculum and textbook*, and *professional development*. This finding implies that pre-service teachers are a frequent target research population when it comes to their beliefs, problem-solving abilities, statistical literacy, or task designs. Teacher education starts with teacher preparation programs, so research on pre-service teachers' university education needs much attention. This is especially true in the Korean context because the main route to attain teaching certification and become a public school teacher is well managed.

Finally, the topic *professional development* needs further investigation, specifically regarding which pedagogical approaches have been used either for pre-service or in-service teachers and how such approaches may be generalizable across various teacher education programs. This topic was not studied much in the early 2000s but was more frequently investigated from the mid-2000s to the mid-2010s. Most recently, it had a decreasing profile in the late 2010s. According to Shin (2020), the topic "professional development" was reported to be popular not in domestic journals but in foreign journals. In contrast, the topic *professional development* was one of the ten topics in our study,[4] which focused on domestic journals, probably because our study analysed research papers only on teacher education. Weighing the recent decrease in this topic's prevalence against its significance in mathematics teacher education research, further studies need to be activated. In particular, such studies should include a detailed exploration of specific pedagogical approaches (e.g.

[4] We use the same topic name, *professional development*. However, Shin (2020) meant professional development for in-service teachers, and we use the topic name in a broader sense to include not only in-service but also pre-service teachers, mainly because the characteristic words for this topic include "pre-service".

microteaching, professional learning communities, instructional consulting, portfolios, or instructional evaluation standards, as illustrated in the representative articles of this study) and the applicability of these new approaches to other teacher education programs. Given the call for a long-term sustained system of professional development for Korean in-service teachers beyond their initial preparation and teaching certification (Pang, 2018), research on mathematics teacher education must be further expanded and elaborated upon.

References[5]

Blei, D. M. (2012). Probabilistic topic models. *Communications of the ACM, 55*(4), 77–84.

Blei, D. M., Ng, A. Y., & Jordan, M. I. (2003). Latent dirichlet allocation. *Journal of Machine Learning Research, 3*, 993–1022.

Cao, J., Xia, T., Li, J., Zhang, Y., & Tang, S. (2009). A density-based method for adaptive LDA model selection. *Neurocomputing, 72*(7–9), 1775–1781.

Chapman, O. (2014). Overall commentary: Understanding and changing mathematics teachers. In J-J. Lo, K. R. Leatham, & L. R. van Zoest (Eds.), *Research trends in mathematics teacher education* (pp. 295–309). Springer.

*Choi, E. (2016). Proportional reasoning strategy of preservice elementary teachers. *Journal of Elementary Mathematics Education in Korea, 20*(4), 601–625.

*Choi, S.-H. (2020). Interaction patterns between teachers-students and teacher's discourse structures in mathematization processes. *The Mathematical Education, 59*(1), 17–29.

*Choi, S.-.H., Ha, J.-M., & Kim, D.-J. (2016). An analysis of student engagement strategy and questioning strategy in a peer mentoring teaching method. *Journal of the Korean School Mathematics Society, 19*(2), 153–176.

*Choi, S. H., & Hwang, H. J. (2009). The research on pedagogical content knowledge (PCK) focused on instructional consulting for secondary beginning teachers. *School Mathematics, 11*(3), 369–387.

Foster, C., & Inglis, M. (2019). Mathematics teacher professional journals: What topics appear and how has this changed over time? *International Journal of Science and Mathematics Education, 17*(8), 1627–1648.

Griffiths, T. L., & Steyvers, M. (2004). Finding scientific topics. *Proceedings of the National Academy of Sciences, 101*, 5228–5235.

Günther, E., & Domahidi, E. (2017). What communication scholars write about: An analysis of 80 years of research in high-impact journals. *International Journal of Communication, 11*, 3051–3071.

*Ha, S., Pang, J., & Ju, M.-K. (2010). Research trends in elementary mathematics education: Focused on the papers published in domestic journals during the recent 5 years. *The Mathematical Education, 49*(1), 67–83.

*Han, I., & Shin, H. (2003). A study on the Russian national curriculum for training of mathematics teachers at universities. *The Mathematical Education, 42*(5), 595–606.

*Huh, N., & Shin, H. (2013). Analysis on sentence error types of mathematical problem posing of preservice elementary teachers. *Journal of the Korean School Mathematics Society, 16*(4), 797–820.

*Hwang, H. J. (2011). The study on the investigation of the mathematics teaching evaluation standards focused on teaching and learning methods and assessment. *Journal of the Korean School Mathematics Society, 14*(3), 241–263.

[5] * indicates that the paper is written in Korean with an English abstract.

*Hwang, H. J. (2013). The study on the investigation of the evaluation standards for mathematics teaching according to the teacher's opinion research. *Communications of Mathematical Education, 27*(1), 39–62.

*Hwang, H. J. (2018). The investigation of the mathematics teaching evaluation standards focused on mathematical competencies. *Communications of Mathematical Education, 32*(1), 97–111.

Hwang, S., Chu, Y., & Albert, L. R. (2020). Examining the relationships among elementary mathematics teachers' self-efficacy beliefs, constructivist beliefs, and years of experience. *Journal of Elementary Mathematics Education in Korea, 24*(1), 31–52.

Jacobi, C., van Atteveldt, W., & Welbers, K. (2016). Quantitative analysis of large amounts of journalistic texts using topic modeling. *Digital Journalism, 4*(1), 89–106.

*Kang, H-Y. (2014). A study on utilization of teaching-learning portfolio for improvement of teaching competency of preservice mathematics teacher. *School Mathematics, 16*(3), 567–584.

*Kim, H. L. & Lee, K.-H. (2016). Preservice secondary mathematics teachers' modification of derivative tasks. *School Mathematics, 18*(3), 711–731.

*Kim, J., & Lee, N. (2005). Analysis of effectiveness of teacher-centered instruction stressed on mathematical thinking processes. *Journal of the Korean School Mathematics Society, 8*(1), 35–53.

*Kim, J., Pang, J., & Kim, S. (2017). Case study of elementary mathematics lessons by a professional learning community among teachers. *Education of Primary School Mathematics, 20*(4), 267–286.

*Kim, Y., & Pang, J. (2017). Research trends in elementary mathematics education: Focused on the papers published in domestic journals during the recent seven years. *Education of Primary School Mathematics, 20*(1), 19–36.

*Kim, W. K., & Kim, Y. D. (2002). A study on teachers' knowledge of mathematics: With respect to the concept of function. *The Mathematical Education, 41*(1), 101–107.

*Koo, K. J., You, B. L., & Oh, B. S. (1971). A study on the reform of school mathematics and the education of teachers in modernization of elementary school mathematics. *The Mathematical Education, 9*(2), 1–46.

*Kwon, N. Y., Lee, E., Park, M., & Park, J. H. (2012). A study on professional development for mathematics teachers: Based on the investigation of professional development programs in foreign countries. *Journal of Educational Research in Mathematics*, *22*(3), 387–400.

*Lee, D. H. (2014). An analysis on the elementary preservice teachers' problem-solving process in intuitive stages. *School Mathematics*, *16*(4), 691–708.

*Lee, H. L., & Kim, G. Y. (2013). Preservice secondary mathematics teachers' understanding and modification of tasks in mathematics textbooks. *Journal of Educational Research in Mathematics, 23*(3), 353–371.

*Lee, J. H. (2011). Study on preservice teachers' statistics reasoning ability. *Journal of the Korean School Mathematics Society, 14*(3), 299–327.

Llinares, S. (2020). Tools and ways of thinking in mathematics teacher education: An introduction. In S. Llinares & O. Chapman (Eds.), *International handbook of mathematics teacher education* (2nd ed.): *Vol. 2*, *Tools and processes in mathematics teacher education* (pp. 1–19). Brill.

Lloyd, G. M. (2020). Collaborations and contexts for participation and learning in mathematics teacher education: An introduction. In G. M. Lloyd & O. Chapman (Eds.), *International handbook of mathematics teacher education* (2nd ed.)*: Vol. 3, Participants in mathematics teacher education* (pp 1–11). Brill.

Ministry of Education (2015). *The mathematics curriculum* (in Korean).

*Na, G. S. (2010). Reporting the activities of learning community on elementary mathematics lesson. *Journal of Educational Research in Mathematics, 20*(3), 373–395.

*Pang, J. (2004). A case study of teacher learning and the process of developing elementary mathematics instruction. *Journal of the Korean School Mathematics Society, 7*(2), 21–49.

Pang, J. (2015). Elementary teacher education programs with a mathematics concentration. In J. Kim, I. Han, M. Park, & J. Lee (Eds.), *Mathematics education in Korea: Contemporary trends in researches in Korea* (pp. 1–22). World Scientific.

Pang, J. (2016). Improving mathematics instruction and supporting teacher learning in Korea through lesson study using five practices. *ZDM Mathematics Education, 48*, 471–483.

Pang, J. (2018). Challenges and actions in mathematics teacher education and professional development in Korea. In M. Park, I. Jeon, & E. Kim (Eds.), *Proceedings of the 2018 International Conference of the Korean Society of Mathematics Education* (pp. 61–72). Seoul.

Pang, J. (2020). The trend and direction of mathematics education research in Korea. *Hiroshima Journal of Mathematics Education*, *13*, 79–97.

*Pang, J., & Jung, Y. (2013). "The knowledge quartet" as a framework of analyzing teacher knowledge in mathematics instruction. *The Mathematical Education, 52*(4), 567–586.

*Park, J. H. (2018). Task modification of preservice elementary teachers: Focus on geometric tasks. *Journal of Educational Research in Mathematics, 28*(3), 301–320.

*Park, S. Y., & Kim, W. K. (2011). A comparative analysis on research trends of secondary mathematics education between Korea and Overseas. *The Mathematical Education, 50*(3), 285–308.

Potari, D. (2020). Mathematics teaching and its development: Looking into teacher knowledge, beliefs and identify. In D. Potari & O. Chapman (Eds.), *International handbook of mathematics teacher education* (2nd ed.)*: Vol. 1, Knowledge, beliefs, and identity in mathematics teaching and teaching development* (pp 1–11). Brill.

Perkins, J. (2014). *Python 3 text processing with NLTK 3 cookbook*. Packt.

Ryang, D. (2013a). Development of the mathematics teaching efficacy beliefs instrument Korean version for elementary preservice teachers. *The Mathematical Education, 52*(3), 363–377.

Ryang, D. (2013b). Developing the mathematics teaching efficacy beliefs instrument Korean version for secondary prospective mathematics teachers. *The Mathematical Education, 52*(2), 231–245.

*Shin, B. M. (2008). An analysis of teachers' pedagogical content knowledge on probability. *School Mathematics, 10*(3), 463–487.

*Shin, D. J. (2020). A comparative study of domestic and international research trends of mathematics education through topic modeling. *The Mathematical Education, 59*(1), 63–80.

*Shin, H. (2003a). A study on development of curriculum and teaching-learning method for department of mathematics education at teachers college. *The Mathematical Education, 42*(4), 431–452.

*Shin, H. (2003b). A proposal on contents and teaching-learning programs of algebra related courses in teachers college. *The Mathematical Education, 42*(4), 481–501.

Smith, M. S., & Stein, M. K. (2018). *5 practices for orchestrating productive mathematics discussions* (2nd ed.). The National Council of Teachers of Mathematics.

*So, J., Gundegmaa, B., & Jeon, Y. (2020). An analysis on the statistical literacy of secondary mathematics teachers and adults: Focused on the level of understanding in a poll results. *Journal of the Korean School Mathematics Society, 23*(3), 397–425.

Stigler, J. W., & Hiebert, J. (1999). *The teaching gap: Best ideas from the world's teachers for improving education in the classroom.* The Free Press.

*Sunwoo, J., & Pang, J. (2019). Domestic research trends of mathematics teacher education: Focused on the journals published since 2000 by the Korean Society of Mathematics Education. *The Mathematical Education, 58*(1), 121–138.

*Tak, B., Ku, N.-Y., Kang, H.-Y., & Lee, K.-H. (2017). Preservice secondary mathematics teachers' statistical literacy in understanding of sample. *The Mathematical Education, 56*(1), 19–39.

Chapter 15
Philippine English and Teaching It: Awareness and Attitudes of Grassroots Filipino English Language Teachers

Hjalmar Punla Hernandez

Abstract Although World Englishes has been proffered to be integrated in English language classes worldwide, it hitherto lacks official recognition by the Philippines' Ministries of Education. The dearth of legitimization by these policymakers hints a question whether Filipinos possess awareness towards Philippine English (PhE) and have positive attitudes towards teaching it. As language awareness and attitudes are imperative for designing language policies, programs, and pedagogies, I argue about the need to unfold Filipinos' awareness towards PhE and "re-examine" their attitudes towards teaching it. In this chapter, I discuss PhE's brief history, functions, and status, paradigm, linguistic features, and related studies. Then, I feature two language surveys: the first scrutinized the awareness of grassroots Filipino English language teachers towards PhE, and the second investigated their attitudes towards teaching educated PhE. Grounded in the studies' outcomes, I appeal to education policymakers worldwide to legally integrate World Englishes glocalization in educational language policies, English teacher education programs, English as a second/foreign language curricula, and English language teaching and testing.

Keywords World Englishes · Philippine English · English language teaching · Policies · Awareness · Attitudes · Curricula

Introduction

World Englishes (WEs) has continued to provoke debates in English language education today. However, it has not intensely penetrated English language teacher education (ELTE)—a significant discipline where English teachers are trained to be well informed about the English language and English pedagogy. As ELTE is commonly regulated by western standards (Tsui, 2021), it has long ignored the plurilingual nature of non-native English language teachers, an instance of what Dewaele (2018) calls as LX users of English (any foreign English users) as gatekeepers of the

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language. LX English language teachers (LXELTs) (any foreign English language user whose profession is English teacher) carry their own English varieties that they and their learners share in ESL/EFL (English as a Second/Foreign Language) classrooms.

Though LXELTs may be certified as teachers of speakers of other languages, they have the propensity to teach their learners not only with exonormative Englishes (e.g. American English [AmE], British English [BrE]) but also with their own local English varieties. Thus, points of debate arise: Which variety should LXELTs teach? Which variety should learners learn? Whose norms should be promoted in ESL/EFL classrooms? (Bernardo, 2018; Tsui, 2021; Vilches, 2021). While these questions have been explored by WEs researchers, they remain underexplored. A case in point is whether LXELTs have awareness of and positive attitudes towards their own variety that they possibly use and teach to their learners. This niche is true not only in the Philippines where Philippine English (henceforth, PhE, Filipinos' legitimate local English variety) is spoken and/or taught by Filipino LXELTs (Bernardo, 2018; Gonzales, 2008), but also in other outer and expanding circle English nations where their respective Englishes have gained acceptance.

Copious PhE studies have been done (Bolton, 2020). Consequently, Filipino applied linguists have recurrently recommended its integration in Philippine English language teaching (ELT) (Bautista, 2001a, 2001b; Bernardo & Madrunio, 2015; Borlongan, 2009). However, the Philippines' Ministries of Education lack legislative support towards it; thus, Filipinos could be construed either having unawareness of and/or negative attitudes towards PhE. In this chapter, I discuss PhE's brief history, functions, status, paradigm, linguistic features, and related studies. Then, I feature two language surveys examining Filipino LXELTs' awareness of and attitudes towards teaching educated PhE. Grounded in the studies' findings, I plea to Ministries of Education worldwide to adopt WEs glocalizaton, I highlight the implications of such adoption for educational language policies, ELTE, ESL/EFL curricula, and English language teaching and testing (ELTT).

PhE: Brief History, Functions, and Status

Despite Spain's 333 years of colonization over the Philippines, the Spanish language hardly made an indention to Filipinos as only 2% of them can speak Spanish by the end of the Spanish rule [Gonzales, 1997]). However, the United States of America for 47 years (1899–1946) successfully spread the English language. With the *Thomasites* (first American teachers in the Philippines), Filipinos first learned and accepted English. Despite the endorsement of the 1925 Monroe Report on the use of learners' first languages as auxiliary media for teaching values subjects, the Americans sustained using English in Philippine classrooms (Martin, 2012). After the *Thomasites'* short stint, Filipino teachers took over in teaching English to Filipinos; thus, PhE was born (Gonzales, 2008), and ELTE was deep-rooted in the country

(Vilches, 2021). In a survey, Gonzales (1997) reported that Filipinos across generations (1939, 1948, 1960, 1970, and 1980) proclaimed that they are English speakers. In a similar study, he pinpointed that 59% of Filipinos showed that they can speak, 73% can read, and 59% can write in English. Similarly, the Summer Institute of Linguistics recorded that 32 million Filipinos are in the English-speaking population. In 2008, the Social Weather Stations reported the following: 76% of Filipino adults can comprehend oral English; 75% can read English texts; 61% can write English texts; 46% said they can speak in English; 38% reported they think in English; and only 8% stated they were incompetent in using the language.

The rapid growth of English in the Philippines is due to the extended functions it plays to Filipinos (Dayag, 2014). As outer circle English users, Filipinos use English for instrumental purposes in education, science and technology, mass media, creative writing, legislation, judiciary, government, business and industry, professional examinations, etc. (Dayag, 2012, 2014). Hence, English is very crucial in the Philippines (Vilches, 2021) such that it has served as a tool for academic, professional, and social mobility (Gonzales, 1997). In education especially in the tertiary level, English is the common language for instructional and learning materials particularly in engineering, mathematics, and natural sciences except in some subjects like social sciences where Filipino should be used as medium of instruction. Numerous Filipino educators, students, journalists, lawyers, and nurses also consider English as the strongest language, as a necessity to be taught in schools and as the means of instruction in universities (Mahboob & Cruz, 2013). In science and technology, English is used as the language of research. In mass media (print), English is the leading language (Dayag, 2008) except for broadcast media where Filipino or regional languages are commonly used. In creative writing, there is a range of creative writing works of Filipino writers (e.g. F. Sionil Jose, Christina Pantoja-Hidalgo, Nick Joaquin, Marjorie Evasco, etc.). In law, English is used prevalently in bills filing, passing, enacting, and publishing laws. The same is practised in provincial, city, and municipal legislative bodies despite the gradual development of bilingualism in legislation (Powell, 2012). Likewise, English is utilized in most deliberations in the Supreme Court, Court of Appeals, and lower courts though separate concurring and dissent opinions issued by Justices may be written in Filipino (Dayag, 2014). In government, English is more frequently used in inter- and intra-office written communications than other Philippine languages. In business and industry, English is the medium of communication in multinational corporations and local companies. In informal communications, however, Tagalog, a regional language, or code switching is used (Dayag, 2014). In professional examinations, English is used by the Professional Regulation Commission in administering accountancy, dentistry, engineering, medicine, and nursing licensure tests and by the Supreme Court in conducting bar examinations.

Because of these widespread functions of English in Philippine domains makes PhE an institutional variety (Dayag, 2014). Grounded in Kachru's (1992) criteria, PhE has gained the status of an institutionalized variety for the following reasons (Dayag, 2014). First, it plays various roles in Philippine society. Next, its registers differ from one discipline to another, and its style varies from formal to informal. Moreover,

it has undergone nativization process because of its functions across contexts and the longevity it has sustained in the country. Finally, it has a huge body of English literature (novels, plays, and short stories) written by Filipino creative writers. There have been long-standing literary award giving bodies to outstanding Filipino English writers (e.g. Annual Carlos Palanca Memorial Awards for Literature).

Circles Within a Circle Paradigm of English in the Philippines

Like other languages, PhE has its own varieties. Martin (2014) posits that circles of English in the Philippines exist within Kachru's (1985) outer circle of WEs. Inner circle PhE is spoken by educated Filipinos who consider PhE as a legitimate English variety (Martin, 2014). They comprise Filipinos with bachelor's and advanced degrees and scholarly works (e.g. research publications and International Corpus of English–Philippines [ICE-PHI]). Martin (2014) quotes Rico Hizon, a Filipino reporter at BBC World news, expressing that "Filipinos must always be proud of Philippine English" (Martin, 2014, p. 53) and, hence, exhibiting inner circle attitude. Hernandez (2020a, 2020b) adds that Filipino graduate students as Filipino English language teachers (FELTs) also belong to inner circle PhE; hence, they are grassroots educated PhE users.

Outer circle PhE is used by Filipinos who are tenuous of recognizing PhE. They find English as "desirable but not really necessary" (Matsuda, 2009, p. 169). They are educated Filipinos (student teachers and some Filipino English teachers) who codeswitch in English-only domains, employ standardized and non-standardized English norms, and are incapable of promoting PhE (Martin, 2014). Expanding circle PhE includes a preponderance of Filipinos who have challenges in accessing or using the language because of socio-economic status, low education, interlanguage barrier, and other factors. Martin (2014) exemplifies tribal Filipino learners who speak "funny" English. Another is Filipino nannies who speak *Yaya* PhE (Bautista, 1982). Their English is not of high proficiency, so it commonly turns out to be subject for ridicule. For them, language issues nevertheless usually do not matter.

Linguistic Features

As a legitimate variety (Bautista, 2001b; Llamzon, 1969), PhE is not inferior of AmE (Bautista, 2008). Its standard grammatical features are innovations precipitated by language variations in the Philippines where English is a functionally native language (Kachru, 1997). Kachru (1985) explains that non-inner circle English norms differ from AmE/BrE because those innovations are *acceptable* to their users. PhE distinctly varies phonologically, lexically, and grammatically from AmE.

Phonologically, the PhE segmental vowel system is composed of "/a/, /ɛ/, /ɪ/, /ɔ/, and /u/", and its lax and tense vowels have no distinction (Dayag, 2012, pp. 92–93).

Specifically, "/a/, /e/, /i/, /o/, and /u/" are pronounced as "[a], [ɛ], [ɪ], [ɔ], and [u]", respectively (Dayag, 2012, p. 93). Vowel reduction is not observed in unstressed syllables (e.g. /ə/ in the initial position in *about*, *against*, and *along* is articulated as [a]) (Dayag, 2012; Kachru & Nelson, 2006; Llamzon, 1997).

PhE has 18 consonants: "[p], [t], [tʃ], [k], [b], [d], [dʒ], [g], [s], [ʃ], [h], [l], [m], [n], [ŋ], [r], [w], [j]" (Dayag, 2012, p. 93). Its voiceless stops /k/, /p/, and /t/ are not aspirated especially when they are in the initial position and when they are in the final position, and both /s/ and /z/ are pronounced as [s] (Dayag, 2012). In terms of dental fricatives, the voiced /ð/ is articulated as the voiced stop [d], and the voiceless /θ/ is articulated as the voiceless stop [t] (Dayag, 2012; Kachru & Nelson, 2006). The PhE suprasegmental features include syllable-timed rhythm (Dayag, 2012; Kachru & Nelson, 2006) and lexical stress shift (Tayao, 2004). Such shift is illustrated when the stress on the initial syllable is placed on the succeeding syllable in some words in spoken communication (e.g. **com**mittee). Moreover, PhE has rising inflexion for phrasal and clausal structures, declarative sentences, *wh*-questions, and falling inflexion for *yes–no* questions (Dayag, 2012; Gonzalez, 1985).

Lexically, PhE has salient lexical features, namely normal expansion, coinage, and borrowings (Dayag, 2012). Normal expansion includes extensions or adaptions of meaning (*colgate* for "toothpaste"; *xerox* for "photocopy") and changes in parts of speech (*concretize* from "concrete"; *fiscalize* from "fiscal") (Bautista, 1997). Coinage involves abbreviations (*CR* for "comfort room"; *DI* for "dancing instructor"), analogical constructions (*bedspacer, cockfitghter, holdupper*), and clippings (*promo* for "promotion"; *sem* for "semester") (Bautista, 1997). Borrowings are loan words borrowings from "Spanish (despidida), Chinese (feng shui), Japanese-English (Japayuki), or Tagalog (pasalubong)" (Bautista, 1997, p. 67) (For more details, see Bautista, 1997).

Grammatically, PhE has distinctive grammatical features (Bautista & Gonzalez, 2006; Bautista, 2000a). Its subject–verb concord is faulty especially when intervened by phrases. The simple past tense and/or present perfect aspect of the verb is replaced with the past perfect aspect. Modal verbs *would* and *could* are frequently used instead of *will* and *can*. There is the varied use of prepositions (*result to* for *result in* and *based from* for *based on*). Missing article is used for expressions where it is necessary (*majority* instead of "the/a majority") or article is used for phrases where it is not required (*a research* rather than "research"). Count/non-count nouns are not pluralized. Mass nouns are pluralized (e.g. *equipments* and *feedbacks*). *One of the* is succeeded by singular nouns (e.g. *one of the* ***plant***) (Bautista & Gonzalez, 2006; Dayag, 2012) (For more details, see Dayag, 2012).

Studies of PhE

Studies of PhE began in 1969 when Llamzon examined the phonological features of PhE. Thereafter, PhE had thrived into various studies concerning its phonology (Flores, 2014; Llamzon, 1997; Tayao, 2004), lexicon (Bautista, 1997; Gustilo &

Dimaculangan, 2018; Salazar, 2017), grammar (Bautista, 2001a, 2001b; Borlongan, 2011; Morales, 2015), intelligibility (Dayag, 2007; De Leon et al., 2021; Dita & De Leon, 2017), etc. More PhE studies had been undertaken; however, it is impossible to include all of them here due to limited space. Although such features-based PhE studies much contributed to the development of the language, attitudinal studies of PhE are the ones which have formed pedagogical implications in Philippine ESL pedagogy to a point that Filipino applied linguists now propose PhE to be taught in Philippine ESL classrooms (e.g. Alieto & Rillo, 2018; Bautista, 2001a, 2001b; Bernardo & Madrunio, 2015; Borlongon, 2009). Such proposal is rooted in the favourable responses of in-service and pre-service Filipino teachers and undergraduate students, thereby directing to the official recognition of PhE as the English model in Philippine ELT.

At the in- and pre-service teacher education level, Bautista (2001a) discovered that Filipino professors from three foremost universities in the Philippines exposed a strong and positive attitude towards PhE. Similarly, Alieto and Rillo (2018) revealed that Filipino teachers from Philippine secondary schools (public and private) exhibited favourable attitude towards PhE notwithstanding their socio-economic profile, educational attainment, gender, and years of service. Torres and Alieto (2019) discovered that pre-service elementary and secondary teachers in Philippine state universities accepted PhE lexical and grammatical variants (i.e. *majority of, cope up with, assured, the number*) indicating that PhE has established itself as a legitimate variety. At the undergraduate education level, Borlongon (2009) reported that students from a top tertiary institution were not ashamed of speaking PhE and thereby understood PhE as a symbol of Filipino identity. At both teacher and undergraduate education levels, Bautista (2001b) found that teachers and students across three public universities and a private university recognized and accepted PhE. Bernardo and Madrunio (2015) discovered that college English teachers and students from three Philippine tertiary institutions hinted their use of a pluricentric model in ESL instruction and tests. Despite these positive outcomes, PhE did not turn out without criticisms from its educated users and other LX English users. For example, Gustilo and Dimaculangan (2018) revealed that teachers across Philippine universities had unfavourable attitudes towards 94 over 99 PhE vocabularies if these are employed in academic writing. Recently, Wattananukij and Crabtree (2020) showed that Thai undergraduate students (who experienced Filipino English teachers as their teachers in Thailand) had an overall low positive attitude towards PhE.

Although the preceding studies have done much to advance PhE in Philippine ELT, they however cannot be considered enough in order to assimilate PhE in Philippine ESL pedagogy for four important grounds. First, they did not initially confirm whether Filipinos possess awareness of PhE. Second, they investigated Filipinos' attitudes towards PhE in general and not particularly on standard or educated PhE (edPhE) as model for ESL instruction in the Philippines. Third, they did not involve a teacher education institution (TEI) which has a crucial role in ELTE.

Language Awareness and Attitudes: Why Study Them?

Awareness and attitudes can be understood from different viewpoints. The Association of Language Awareness (ALA) (2021) and the National Council for Language in Education (NCLE) (as cited in Malmberg, 2001, p. 141) define language awareness as ones' explicit knowledge about and sensitivity to language in various contexts (e.g. teaching, learning, and language use). Schmidt (1995) and van Lier (1998) see it as a level of consciousness having four sub-levels (van Lier, 1998). Global intransitive consciousness (level 1) is the overall state of being observant in situated language use. Transitive consciousness (level 2) is individuals' capacity to notice their perceptual activity on an aspect of communicative practices. Metaconsciousness (level 3) has two types: practical awareness as the capacity to regulate and employ language creatively; and discursive awareness as ones' "access to a set of precise terms to analyze and discuss language as part of communicative practices" (Cots & Garrett, 2018, p. 2). Critical awareness (level 4) is the ability to reflect on communicative practices as portion of ideological and social practices.

Unlike language awareness, language attitudes have been defined from a general sense in relation to language. Attitude is "a state of readiness, a tendency to respond in a certain manner confronted with certain stimuli" (Oppenheim, 2000, p. 174). Similarly, it is "a summary or evaluation of an object or thought" (Bohner & Wanke, 2002, p. 5); hence, it is evaluative (Garrett et al., 2003) and object specific (Baker, 1992). Moreover, it is a "hypothetical construct" which is construable from seen responses; hence, it is tacitly noticeable (Eagly & Chaiken, 1993, p. 2). In language attitudinal research, the mentalist and behaviourist movements have been recognized (Papapavlou & Satraki, 2014). The mentalist views attitudes having tripartite structure: cognitive (individuals' beliefs towards something), affective (ones' feeling or emotional reaction), and behavioural (ones' tendency to act in a certain manner) (Ryan et al., 1982) while the behaviourist interprets attitudes to be perceived by observing human behaviour (Golloway, 2017). The ones that individuals evaluate are *attitudinal objects* (events, individuals, language varieties) (McKenzie, 2010).

Language awareness and attitudinal studies related to English varieties have claimed that non-native English users' awareness of their English variety is associated to their positive attitudes towards it (Ahn, 2015; Dooly, 2005). However, the awareness of English teachers about WEs is still an area underexplored (Ahn, 2014, 2015; Hernandez, 2020a) so is paucity of studies on FELTs' awareness about PhE currently exists. Similarly, there exists a scarcity of studies dealing with attitudes of English teachers towards WEs (Bayyurt & Sifakis, 2015; Sifakis, 2009; Sifakis & Sougari, 2005; Timmis, 2002) as there is a scantiness of research on FELTs' dispositions towards teaching edPhE (Hernandez, 2020b). While this knowledge and population gap exists both in global and Philippine contexts, two reasons for exploring new Englishes awareness and attitudes should be pointed out. First, as new Englishes are taken with reservation (Gustilo & Dimaculangan, 2018) especially in English pedagogy, awareness is a prerequisite in instituting the foundation for the acknowledgement and promotion of new Englishes' language differences (Ahn, 2014, 2015),

establishment of cross-cultural understanding and impartiality between and among WEs speakers, contextualization of English teaching materials, and enablement of English learning (Matsuda, 2020; Sharifian, 2012). Second, Starks and Paltridge (1996) uphold that identifying people's preferred variety in English pedagogy is dependent on their attitudes. Liu and Cheng (2017) argue that "a deeper understanding of attitudes toward… English varieties" is "both urgent and necessary" (p. 67). Arguably, in determining the awareness and attitudes of new Englishes, users play an important role in scheming educational policies, teacher education programs, and English pedagogy (Hernandez, 2020a, 2020b).

Featuring Awareness and Attitudinal Studies of PhE

In this section, I feature two of my recent PhE studies involving grassroots FELTs: the first examined FELTs' awareness of PhE in three contexts: its (1) meanings, (2) features, and (3) uses, issued in The Normal Lights Journal of Education and Teacher Education. It adopted NCLE's (as cited in Malmberg, 2001, p. 141) and ALA's (2021) definition of awareness as people's overt knowledge and consciousness about language in different contexts. The second evaluated FELTs' attitudes towards teaching edPhE, published in Asia–Pacific Social Science Review. Grounded in the mentalist view of language attitudes, the latter focused on the cognitive aspect because one component of attitude is problematic to differentiate from others (Bohner & Wanke, 2002). The cognitive component is about people's beliefs and can be prescriptive and descriptive (McKenzie, 2010). Prescriptive beliefs are *must, should*, and *ought to* statements (e.g. "*In Philippine ESL classes, grammar and writing in English should be taught in edPhE*") (Hernandez, 2020b, p. 34); descriptive beliefs are perceptions of the world (e.g. "*Filipinos have the right to modify AmE to make it suitable for use in the Philippines*") (Hernandez, 2020b, p. 36). The study adopted both cognitive beliefs. Both studies used descriptive-survey research design; thus, the direct approach was employed. This approach elicits responses from people to provide their evaluations about languages through rating-scale questionnaires, among others (Golloway, 2017).

Ninety-five FELTs under M.A. in ELT, Linguistics, and Reading programs and Ph.D. in Applied Linguistics and ELE programs (sampled by convenience at a premier Philippine TEI) participated in the study. Two five-point Likert scale questionnaires were used. The first (adapted from Bernardo's [2013] study) evaluated FELTs' PhE awareness while the second (adapted from Bautista's [2001a] study) assessed their attitudes towards teaching edPhE. The former had 22 statements about PhE's meanings (7), features (6), and functions (9) while the latter had parts A and B: Part A asked FELTs to answer 26 attitudinal statements. Part B required them to check Filipinisms (PhE lexical items and expressions) for teaching edPhE.

Formal consent to do the two surveys was sought from and approved by the dean and the professors of the graduate college of the Philippine Normal University (PNU) (The National Centre for Teacher Education [NCTE] by Republic Act 9647).

As NCTE, its objective is to nurture teachers and education leaders who are globally competitive (Philippine Normal University, 2021). The PNU's graduate college is the biggest graduate teacher education college in the Philippines, offering 12 Ph.D. and 62 master's programs. FELTs' responses were manually counted and totalled using Microsoft Excel. As the data were ordinal and nominal, descriptive statistics (i.e. weighted mean and standard deviation) were used. Findings for each study are hereby presented.

FELTs' Awareness of PhE

Overall, FELTs had moderate awareness of PhE; thus, they were not ambivalent of PhE. Specifically, they showed moderate awareness on meanings, very high awareness on features, and moderate awareness on uses of PhE. For each context, statements where FELTs exhibited extreme to very high awareness and moderate awareness should be individually pointed out here.

On meanings, FELTs had extreme awareness on "the existence of PhE as a local variety" (Hernandez, 2020a, p. 11). It strongly denies many Filipinos' monocentric stereotype that AmE is the only English in the Philippines (Bautista, 2001a). Also, it contradicts other non-inner circle English users' unfamiliarity to new Englishes, for example, Korean and non-Korean English teachers' lack of cognizance regarding Singapore, Indian, Chinese, and Japanese Englishes (Ahn, 2014), Korean and foreign English teachers' refusal against the mentioned non-inner circle Englishes (Ahn, 2015), and Vietnamese English students dearth of WEs awareness (Tiïën, 2008). FELTs were very aware about PhE as educated Filipino English. This finding relates to Bautista's (2001a, 2001b) and Alieto and Rillo's (2018) claim that English faculty in three universities in the Philippines and teachers and students across public universities and a private university in the country recognized PhE, and secondary English teachers expressed positivity towards PhE, respectively. FELTs were very aware that PhE is a sign of Filipinos' possession of the language and their liberation from the colonizing influence of native English speakers, thus validating Borlongan's (2009) assertion that PhE is a mark of Filipinos as unveiled by undergraduate students. This point ricochets F. Sionil Jose's statement that Filipinos have dominated AmE with PhE (Bautista, 1997). These congruities indicate that these FELTs have embraced and have been familiar with PhE. However, they confirmed their moderate awareness on PhE varieties (edPhE, *Colegiala* PhE, *Yaya* PhE) partially contradicting their extreme awareness of PhE as a local variety and as edPhE. Simply put, FELTs may be extremely and very cognizant of PhE, but these extents do not necessarily parallel having complete knowledge of it. Additionally, they were moderately aware of the pressing issue of incorporating PhE in English curricula probably because it has never been officially assimilated in Philippine ELT.

The statements where FELTs were very aware in terms of PhE features and uses are newly investigated facets in the study of PhE. FELTs were very aware that PhE has its "own accent, phonology, vocabulary, and grammar", is "a national and cultural

identity of Filipinos", and embodies "appropriateness, comprehensibility, and intelligibility in communication" (Hernandez, 2020a, p. 13). FELTs probably related the first item to many FELTs, Filipino learners, and other Filipinos who speak English without sounding like Americans, not using AmE words and expressions, and standardized grammar. They possibly had associated this with the second point—PhE as Filipinos' "national and cultural identity" (Bautista, 1997; Hernandez, 2020a, p. 13), and the third point—PhE's "appropriateness, comprehensibility, and intelligibility in communication" (Hernandez, 2020a, p. 13). In using English particularly in creative writing, Filipinos transmit their local culture into their works and thus reflect their national and cultural distinctiveness. For the third point, Filipinos are both intelligible and comprehensible because of their speech rate, their syllable-timed rhythm, their listeners' awareness of their pronunciation, and the language context (Dita & De Leon, 2017). In contrast, FELTs had moderate awareness towards "the reflection of PhE in English textbooks and instructional materials, PhE into dictionaries and grammars, and edPhE acceptable variants (*fill up, result to, based from*) from AmE (*fill-in, result in, based on*)" (Hernandez, 2020a, p. 13). As such, FELTs were probably influenced by educational policies and exonormative norms. The Department of Education (DepEd) prescribes commonly thought exonormative instructional materials used by the majority of FELTs (59/95) teaching in public schools. Private schools where the minority of FELTs teach usually adopt Filipino-authored textbooks believed to be adhering to exonormative English models (Bernardo, 2018). Moreover, Filipino teachers in public and private schools tend to use exonormative supplementary teaching materials (grammars and dictionaries) because they are perceived as monolithic standards (Bernardo, 2018).

On uses, FELTs were very aware that "PhE is the English variety Filipinos often use in intranational communication and local media" (Hernandez, 2020a, pp. 14, 17). FELTs probably have been quite familiar with English as the language that Filipinos institutionally use in different contexts (education, mass media, etc.). Moreover, FELTs were very aware that "PhE is the variety used by Filipino learners when doing speaking activities and responding to test questions requiring sentence/paragraph writing" (Hernandez, 2020a, p. 14). The latter two are relatable to their identity as FELTs who assess and/or test their students' oral and written English skills, thereby observing their learners using PhE in both contexts. However, FELTs exhibited moderate awareness towards the potential of PhE to be implemented "as a module/unit within the compulsory/elective part of the ESL curriculum, as the norm used by English teachers in teaching English vocabulary and grammar, and as the norm used by English teachers in testing Filipino learners' speaking and writing skills" (Hernandez, 2020a, pp. 14–15). In view of these, FELTs potentially knew that PhE is now being integrated unconsciously by teachers as the standard in ELTT to Filipinos (Bernardo & Madrunio, 2015).

FELTs' Attitudes Towards Teaching EdPhE

FELTs generally had positive attitudes towards teaching edPhE. Statements on teaching edPhE where FELTs showed favourability also deserve attention. Those items were divided into "negative statements toward edPhE, positive statements toward edPhE, positive statements toward AmE, positive and neutral statements toward edPhE and AmE, and acceptable Filipinisms in teaching PhE" (Hernandez, 2020b, p. 35). On negative statements, FELTs disagreed on the following: Filipinos will be disrespected when they speak edPhE, will be perceived as uneducated when they use edPhE, and are not understood by foreigners when they talk to them in edPhE. This disagreement implies FELTs' positive attitude towards and protection for PhE; hence, they spurned negative and disparaging notions about edPhE. Contrary to this disagreement is FELTs' consistent agreement on 11 positive statements about edPhE listed below (Hernandez, 2020b, p. 36).

1. It is to be expected that there will be regional differences in pronunciation and vocabulary in edPhE.
2. Using words from our own culture is a necessity in developing edPhE.
3. It is natural to have different varieties of English like Australian, Singaporean, Philippine Englishes, etc.
4. Filipinos have the right to modify AmE to make it suitable for use in the Philippines.
5. The variety of English that should be used in Philippine newspapers should be edPhE.
6. The variety of English that should be used on Philippine radio and television should be edPhE.
7. Speaking in English should be taught in edPhE.
8. Grammar and writing in English should be taught in edPhE.
9. Vocabulary should be taught in edPhE.
10. Instructional materials (e.g. textbooks, teacher's manuals, etc.) should use edPhE.
11. EdPhE needs to be promoted.

On 1, FELTs verified their expectation on the existing regional variation on pronunciation and vocabulary in edPhE (Bautista, 2001a). On 2, they confirmed their acceptance of the assimilation of local vocabulary. On 3, they acknowledged the global spread of English and thus developed nativized English varieties spoken by various nationalities (Bautista, 2001a). On 4, they probably attributed the rights of Filipinos to adapt AmE to be contextualized in the Philippines for PhE 's status as a legitimate English variety (Bautista, 2001a). On 5 and 6, they validated their preference for edPhE as the English variety for Philippine media (Bautista, 2001a), thereby hinting their consciousness about edPhE as evident and used in Philippine written mass media (Bautista, 2001a; Dayag, 2014). Statements 7 to 10 directly refer to teaching edPhE in Philippine ESL classes. They offer new insights into attitudinal studies of PhE as they were not considered in the past studies. FELTs agreed

that speaking, grammar and writing, and vocabulary should be taught in edPhE and teaching resources should use edPhE. Such consistency indicates their affirmation and acceptance of edPhE in teaching ESL and in writing instructional materials. Despite such favourability, FELTs confirmed that edPhE requires promotion (statement 11). Therefore, they support fostering edPhE.

On positive statement towards AmE, FELTs disagreed against "only those Filipinos who speak AmE should be hired as English teachers" (Hernandez, 2020b, p. 37). This disagreement entails that Filipinos as edPhE users should be employed as teachers of English. On positive and neutral statement towards both edPhE and AmE, FELTs agreed that "instructional materials (e.g., textbooks, teacher's manuals, etc.) should use edPhE and AmE" (Hernandez, 2020b, p. 36) that is associated to their acceptance of statement 10 about using edPhE in instructional materials and of statements 7 to 9—speaking, grammar and writing, and vocabulary should be taught in edPhE. These congruencies imply that FELTs approve of not only one variety but edPhE and AmE as norms in teaching and learning English. These essentially show FELTs' positive attitude towards a pluricentric model in Philippine ELT.

On Filipinisms, FELTs had positive attitude in teaching 38 lexical items and expressions: "*Bedsheet* (1); *Comfort room* (1); *Watch your steps* (2); *Dormmate* (3); *Dirty kitchen* (4); *Face towel* (5); *I'll go ahead* (6); *Ballpen* (7); *Bedspacer* (8); *I can't afford* (8); *Batchmate* (9); *For a while* (10); *Lechon* (10); *A research* (11); *High blood* (12); *Aircon* (12); *Go down* (13); *Presidentiable* (14); *Majority of* (15); *Gimmick; Wherein* (16); *Fall in line* (17); *Rallyist* (18); *Estafa* (19); *Sari-sari store* (18); *Carnapper* (20); *Carnap* (21); *CR* (22); *Hold your line* (23); *Result to* (24); *Advanced (It's three minutes advanced.)* (25); *Studentry* (26); *Fill up a form* (27); *Based from* (28); *Cope up with* (29); *In the family way* (30); *Green joke* (31); and *With regards to* (32)" (Hernandez, 2020b, pp. 38–39). "*Bedsheet, Comfort room, Watch your steps, Dormmate, Dirty kitchen, I'll go ahead, Ballpen, Batchmate,* and *For a while*" (Hernandez, 2020b, p. 38) at the top of the list are frequently used in Filipinos' informal written/spoken communication. However, "*Result to, Fill up a form, Cope up with,* and *With regards*" (Hernandez, 2020b, p. 38) at the lowest part of the list are usually found in Filipinos' formal spoken/written communication. Unlike those frequently used in formal communication (primarily written), Filipinisms which are commonly employed in Filipinos' informal communication (mainly spoken) had received more pedagogical acceptance for teaching edPhE. These positive slants prove two essential points: first, FELTs considered the 38 Filipinisms as legitimate features of edPhE (Bautista, 2001a); second, they formally recognized those Filipinisms in teaching edPhE.

Implications

The studies showed that FELTs were knowledgeable about PhE and favoured a plurilingual paradigm for Philippine ELT. Hence, FELTs get more up to date regarding their own English variety, and Philippine ELT perspective is becoming more sociolinguistically realistic. Despite these favourable outcomes added to

applied linguists' advocacy for the integration of WEs in ESL/EFL classes worldwide (Matsuda, 2020), recommendations for WEs in general and PhE in particular to be taught in ESL/EFL classes are still deficient because most Ministries of Education around the world lack legislative support; thus, WEs remain immaterial in educational language policies, ELTE programs, ESL/EFL curricula, and ELTT. Although numerous studies like the two above have highlighted the pedagogical potential and suitability of new Englishes, the growing recognition of WEs is not automatically translatable into the awareness of academic agencies and their acceptance to propagate it (Tsui, 2021). A case in point is the Philippines' Commission on Higher Education (CHED) and DepEd. They have seemed *clueless* or *silent* (Bernardo, 2021) about PhE despite the latter being considered as a legitimate variety since 1969 (Llamzon, 1969). I argue that aside from research evidences and expert recommendations, all Ministries of Education in collaboration with TEIs and LXELTs as education stakeholders are accountable for the adoption of WEs glocalization across educational levels and aspects of English pedagogy. Ministries of Education play an important role in instigating educational reforms by the adoption of WEs. Such adoption has implications for glocal educational language policies, ELTE programs, ESL/EFL curricula, and ELTT.

Educational Language Policies

Ministries of Education worldwide should adopt the principle of *glocalization* in implementing policies for ELTE, so it can be more attuned to the diversity and reality of Englishes (Nero, 2012). Glocalization is the local interpretation and adaptation of external practice that cannot be transplanted totally; thus, it becomes *glocal* (Robertson, 2012). Glocalization postulates the interrelationships of global and local practices, pluralistic nature of heterogeneity, minimization of the hegemony of the *centre* over the *periphery*, and equal participation of global and local participants (Tsui, 2021). In this paper, I adapt glocalization as WEs approach, thus the term *WEs glocalization*—positing that new Englishes are a linguistic type of glocalization. Grounded in WEs glocalization, Ministries of Education should set an indelible space for glocal educational language policies concerning WEs. For example, strongly promoting awareness of teachers and learners on the linguistic features of new Englishes for them to gain favourability towards WEs can be placed as core component of ELTE programs and ESL/EFL curricula. Similarly, new Englishes policy like "Philippine English Policy aiming to assimilate PhE in instruction and assessment" (Hernandez, 2020a, p. 19) should be strongly implemented across education levels. Educational policies like these must be prioritized in ELTE.

ELTE Programs

Ministries of Education with TEIs should make ELTE programs WEs glocalized. They can do this is by adding WEs as a required course, outlining WEs structural features in linguistics courses (Introduction to Linguistics and Structure of English) and integrating WEs in teaching methodology, instructional materials, and language assessment courses. In WEs course, pre-service LXELTs should be introduced to the following: WEs theories; variation and Englishization; intelligibility, comprehensibility, and appropriateness; standards, standardization, and codification; descriptions of inner, outer, and expanding Englishes; English as an international language, English in workplaces, WEs and pedagogy, and others (Matsuda, 2020). In linguistics course, pre-service LXELTs must analyse the linguistic structures of and variants between Englishes. In teaching methodology course, they must learn assimilating the variety that mostly suits the learners' context. Likewise, in instructional materials course, they must develop teaching and learning materials reflecting their own, their learners, and other LX users' English varieties. In language assessment course, they should assess learners with varieties that they most likely need in communicating with other English users (Tomlinson, 2021). If Filipino junior secondary students are going to communicate in English primarily with Filipinos, then it is vital that they be assessed on PhE. ELTE programs should include the following major goals: promote extreme/high awareness and unprejudiced understanding of WEs; reconceptualize English varieties, English-speaking cultures, English users, and English correctness; emphasize the WEs' pedagogical implications (Matsuda, 2020), and contextualize English in ELTE programs. Pre-service LXELTs then would develop not only raised consciousness and positive attitudes towards WEs but also realization of their status as legitimate English users and the equal status of Englishes worldwide. Thus, in their practicum, they are expected to carry out teaching English using a pluricentric model. To establish momentum, WEs glocalization should extend to ESL/EFL curricula and ELTT where pre-service LXELTs are now in-service LXELTs.

ESL/EFL Curricula

Education policymakers, TEIs, and in-service LXELTs need to collaboratively reformulate the current ESL/EFL curricula. They should adopt WEs as central curriculum content in redesigning English subjects in basic education and tertiary levels because English now varies from the English in the past and the linguistic context now has become multilingual/multicultural (Jenkins, 2015; Monfared & Khatib, 2018). In both levels, the diverse nature of Englishes should be emphasized in the curriculum (e.g. *English has developed into new Englishes like Indian English, Philippine English, Singapore English, etc.*; *To communicate effectively, LX English users employ linguistic variants different from AmE or BrE*; *LX English users always carry their own English varieties when they communicate locally and internationally*). In

addition, the curriculum should focus on LXELTs and learners' respective twenty-first-century local contexts where they use their respective Englishes (Marlina, 2021). Thus, English subjects should aim to increase learners' "awareness of and respect for linguistic and cultural diversity or intercultural communication" (Matsuda, 2020, p. 696). As products of WEs-glocalized ELTE programs, in-service LXELTs should be consulted in lessons and materials selection because they themselves are legit new Englishes speakers, and they were trained of WEs-glocalized pedagogy.

ELTT

On teaching, education policymakers should permit LXELTs to "exercise their academic freedom in using a pluricentric approach into their teaching with any teaching materials they use or are mandated of them to use" (Hernandez, 2020b, p. 41). In reading and writing instruction, online and print broadsheets, magazines, literary genres, and research papers written by educated LX English users should be used. The International Corpus of English of various nations can be utilized as references for instructing the linguistic innovations and discourse structures of educated outer and expanding Englishes. In teaching speaking and listening, local and international English podcasts and CNN news videos as real-world instructional materials may also be employed. On testing, education policymakers should implement pragmatic-centred instead of linguistic accuracy-based assessment (Rose & Syrbe, 2018) in assessing learners' English language skills. Pragmatic-centred assessment includes performance-and-problem-based tasks (interviews, team presentations, role-plays, portfolios, video and web logs, thinking aloud, essay writing, etc.) that allow learners to use their English varieties, practice linguistic creativity, and participate in meaning-making with others (Marlina, 2021).

Conclusion

In this chapter, I explored PhE's brief history, functions, and status, paradigm, linguistic features, and related studies. Importantly, I unveiled FELTs' moderate awareness of PhE and their favourable attitudes towards teaching a pluricentric English model in Philippine ELT. In view thereof, I have laid pedagogical insights for Ministries of Education worldwide on adopting WEs glocalization so that educational language policies, ELTE programs, ESL/EFL curricula, and ELTT may keep up with the pluralistic nature and socio-linguistic reality of Englishes today. If these educational policymakers made such attempts, all LX users of English, pre-service and in-service LXELTs, and English learners would not only acquire extreme awareness of and positive attitudes towards new Englishes but may unreservedly embrace their own local varieties. In addition, it would eradicate discrimination against outer

and expanding circle Englishes and form effective intercultural and fair communication between new Englishes speakers. More importantly, Englishes like PhE would find their permanent seat in English pedagogy worldwide.

References

Ahn, H. (2014). *Researching awareness and attitudes: A study of world Englishes and English teachers in South Korea.* (Unpublished doctoral dissertation). Monash University, Melbourne, Australia.

Ahn, H. (2015). Awareness of and attitudes to Asian Englishes: A study of English teachers in South Korea. *Asian Englishes, 17*(2), 132–151.

Alieto, E. O., & Rillo, R. M. (2018). Language attitudes of English language teachers (ELTs) towards Philippine English. *Journal of Humanities and Social Sciences, 13*, 84–110.

Alieto, E. O., & Torres, J. M. (2019). Acceptability of Philippine English grammatical and lexical items among pre-service teachers. *Asian EFL Journal, 21*(3), 158–181.

Association of Language Awareness. (2021). *About*. Retrieved from http://www.languageawareness.org/?page_id=48

Baker, C. (1992). *Attitudes and language*. Multilingual Matters.

Bautista, M. L. S. (1982). "Yaya" English. *Philippine Studies, 30*, 377–394.

Bautista, M. L. S. (Ed.). (1997). *English is an Asian language: The Philippine context*. Macquarie Library.

Bautista, M. L. S. (2000a). The grammatical features of educated Philippine English. In M. L. S. Bautista, T. A. Llamzon, & B. P. Sibayan (Eds.), *Parangal cang Brother Andrew: Festschrift for Andrew Gonzalez on his sixtieth birthday* (pp. 146–158). Linguistic Society of the Philippines.

Bautista, M. L. S. (2000b). *Defining standard Philippine English: Its status and grammatical features.* De La Salle University Press.

Bautista, M. L. S. (2001a). Attitudes of English language faculty in three leading universities towards Philippine English. *Asian Englishes, 4*(1), 4–32. https://doi.org/10.1080/13488678.2001.10801062

Bautista, M. L. S. (2001b). Attitudes of selected Luzon university students and faculty towards Philippine English. In M. L. G. Tayao, T. P. Ignacio, & G. S. Zafra (Eds.), *Rosario E. Maminta in focus: Selected writings in applied linguistic*s (pp. 236–273). Philippine Association for Language Teaching, Inc.

Bautista, M. L. S. (2008). Investigating the grammatical features of Philippine English. In M. L. S. Bautista & K. Bolton (Eds.), *Philippine English: Linguistic and literary perspectives* (pp. 201–218). Hong Kong University Press. https://doi.org/10.5790/hongkong/9789622099470.003.0001

Bautista, M. L. S. & Gonzalez, A. (2006). Southeast Asian Englishes. In B. B. Kachru, Y. Kachru, & C. L. Nelson (Eds.), *Handbook of world Englishes* (pp. 130–144). Blackwell. https://doi.org/10.1002/9780470757598

Bayyurt, Y., & Sifakis, N. C. (2015). Transforming into an ELF-aware teacher: Insights from a self- education program. In P. Vettorel (Ed.), *New frontiers in teaching and learning English* (pp. 55–76). Cambridge Scholars Publishing.

Bernardo, A. S. (2013). *Toward an endonormative pedagogic model in the teaching of English grammar in Philippine Higher Education Institutions.* (Unpublished doctoral dissertation). University of Santo Tomas, Manila.

Bernardo, A. S. (2018). An endocentric approach to English grammar teaching. In I. P. Martin (Ed.), *Reconceptualizing English education in a multilingual society: English in the Philippines* (pp. 101–118). Springer. https://doi.org/10.1007/978-981-10-7528-5

Bernardo, A. S. (2021, March). *Silencing Englishes in 'E'LT: The Philippine experience* [Paper presentation]. Linguistic Society of the Philippines International Conference 2021. Manila, Philippines.

Bernardo, A. S., & Madrunio, M. R. (2015). A framework for designing a Philippine-English-based pedagogic model for teaching English grammar. *Asian Journal of English Language Studies, 3*, 43–71.

Bolton, K. (2020). World Englishes: Current debates and future directions. In C. L. Nelson, Z. G. Proshina, & D. R. Davis (Eds.), *The handbook of world Englishes* (pp. 743–760). Wiley. https://doi.org/10.1002/9781119147282

Bohner, G., & Wanke, M. (2002). *Attitudes and attitude change*. Psychology Press.

Borlongan, A. M. (2009). A survey on language use, attitudes, and identity in relation to Philippine English among young generation Filipinos: An initial sample from a private university. *Philippine ESL Journal, 3*, 74–107.

Borlongan, A. M. (2011). *A grammar of the verb in Philippine English.* (Unpublished doctoral dissertation). De La Salle University, Manila.

Cots, J. M., & Garrett, P. (2018). Language awareness: Opening up the field of study. In J. M. Cots, & P. Garrett (Eds), *The Routledge handbook of language awareness* (pp. 1–20). Routledge. https://doi.org/10.4324/9781315676494

Dayag, D. T. (2007). Exploring the intelligibility of Philippine English. *Asian Englishes, 10*(1), 4–23. https://doi.org/10.1080/13488678.2007.10801197

Dayag, D. T. (2008). English-language media in the Philippines: Description and research. In K. Bolton & M. L. S. Bautista (Eds.), *Philippine English and literary perspectives* (pp. 131–155). Hong Kong University Press. https://doi.org/10.5790/hongkong/9789622099470.001.0001

Dayag, D. T. (2012). Philippine English. In E. L. Low & A. Hashim (Eds.), *English in Southeast Asia: Features, policy, and language in use* (pp. 91–100). John Benjamins. https://doi.org/10.1075/veaw.g42

Dayag, D. T. (2014). Preposition stranding and pied-piping in Philippine English: A corpus-based study. In G. Leitner, A. Hashim, & H. Wolf (Eds.), *Communicating with Asia: The future of English as a global language* (pp. 102–119). Cambridge University Press. https://doi.org/10.1017/CBO9781107477186.008

De Leon, K. D., Parina, J. C. M., & Panopio, J. M. M. (2021). The intelligibility of Philippine English to a selected ASEAN country—Thailand. *Modern Journal of Studies in English Language Teaching and Literature, 3*(1), 31–49.

Dewaele, J. M. (2018). Why the dichotomy "L1 versus LX user" is better than "native versus non-native speaker." *Applied Linguistics, 39*(2), 236–240. https://doi.org/10.1093/applin/amw055

Dita, S. N., & De Leon, K. D. (2017). The intelligibility and comprehensibility of Philippine English to EFL speakers. *Philippine ESL Journal, 19*(2), 100–118.

Dooly, M. (2005). How aware are they? Research into teachers' attitudes about linguistic diversity. *Language Awareness, 14*, 97–111. https://doi.org/10.1080/09658410508668827

Eagly, A., & Chaiken, S. (1993). *The psychology of attitudes.* Harcout Bruce.

Flores, E. R. (2014). Phonological features of basilectal Philippine English: An exploratory study. *International Journal of English and Literature, 5*(6), 128–140. https://doi.org/10.5897/IJEL2014.0586

Garrett, P., Coupland, N., & Williams, A. (2003). *Investigating language attitudes: Social meanings of dialect, ethnicity and performance.* University of Wales Press.

Golloway, N. (2017). *Global Englishes and change in English language teaching: Attitudes and impact.* Routledge.

Gonzalez, A. (1985). *Studies on Philippine English* [Occasional Papers No. 39]. SEAMEO Regional Language Centre.

Gonzalez, A. (1997). The history of English in the Philippines. In M. L. S. Bautista (Ed.), *English is an Asian language: The Philippine context* (pp. 25–40). The Macquarie Library Pty. Ltd.

Gonzales, A. (2008). A favorable climate and soil: A transplanted language and literature. In M. L. Bautista & K. Bolton (Eds.), *Asian Englishes today. Philippine English: Linguistic and literary*

perspectives (pp. 13–27). Hong Kong University Press. https://doi.org/10.5790/hongkong/9789622099470.001.0001

Gustilo, L., & Dimaculangan, N. (2018). Attitudes of Filipino English teachers toward 21st century Philippine English writing. *Advanced Science Letters, 24*(11), 8349–8352. https://doi.org/10.1166/asl.2018.12560

Hernandez, H. P. (2020a). Awareness of Filipino graduate students towards Philippine English. *The Normal Lights Journal of Education and Teacher Education, 14*(2), 1–27.

Hernandez, H. P. (2020b). Filipino graduate students' attitudes toward teaching educated Philippine English: A sample from a premier teacher education institution. *Asia-Pacific Social Science Review, 20*(1), 31–42.

Jenkins, J. (2015). *Global Englishes: A resource book for students* (3rd ed.). Routledge. https://doi.org/10.4324/9781315761596

Kachru, B. B. (1985). Standards, codification, and sociolinguistic realism: The English language in the outer circle. In R. Quirk, H. G. Widdowson, & Y. Cantu (Eds.), *English in the world: Teaching and learning the language and literatures* (pp. 11–30). Cambridge University Press.

Kachru, B. B. (1992). Meaning in deviation: Toward understanding non-native English texts. In B. B. Kachru (Ed.), *The other tongue: English across cultures* (2nd ed., pp. 301–326). University of Illinois Press. https://doi.org/10.2307/3587821

Kachru, B. B. (1997). English as an Asian language. In M. L. S. Bautista (Ed.), *English is an Asian language: The Philippine context* (pp. 1 23). The Macquarie Library Pty., Ltd.

Kachru, Y., & Nelson, C. L. (2006). *World Englishes in Asian contexts.* Hong Kong University Press.

Liu, P. E., & Cheng, Y. (2017). Attitudes toward English as an international language: A comparative study of college teachers and students in Taiwan. *Journal of English as an International Language, 12*(1), 66–85.

Llamzon, T. A. (1969). *Standard Filipino English.* Ateneo de Manila University Press.

Llamzon, T. A. (1997). The phonology of Philippine English. In M. L. S. Bautista (Ed.), *English is an Asian language: The Philippine context* (pp. 41–48). The Macquarie Library Pty. Ltd.

Mahboob, A., & Cruz, P. (2013). English and mother-tongue-based multilingual education: Language attitudes in the Philippines. *Asian Journal of English Language Studies,* 1–19.

Malmberg, P. (2001). Språklig medvetenhet. In P. Malmberg (Ed.), *Språkboken: En antologi om språkundervisning och språkinlärning* (pp. 141–149). Myndigheten för Skolutveckling.

Marlina, R. (2021). Curriculum development in global Englishes. In A. F. Selvi & B. Yazan (Eds.), *Language teacher education for global Englishes: A practical resource book.* Routledge.

Martin, I. (2012). Diffusions and directions: English language policy in the Philippines. In E. Low & A. Hashim (Eds.), *English in Southeast Asia: Features, policy, and language in use* (pp. 189–206). John Benjamins Publishing Company. https://doi.org/10.1075/veaw.g42

Martin, I. P. (2014). Philippine English revisited. *World Englishes, 33*(1), 50–59. https://doi.org/10.1111/weng.12054

Matsuda, A. (2009). Desirable but not necessary? The place of world Englishes and English as an international language in English teacher preparation programs in Japan. In F. Sharifian (Ed.), *English as an international language: Perspectives and pedagogical issues* (169–189). Multilingual Matters. https://doi.org/10.21832/9781847691231

Matsuda, A. (2020). World Englishes and pedagogy. In C. L. Nelson, Z. G. Proshina, & D. R. Davis (Eds.), *The handbook of world Englishes* (2nd ed., pp. 686–702). Wiley. https://doi.org/10.1002/9781119147282

McKenzie, R. M. (2010). *The social psychology of English as a global language.* Springer. https://doi.org/10.1007/978-90-481-8566-5

Monfared, A., & Khatib, M. (2018). English or Englishes? Outer and expanding circle teachers' Awareness of and attitudes towards their own variants of English in ESL/EFL teaching contexts. *Australian Journal of Teacher Education, 43*(2). https://doi.org/10.14221/ajte.2018v43n2.4

Morales, M. (2015). *A grammar of adjunct adverbials in Philippine English.* (Unpublished doctoral dissertation). De La Salle University, Manila.

Nero, S. (2012). Languages without borders: TESOL in a transient world. *TESL Canada Journal*, *29*(2), 143–154. https://doi.org/10.18806/tesl.v29i2.1106

Oppenheim, A. N. (2000). *Questionnaire design, interviewing, and attitude measurement*. Continuum.

Papapavlou, A., & Satraki, M. (2014). Perceptions on standard and non-standard varieties as they relate to ethnic identity in a bidialectal setting. *Journal of Language and Cultural Education, 2*(1), 4–26.

Philippine Normal University. (2021). *College of graduate studies and teacher education research.* https://www.pnu.edu.ph/colleges/college-of-graduatestudies-and-teacher-education-research/

Powell, R. (2012, July). *Legal vernacularisation and access to justice* [Paper presentation]. Asian Regional Conference of the International Association of Forensic Linguists, Kuala Lumpur, Malaysia.

Robertson, R. (2012). Globalisation or glocalisation? *Journal of International Communication, 18*(2), 191–208.

Rose, H. L., & Syrbe, M. (2018). Assessment practices in teaching English as an international language. In J. I. Liontas (Ed.), *TESOL Encyclopaedia of English language teaching: Teaching English as an international language* (pp. 1–12). Wiley-Blackwell. https://doi.org/10.1002/9781118784235.eelt0655

Ryan, E. B., Giles, H., & Sebastian, R. J. (1982). An integrative perspective for the study of attitudes towards language. In E. B. Ryan & H. Giles (Eds.), *Attitudes towards language variation: Social and applied contexts* (pp. 1–19). E. Arnold.

Salazar, D. (2017). Philippine English in the Oxford English dictionary: Recent advancements and implications for ESL in the Philippines. *Philippine ESL Journal, 19*(2), 45–59.

Schmidt, R. (Ed.) (1995). *Attention and awareness in foreign language learning.* University of Hawai'I Second Language Teaching and Curriculum Centre.

Sharifian, F. (2012). World Englishes, intercultural communication and requisite competences. In J. Jackson (Ed.), *The Routledge handbook of language and intercultural communication* (pp. 310–322). Routledge.

Sifakis, N. C. (2009). Challenges in teaching ELF in the periphery: The Greek context. *ELT Journal, 63*(3), 230–237. https://doi.org/10.1093/elt/ccn057

Sifakis, N. C., & Sougari, A. M. (2005). Pronunciation issues and EIL pedagogy in the periphery: A survey of Greek state school teachers' beliefs. *TESOL Quarterly, 39*(3), 467–488. https://doi.org/10.2307/3588490

Social Weather Stations. (2008). *First quarter 2008 Social Weather survey: National proficiency in English recovers.* http://www.sws.org.ph/swsmain/artcldisppage/?artcsyscode=ART-20151217102849

Starks, D., & Paltridge, B. (1996). A note on using sociolinguistic methods to study nonnative attitudes towards English. *World Englishes, 15*(2), 217–224.

Takeshita, Y. (2010). East Asian Englishes: Japan and Korea. In A. Kirkpatrick (Ed.), *The Routledge handbook of world Englishes* (pp. 265–281). Routledge. https://doi.org/10.4324/9780203849323

Tayao, M. L. G. (2004). The evolving study of Philippine English phonology [Special issue on Philippine English: Tensions and Transitions]. *World Englishes, 23*(1), 77–90. https://doi.org/10.1111/j.1467-971X.2004.00336.x

Tiïën, N. Q. (2008). *Awareness of world Englishes of Vietnamese users of English* [Paper Presentation]. 2008 International Conference and Workshop on TEFL & Applied Linguistics, Taiwan.

Timmis, I. (2002). Native-speaker norms and international English: A classroom view. *ELT Journal, 56*(3), 240–249. https://doi.org/10.1093/elt/56.3.240

Tomlinson, B. (2021). Which test of which English and why? In A, Kirkpatrick (Ed.), *The Routledge handbook of world Englishes* (2nd ed., pp. 641–658). Routledge. https://doi.org/10.4324/9781003128755

Tsui, A. B. M. (2021). Glocalization and grobalization: Critical issues in English language teaching and teacher education in East Asia. In A. B. M. Tsui (Ed.). *English language teaching and teacher*

education in East Asia: Global challenges and local responses (pp. 1–36). Cambridge University Press. https://doi.org/10.1017/9781108856218

van Lier, L. (1998). The relationship between consciousness, interaction and language learning. *Language Awareness, 7*, 128–145. https://doi.org/10.1080/09658419808667105

Vilches, M. L. C. (2021). English teacher education in postcolonial Philippines. In A. B. M. Tsui (Ed.). *English language teaching and teacher education in East Asia: Global challenges and local responses* (pp. 93–112). Cambridge University Press. https://doi.org/10.1017/9781108856218

Wattananukij, W., & Crabtree, R. B. (2020). Language attitudes toward Philippine English: A comparative study among Thai undergraduate students with and without exposure to Philippine English teachers. *NIDA Journal of Language and Communication, 25*(37), 18–40.

Chapter 16
Science Teacher Education in Taiwan

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Abstract After New Curriculum Standards were implemented in 2019 which addressed on nurturing students from grade 1 to 12 to become literate citizen, science teachers in Taiwan have new missions; they need to work cooperatively to develop within discipline and cross-discipline inquiry-based lesson plans. Not only inquiry-based instruction, they also need to work cooperatively with teachers beyond science field to develop various inquiry-based instructions. In this chapter, we will introduce how the new curriculum in science field was developed based on our previous science education research finding. We will also present various actions Ministry of Education took in both pre-service and in-service teacher preparation programs to equip science teachers with the necessary competence to match the new curriculum standards. We will introduce some large on-going projects related to enhance science teachers' competence. For instance, one project is related to equip science teachers' laboratory skills, another project is related to prepare in-service science teachers in designing inquiry-based lesson plans, implementing and reflecting their designed lesson plans, and the other is to recruit leading science teachers to share their teaching experience with science teachers across Taiwan. Finally, we will discuss the strengths and challenges faced of these projects to the international audience in science education field.

Keywords Science teacher education · Professional development · Science curriculum standards · Science teachers' competence

Introduction

Over the past 30 years, Taiwan has developed into a democratic society in Asia. After the government completely abolished Martial Law in 1991, the society became more

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liberal and people's voices started to play an important role in establishing policies. The central government in Taiwan lifted restriction on mass media (such as newspapers, TV stations) and promoted various direct elections from councillor, legislator, and city major to president during past thirty years. As a result, Taiwanese society successfully transformed into a democratic society. This kind of change had an important impact on education and teacher education in Taiwan. For instance, in 1994, "teacher education has also changed to a decentralized and self-financed system for preparation, qualification and certification of teachers" (Tuan & Lu, 2019, p. 9). The responsibility of teacher preparation has also shifted from three normal universities and nine teachers' colleges to teacher education programs in all universities in Taiwan (Tuan & Lu, 2019). Our national education changed from 9-year compulsory education (in 1968) to 12-year compulsory education (in 2015). Our curriculum standards have also changed from the nine-year continued curriculum [NYCC] (in 2003) to the twelve-year national education curriculum standards [TYNECS] (in 2019) to meet the needs of the future citizens in the rapidly changing society. These dramatic changes have influenced our pre-service and in-service science teacher education, and research done in this area.

Tuan and Lu (2019) have reviewed the past seventy years of science teacher education development in Taiwan. They indicated that teacher education in Taiwan would face challenges like low enrolment in teacher education programs, low admission rate for teaching positions (less than 5% for science areas), and low birth rate in the society. Research done in science teacher education in Taiwan from 1990 to 2015 indicated that the majority of science teacher education research were sponsored by the Ministry of Education [MOE] and National Research Council [NRC] and research were related to the examination or dissemination policies announced by MOE or NRC (Tuan et al., 2016). Research topics were: establishing the standards for qualified science teachers or teaching, investigation of science teachers' one-year internship development, and exploring changes in pre-service teachers' pedagogical content knowledge during teacher education program.

In the beginning of 2019, TYNECS started to be implemented in Taiwan which influenced students from K-12. Several features of this curriculum standards include: integration, literacy-based, context- based, learning performance-based, and cooperative work-based. The TYNECS implementation aroused various kinds of changes for science teacher's education, from teacher education program to teachers' professional development [PD]. In this chapter, we will introduce the substance of NYCC and TYNECS, changes in teacher education program due to amended TEA, MOE sponsored projects to disseminate TYNECS, and research done in science teacher education areas due to TYNECS. At the end of the chapter, we will discuss how our democratic society, TYNECS, influenced the ways we conducted science teacher professional development and research.

School Culture in Taiwan

Before we introduce science teacher education in Taiwan, we need to present the Taiwanese school culture first. In Taiwan, students enrolled in the same class are called classmates. Usually, a class of students would be classmates for one to three years in schooling. In 2019, average number of students per class ranges from 23 (elementary), 27 (junior high) to 35 (senior high). Home room teacher would lead his/her class for three consecutive years. Therefore, students in same class know each other well, and all students would be known by their homeroom teacher in the same class. Not only that, students in the same class take all courses together, and teachers change classrooms based on their teaching schedules.

In school setting, usually there are homeroom teachers' offices and subject-specific teachers' offices. Because teachers share office together, they would chat and have social activities together. This kind of social interaction is unlike American teachers who manage their own science class without interacting with other teachers.

Each subject-discipline teacher has his/her own PD group, and each PD group needs to discuss issues related to their subject teaching on a weekly basis and needs to discuss the responsibility to design monthly examination for students in the same grade. Collectivism instead of individualism dominates the Taiwanese school culture (De Jong, 2016).

Another Taiwanese culture is high value on education and achievement (Guo & Chiu, 2016). Having good grade and class ranking is the indicator for students to enrol in better senior high schools. Therefore, the goal for science teachers and all teachers is to cultivate students with all the contents covered in the textbooks and to push students to pass standardized examination sponsored by the government to go to good senior high schools. Competition is a natural phenomenon that exists in the school culture as well as society. Parents also place a high attention to students' achievements because children's high achievements can bring honour to one's ancestors.

Why do students, parents, and teachers all address on students' achievement and care for attending good school. It is due to the cultural belief of "Nothing is more important than learning" (Tuan & Lou, 2019), which means education can cultivate an individual's character, improve individual achievement (social status and economic situation). This cultural belief reveals how much Taiwanese people value education. It also influenced teachers' education degree. During 2020–2021, there were around K-12 school teachers who received a master or doctor degree.

Nine-Year Continued Curriculum

Nine-year continued curriculum [NYCC] was implemented in 2003 (Ministry of Education, 2003). In this curriculum, the scope of learning was divided into seven

subject areas including "nature and daily-life technology". The basis of the combination of "nature" and "daily-life technology" focuses on the spirit of Science Technology and Society [STS] and uses technology as a medium for science to connect with society. Therefore, the educational goal in this field is set to improve the scientific literacy of students, and the basic abilities of science and technology cultivated are divided into eight main items according to their attributes and levels. The sub-level ability indicators are set according to the stage as a selection for teaching materials, implementation of teaching, and learning evaluation. The eight key items are:

1. Process skills: Improve the mental operation ability of the scientific inquiry process;
2. Science and technology cognition: The cultivation and training of scientific concepts and technology;
3. The essence of science and technology: Science is verifiable, and technology is operable;
4. The development of science and technology: Understand the process of how science is discovered and how technology develops;
5. Scientific attitude: Seeking truth and loving the scientific spirit and attitude of inquiry and feeling the beauty and influence of science;
6. Thinking intelligence: The ability to infer and criticize things, solve problems, and other integrated scientific thinking skills, as well as the ability to integrate information;
7. Scientific application: The ability to apply scientific knowledge and inquiry methods to deal with problems;
8. Design and production: The ability to use the creativity of individual and group cooperation to produce technological products (MOE, 2003).

There are several highlighted aspects in terms of the course objectives in the subject area of "nature and daily-life technology" based on the NYCC. Due to school teachers (included science teachers) over-emphasized lecturing and memorizing the knowledge, therefore, the NYCC highlights eight target items, with equal emphasis on knowledge and ability, emphasizing the design of teaching materials based on students' daily-life experience, hoping that through the change of the overall goal, the ideal of diversified education can be gradually implemented.

NYCC proclaimed six course objectives as below (MOE, 2003):

1. Cultivate the interest and enthusiasm for exploring science and develop the habit of active learning.
2. To learn scientific and technological inquiry methods and basic knowledge and be able to apply what they have learned in current and future life.
3. Cultivate the knowledge and attitude of caring for the environment, cherishing resources, and respecting life, as well as the sentiment of loving the local ecological environment and technology.
4. Cultivate the ability to communicate and express, teamwork, and get along with others in harmony.

5. Cultivate independent thinking, problem-solving ability, and stimulate development potential.
6. Perceive and try to explore the interaction between humans and technology.

These objectives revealed that NYCC focused on school-based, integration-based, student ability-based, performance responsibility-based, and multiple assessment-based. These are the parts that were lacking in the national unified curriculum in the past. NYCC emphasizes the connection between nature, science, and technology and advocates the way to learn science through inquiry and hands-on activities. The curriculum design must be centred on the student's experience, and the project-based learning activities allow students to develop problem-solving abilities through design and production. Therefore, small-group cooperative learning plays an important role in the curriculum.

Based on the above features of NYCC, the role of teachers has changed from teaching authority to facilitator in students' learning. When NYCC were implemented in schools, the standards allocated four hours per week to the course titled nature science and life technology. Although teachers were expected to teach inquiry-based instruction, but MOE did not pay much attention on teacher education program to meet the requirement of NYCC; thus, science teachers tended to rely on lecturing and followed experiments presented in textbooks (Lu & Lien, 2016).

Twelve-Year National Education Curriculum Standards

After nearly two decades of nine-year continuous curriculum (NYCC), the twelve-year national education curriculum standards (TYNECS) has finally started in 2019 (MOE, 2018). The difference from the NYCC is that it incorporates the three senior high school years into the planning and results in the twelve-year long curriculum constituting four education stages. The highlights that were originally emphasized in the junior and the elementary school levels have been continuously promoted. In addition, the teaching concept of inquiry and practice has been promoted, and the credits of "inquiry and practice" have been added to the teaching of natural science at senior high schools. Regarding the teaching of nature in elementary and junior high schools, teachers are also encouraged to engage in teaching with inquiry strategies and do more hands-on activities combining with thinking processes. As for the seven learning subject areas of the original junior high school, the "nature and daily-life technology" was separated into two areas, "natural science" and "technology", leaving the new curriculum with eight learning areas. The teaching content of science and technology is different from the past "daily-life technology", and it also includes the addition of "information technology".

General speaking, TYNECS not only emphasizes the importance of "literacy-oriented education" and the integration of life situations, but also reveals the educational goal of cultivating "lifelong learners". TYNECS also formulates "autonomous action", "communicative interaction", and "social participation". In the field of

natural science learning, it is advocated that students' scientific literacy should be cultivated through "interdisciplinary concepts" and "socio-scientific issues"; it is hoped that they will be able to participate in the decision-making and problem solving of social situation and understand and reflect on the scientific content encountered in various communications (MOE, 2018).

The following course objectives of natural science subject field reveal its continuing and reemphasizing the essence of the previous NYCC (MOE, 2018):

1. Enlighten the enthusiasm and potential of scientific inquiry: Enable students to have curiosity and imagination about natural science, give full play to their rational thinking, and develop their life potential.
2. Construct scientific literacy: Equip students with basic scientific knowledge, inquiry and practical ability and scientific attitude; help students to be able to communicate effectively in real life, participate in the decision-making and problem solving of civil societal issues, and be informed about science-related content reportedly by the media be able to understand and reflect, and cultivate the spirit of seeking truth and truth.
3. Lay the foundation for continuous learning of science and the application of science and technology: Develop students' positive attitude towards science and interest in learning science.
4. Cultivate the values and actions of social care and protection of nature: Learning to appreciate and cherish the beauty of nature and deepen it. In order to love nature, cherish life, and resources, develop a caring heart and action ability and then commit to constructing a rational society and sustainable environment.
5. Preparing for career development: Learning life regardless of interest. Whether due to the needs of life or work, we can make further efforts to increase scientific knowledge, and through this stage of learning, prepare for the next stage of career development.

TYNECS stresses that science learning should start from context-based learning and students have to practise their various thinking abilities, such as imaging and creativity, inference and argumentation, critical thinking, generating models, observing and identifying problems, planning and implementing, analysing and findings, discussion and communication. Students need to develop their inquiry interests, understanding the nature of science, and cultivating their scientific thinking and inquiry habits. TYNECS also emphasize on cross-subject concepts in the nature science field. Subjects such as material and energy, structure and function, system and scale, change and stability, interaction, science and life, resources and sustainability are addressed in the curriculum (Ministry of Education, 2018). In addition, science, technology, engineering, and mathematics [STEM] concepts are also addressed in the technology curriculum, such as designing abilities, problem-solving abilities, and cooperation abilities, etc.

Due to the spirit of TYNECS, some adjustments have also been made to the teacher training curriculum in response to changes in the environment. In the teaching of natural sciences, the concepts and strategies, beyond the STS, such as STEM has

become the main points of promotion. Many new pre-service teacher education centres begin to offer courses related to inquiry and practice teaching strategies, STEM education.

In addition, for in-service teachers, the new developments in these courses and teaching are also provided, as well as opportunities for empowering in-service teachers such as lectures, short courses, project-based programs in these fields. Some of them are planned and handled by the "natural science subject researching and developing group" in the elementary and secondary schools. In some cases, there are natural science advisory groups in counties and cities that provide the aforementioned opportunities; there are also professors in the field of science education commissioned by the MOE to handle the long-term teacher-empowering workshops. Below, we will present teacher education program changes, PD projects sponsored by MOE, and research done in this area.

Changes of Teacher Education Programs

After Teacher Education Act [TEA] (TEA, 2014) was enacted, the teacher education system in Taiwan became decentralized and self-financed, all universities were authorized to nurture the teachers only by establishing teacher education program. Based on this minimal criterion, the "planning system" was replaced by the "reserve system". After the teacher education program, pre-service teachers have to pass the certification test to be certified as teachers, and to pass very competitive admission examinations to be school teachers (less than 5% pass rate in the science area). Without job protection and financial incentives, those who enrolled in teacher education programs at the outstanding level dropped significantly than before. In addition, fewer credit hours (less than 40) of content requirement means a decreased teaching competence for pre-service teachers. Based on the above reasons, MOE has introduced a series of incentive countermeasures.

For example, in order to encourage students with excellent academic and moral qualities to apply for entry into the teacher training programs, the government provides elite pre-service teachers scholarships to various teacher education institutions. In addition, the National Taichung University of Education, a teacher education institution for elementary teachers with a more than 100 years' traditional history, implemented a refined "2 + 2 + 2" master-level education model with the operation system of the professional academy of teacher training, and systematic and practical curriculum teaching from 2011 (National Taichung University of Education, 2021). Its working system focused on four main axes, including the cooperation network of new and professional development schools, jointly nurture high-quality teachers who cultivate a brand-new vision and a deeply package-oriented teaching, creative-oriented practice, and reflective-oriented research. The core concept of the experimental plan for the exquisite teacher training mechanism is to set up a master's degree program for teachers. Its first "2" is the basic stage of professional develop-

ment, the second "2" is the probing stage of teacher training aptitude, and the third "2" is the professional development stage of teacher training which is the basis of the master's degree program.

Based on this specialized organization for teacher training, also the so-called professional school of teaching, some refining strategies (National Taichung University of Education, 2021) set forth such as:

1. Integrate all teacher training posts in the schools with related teacher professional development programs, special education departments, and related education programs.
2. Establish the teacher teaching system of curriculum and instruction to integrate teachers with practical courses in the school, which will effectively condense and enhance the overall energy of teacher training in the school.
3. Based on the teaching staff in the original fields of each department, and through the organization of teaching tasks, 12 teaching materials and method research rooms have been developed to integrate and update teacher training courses and teaching.
4. In the local education and guidance, work and integrate resources to establish the most suitable mode of internship guidance, strengthen the internship partnership, and develop into a professional development school network.

The courses offered in this master program based on the experimental model aim to cultivate the character and enthusiasm of the teachers. The students in this program need to complete 27 credits of the graduate school, 20 credits of the intensive module course of package teaching at the elementary school level, and another one, an added specialization area (choose one from English, tutoring, nature, information, full English teaching) is required. For students who are sponsored by public funds, it is a basic requirement to acquire a specialty in a teaching field during their studies and obtain the qualification to add to the teaching specialty. Among them, the expertise in natural fields has been designated by some county and city governments. Also following the regulations of completion, all graduates should pass the graduation thresholds of the course and complete the master's thesis to obtain the Master of Teaching degree. It is believed the compact and intensive immersion would compensate for the drawbacks found after the teacher training system is open and freely cultivated.

According to 2018 amended TEA, the teacher training publicly funded scholarships and distribution service regulations were formulated, and it is stipulated that the pre-service teachers who enjoy the teacher training publicly funded treatment should go to the school service in remote or special areas for the specified number of years after graduation.

Actually, in order to strengthen the natural science teaching ability of elementary teachers, the MOE encourages elementary school teachers to add natural specialty teacher certificates, not only for those pre-service teachers in the teacher education program, but also for the in-service teachers who are teaching nature course in the elementary schools. For detail, the premise condition for both pre- and in-service teachers is that all of them must obtain a certificate of proficiency in the assessment

of the knowledge and ability of the elementary school teachers in the natural field. For pre-service teachers, they should first take credits for elementary school teachers to add natural specialty courses. But for in-service teachers who have one of the following may apply for an additional certificate of teacher in the field of natural science.

1. 36 h of study in the field of nature and daily-life technology and at least 2 credits in "learning environment management and safety management knowledge" courses.
2. Completion of 2 credits of "teaching professional knowledge certification" or 2 credits of "elementary teaching knowledge course" in elementary school nature and daily-life technology learning area and at least 2 credits of courses in the "learning environment management and safety management knowledge" course
3. 72-h study in the field of nature and daily-life technology, and those who have obtained a certificate of proficiency in the assessment of knowledge and ability in the natural field of elementary school teachers.

TYNECS emphasizes the core competencies of future citizens. Due to the literacy-based curriculum, it is very important to educate future teachers with literacy, such as science literacy. Based on the mandated TEA (MOE, 2020), teacher education program has the power to design their own courses to match the core competencies and the standards for pre-service teacher education. Fwu (2018) advocated that there are functional literacy and transversal competencies which connect academic knowledge with real life experiences. Teachers need to cultivate these two kinds of literacy/competencies to match the needs of the new curriculum. Therefore, it is important to examine and restructure the courses in teacher preparation curriculum. Each teacher education program can design their own courses as long as they can reach the core competencies addressed by MOE. Before, MOE would examine whether the course titles of the preparation program match the standard requirement or not.

The mandated of TEA (MOE, 2020) has changed the requirement of pre-service teacher education to prepare teachers to match new standards requirement. As mentioned before, new standards addressed literacy-based, inquiry and practice-based and inter-discipline-based teaching. Therefore, high school science teachers, such as pre-service physics teachers, will need to take 42 credit hours in their content area, which consists of core discipline courses (4 credit hours, one course for special topic of inquiry and practice within discipline area, one course for inquiry and practice curriculum design); within science discipline, pre-service physics teachers need to take cross-subject courses (8 credit hours) from chemistry, biology or earth science field; pre-service physics teachers need to take discipline major courses (30 credit hours) in physics department to fulfil their physics major requirement.

The above course requirements indicate that future science teachers need to know not only their subject discipline area, but also a broader knowledge of various disciplines of science. They need to learn inquiry competence in their discipline area and how to design inquiry-based curriculum. These course requirements indicated that the feature of inquiry and practice-based teaching was highly addressed in schools as

well as teacher education programs. It also indicated that due to democratic beliefs MOE has empowered teacher education programs in designing their own courses to match the core competence of TYNECS.

MOE-Sponsored Projects

MOE has promoted various nation-wide projects to enhance in-service teachers' teaching and students' learning in order to accomplish the goals of TYNECS. These will be introduced below:

Elementary and Junior High School Science Teachers' Inquiry-Based Instruction Design and Professional Development

Due to the importance of inquiry and practice feature in TYNECS, Tuan's (2021, March) project aimed to enhance elementary and junior high school science teachers in designing and implementing inquiry-based lessons. Tuan applied several theories embedded in designing and conducting this project. One is social constructivism, through scaffolding from project teams and from school coaches, each participating seed teachers would gradually learn how to design and teach inquiry-based instruction. The second theory is based on long-lasting support for teachers to learn new teaching ideas. One coach with three to six seed teachers grouped together as a PD team. Each coach would meet his/her seed teachers for ten times during one-year project period. They can meet online and through face-to-face gatherings. Each coach would guide his/her own seed teachers in designing inquiry-based lesson plans, implementing their lesson plans, observing their teaching, and providing reflection feedback to each of the seed teachers.

From the project centre, there are three stages of the one-day workshops conducted in north, central, south, and east areas of Taiwan. In the first stage, the workshops focused on introducing TYNECS, and the spirit of inquiry and practice teaching, and how inquiry and practice teaching can enhance the learning performance in the TYNECS. In this stage, the project also recruited new participants. In the second stage of the workshops, all the speakers address how to design inquiry-based instructions; science educators would addressed on the theoretical aspects of designing inquiry lesson, experienced science teachers would provide hands-on activities for participant teachers. In the third stage, the goal of the workshops addresses how to observe and reflect on inquiry-based teaching. Both theory and practice were addressed in the courses. Through different levels of scaffolding, teachers would learn how to design and implement inquiry-based lessons.

The third principle is the integration of theory with practice, which were embedded in courses in the workshops. The fourth principle is the cooperation with college professors with teachers. The project invited 30 science educators to involve in teaching or providing feedback for teachers' inquiry-based lesson plans and inquiry-based PD documents. These science educators provided specific suggestions for seed teachers' documents (lesson-plan and/or PD document). The project also invited 30 science teachers with experienced inquiry-based teaching. These teachers played as PD coach or speakers for the workshops.

Project evaluation indicated that the majority of participants expressed that the combination of science educators and teachers would make them feel supported and comfortable learning inquiry-based instructions, teachers showed appreciation of the feedbacks they received from either their coaches or the written feedback from the science educators. These participants were very open in discussing their inquiry-based teaching and lesson planning with their PD members and coach.

Finally, the project provided a good awarding system. In the middle of the project, inquiry-based lesson plan competition was conducted, each team can submit teamwork of inquiry-based lesson plans to the project team, and the lesson plans would be evaluated by science educators. In May, each individual seed teacher can submit their PD document (lesson plan, revision of lesson plan, classroom teaching video, reflection of one's inquiry-based instruction, feedback from teammates) to the project, these PD documents were evaluated by science educators and specific feedback were provided to the seed teachers. The project team published several booklets of awarded inquiry-based lesson plans from lesson plan contest and sent to junior high and elementary schools in Taiwan to award teachers' efforts. At the end of each year, project team would conduct an award ceremony for all coaches as well as seed teachers. In the one-day ceremony, teachers shared their lesson plans with one another, all the teachers were awarded lesson plans and PD, and excellent coaches would receive plagues and certificate of merit. Seed teachers who performed well would be invited to our future workshop instructors.

The project has been conducted for seven years, but the systematic collection of data has gone on for only five years. After five years of data collection, findings indicated that teachers' perception of their own inquiry competence, inquiry teaching competence, guiding and assessing inquiry and their expectation towards their inquiry teaching increased significantly after the one-year participation. Tuan also surveyed students' perception towards teachers' inquiry teaching. Results indicated that students' perception of their own inquiry competence, teachers' demonstrating their inquiry teaching competence, teachers' influence on students' inquiry competence increased significantly after teachers' participating in the project. Within the past five years, 40 PD teams were organized and around 70 inquiry-based lesson plans were developed each year. We think this project provided a very unique way in grouping science teachers from all over Taiwan to work together to learn inquiry-based teaching.

Dream to the N Power (https://cirn.moe.edu.tw/Module/index.aspx?sid=1196)

Another large project sponsored by MOE was named Dream to the N power. This project was initiated by junior high school Chinese teacher Wang, Chang-Chung. While he was teaching in a rural school area, he realized the importance of teachers' teaching can provide hope and dream for their students. In 2015, he received budget from MOE to run the project. In the beginning years, the goals were to teach participants (school teachers) how to prepare students to pass the unified examination to senior high school. Lately, the project shifted the goal again to address new curriculum standards, helping participants to practise their teaching ideas and work cooperatively in designing lesson plans during a two-day workshop. In addition, the project started to encourage teachers to implement their lesson plans or teaching ideas in their classrooms or schools; these teachers were called practice teachers. In 2020, the workshops extended to two days, and more practice teachers participated in the project, and they shared their teaching practice to the participants. In the workshops, various science teachers shared various teaching activities or ideas to the participants. As results, on average around 3800 school teachers from grade 1 to 9 participated in the project. In the last three years, around 1000 school teachers per years have practised what they learned into their classrooms.

This project was highly valued by school teachers as well as by MOE, because it is pure teacher initiated, organized project and the development of the project is bottom up instead of top down, which fit the democratic beliefs. Other unique features include that all the participants, speakers, and project leaders are school teachers, and this project provided a good example of bottom-up PD.

Senior High School Inquiry and Practice Center and Advisory Group

As mentioned before, in 2015, the compulsory education was extended from 9 to 12 years. TYNECS also requested senior high schools to offer inquiry and practice course to students. Therefore, they are heavy demanding for senior high school teachers in learning inquiry-based instruction. The K-12 Education Administration (K12EA) (Ministry of Education Division of Academic Senior High Education, 2020) has set up two inquiry and practice curriculum centres in two senior high schools, one in the north and the other in the southern part of Taiwan. High school science teachers in the two centres play key roles in designing inquiry-based curricula (both nature science and social science fields) and disseminating these curricula to senior high school science teachers through various workshops around Taiwan. Through these centres, senior high school science teachers can improve their inquiry-based teaching abilities in designing and implementing integrated curriculum in each

school. Again, science teachers play the leading role in implementing inquiry-based PD developments.

As to K-9 grade school science teachers, MOE division of elementary and junior high schools conducted various policies, such as compulsory education advisory groups to advise and supervise school teachers in improving their teaching. One of the policies is organizing advisory groups from central government to municipal and county governments to encourage each school to organize teachers' PD group in each discipline area. This kind of curriculum-based PD advisory group can discuss details of the problem faced in their classroom teaching, and the teaching strategies or methods they can receive for their teaching. In general, MOE put a lot of effort from developing the general education system to encouraging teachers to generate professional communities. Through PD communities, teachers share their teaching problems and solutions together. That is also the reason why in the journals or grade students' thesis, there have been many researches done on teachers' professional development.

Maker and Technology Education Guidance and Counseling Center (https://maker.nknu.edu.tw)

In order to catch the maker movement (innovation and hands on) in the international community, MOE started to establish 11 maker demonstration centres. These centres were led by Dr. Ju at National Kaohsiung University's maker education advisory centre. In the advisory centre, researchers have to create maker curriculum materials, lesson plans, teacher training program, and necessary maker equipment. This project used school-based module to help science or technology teachers to create maker lesson plans and also implement maker lessons in each school. In 2018, maker education advisory centre changed its name to the elementary and high school maker education and technology advisory centre to match the goal of TYNECS standards. Due to the shortage of technology teachers, many science teachers were also involved in designing STEM or maker activities. The goal of the centre continued to educate teachers as well as students from grade 1–12 to cultivate their cognition in new technology and technology education, such as designing ability, problem-solving ability, and cooperating ability.

FabLab (https://www.fablab.nknu.edu.tw/)

After all the maker centres have been established, MOE also established teacher education cent to enhance maker teachers' teaching competence. Professor Lin, who has been leading one of the projects for seven years, established a FabLab centre. In the beginning of the project, the centre used 3D printers to print out equipment

for maker activities and sent them out to all the elementary and junior high schools around Taiwan. He used a centralized way (fixed star and planet model) to produce all the maker equipment and sent out all the maker materials to each school and also taught teachers how to assemble all the pieces of equipment to build up their maker product. This kind of dissemination model could quickly promote schools to conduct maker activities. In recent years, Dr. Lin has been sponsored continuously by MOE to create workshops to teach teachers how to conduct maker teaching in the classroom.

Summary

The above projects illustrated various ways of involving university professors as well as school teachers together to enhance in-service science teachers' teaching competence in inquiry-based, and practice-based, and STEM teaching and students' learning in the classroom to accomplish the goals of TYNECS. It also revealed that MOE highly empowered school teachers to contribute their expertise in these projects, such as Dream to the N Power, advisory group and inquiry-based centres. This kind of empowerment is influenced by the democratic beliefs in the government as well as in the society.

Science Teacher Education Research

In the past thirty years, the majority of science teachers studied in a master's program to fulfil their professional development. As mentioned before, around 62% of various levels of school teachers received a master's or doctoral degree.

Accomplishing a master's or doctoral degree thesis is a requirement by MOE. Therefore, many teachers became interested in studying their own science teaching and some of them were working on using action research to improve their science teaching (Tuan et al., 2016). Usually these science teachers would cooperate with their major professors or research teammates. They would have a teaching focus (such as inquiry-based teaching and argumentation) and collect data from their own classroom teaching videos, teachers' own reflection journals, students' assignments, students' interviews as well as students' monthly examination results. These teachers would meet with their research teams to discuss whether their goals were accomplished or not. Teachers would conduct one to two cycles of action to reach their original goals. Usually when teachers defended their thesis, they also had improved their classroom teaching and enhanced students' various learning outcomes.

Tuan et al. (2016) summarized science teacher education researches done in Taiwan during 1900–2015 and found out researches have been covered in teachers' constructivist teaching, PCK development, inquiry-based teaching, school-based PD, and technology infused into PD. We conducted a search from 2000 to 2021 using "inquiry and practice" and "professional development" as keywords. Our search

showed that 37 thesis and 31 Taiwanese journal articles were produced. Below we will present some researches to reflect the impact of NYCC and TYNECS on these researches.

Teacher Education Program Studies

Hsu (2012) studied elementary school science teachers' inquiry-based teaching development through teacher education programs. These pre-service elementary teachers took two courses, one focused on introducing theories of inquiry-based teaching through watching videos of teaching examples. The other course touched on designing inquiry-based lesson plans, microteaching, and the teaching demonstration. Researchers combined both qualitative and quantitative research methods to collect data. Finding indicated that after taking the theory class, pre-service teachers grasped inquiry-based teaching concepts. After watching videos of inquiry-based teaching, teachers understood more about inquiry teaching and teaching in general. When these teachers design and implement their lessons, they would pay more attention to students' participation and learning. All pre-service teachers agree that studying inquiry-based teaching by watching videos of teaching examples can benefit them on the field of teaching science. Finally, researchers suggested that providing more video-watching experiences would benefit these pre-service science teachers.

Huang and Lin (2014) applied Ajzen's theory of reasoned action to survey 83 pre-service science and math teachers' perception towards STEM regarding knowledge integration from science and math major from one normal university. Findings indicated that STEM courses can enhance pre-service teachers' attitude and intention towards STEM knowledge integration and can also enhance students' attitude towards science, engineering, and technology. Pre-service teachers' in STEM course would be influenced by teachers and peers' expectations and support. Pre-service teachers' perception towards their behaviour control would influenced their intention towards knowledge integration. Therefore, pre-service teachers need to cultivate their confidence and self-perceived competence in the teacher education program.

Chen and Chiang (2020) investigated a teacher education course which addressed inquiry- and practice-based course, aimed at cultivating teachers' maker abilities. Seventeen pre-service teachers need to operate 3D printer to solve daily life problems. Findings indicated that: (1) experience in the course plays a crucial role in individual cognition; (2) pre-service teachers still need to learn how to identify feasibility problems; (3) imitation is very important for pre-service teachers to learn maker teaching; (4) pre-service teachers started to use their self-regulated learning to improve their teaching in creating stage. Finally, the author indicated that both individual and social factors play important roles in pre-service teachers' task completion in the class.

Practicum experience is very important experience for pre-service teachers to learn how to teach and is the key to educate qualified teachers. There were several studies done on facilitating science teachers' internship experience. These are listed below:

Wu and Chan (2008) investigated one chemistry student teacher's PD with the influence of mentor teacher during his practicum experience. Findings indicated that the mentor teacher provided specific guidance and patience for the student teacher's teaching practice. The student teacher needed time to develop his professional skills gradually, and his confidence teaching also developed smoothly. Factors influenced the student teachers' PD were his personality, motivation, reflection ability and teachers' mentoring style.

Teachers' Professional Development Studies

Lin (2011) studied a group of biology teachers' community over five years (2007–2011). They applied task-oriented partnership to develop a PD model, which consisted of task, relationship, PD, and effort. All the tasks initiated by teachers' community would go through four processes: brainstorm, plan, implementation, and reflection. Lin collected interview data, teachers' journals, classroom observation, blogs, web records, field-notes, emails, etc. Findings indicated that two beginning biology teachers progressed through five stages: observation, probation, co-teaching, practicum, and independence. Findings indicated that these two beginning biology teachers grew in the following areas: professional teaching knowledge and competence, professional learning knowledge and competence, and professional practical–moral knowledge and competence.

Chien (2010) studied school-based PD model using case discussion strategy. The study consisted of two experienced and two beginning science teachers, in which they worked together using case discussion to develop a science-fair guidance mentoring program. Finding indicated that (1) the senior teachers establish PD goals in three ways: dialogue, questionnaires, and studying literature. (2) In developing the science fair mentoring program, teachers went through the following stages: an "unfamiliar run-in period", a "sharing and learning period", a "practising period", and a "shaping and feedback providing period". (3) The two beginning teachers adopted the school culture through this PD program, practised what they learned from the experienced teachers, confronted teaching difficulties, and received feedback from experienced teachers. These experiences enhanced beginning science teachers' PD faster than before.

Liu's (2012) research aims to help the primary science teachers to improve their professional teaching abilities by establishing the PD community and applying a remote video system to conduct classroom observation and provide immediate feedback to their teaching. Lou applied six scaffolding methods: feedback, hints, instructing, explaining, modelling, and questioning to three teachers in their PD community. Findings indicated that: (1) different science teachers have commonality in using scaffolding teaching strategies, as well as their own characteristics. (2) Remote video system used in observation can improve the teachers' ability of using scaffolding teaching strategies.

Tseng and Jang (2009) incorporated web-based learning into team teaching among science teachers to improve student teachers' PD. One researcher and one case teacher used a cooperative action research method to conduct one semester of action research. Findings indicated that the incorporation of web-based instruction into team teaching could enrich teachers' teaching and provided a model for teachers to learn with each other. It can also stimulate teacher's group interaction and help to cover each other's weaknesses in their teaching.

Yeh (2011) studied one junior high school science teachers' PCK development through teachers' self-reflection. Action research was applied in the study. The case teacher indicated that when he conducted self-reflection, he faced limitations regarding the reflection tool, reflection method, and reflection content. After he solved these limitation, his PCK has increased significantly in terms of the students' perceptions of Teacher's Knowledge (SPOTK) (Tuan et al., 2000), such as teacher's subject-matter knowledge, assessment knowledge, knowledge of representation, and instructional strategies. In addition, students' science achievement also increased significantly after teachers' PCK development.

Jun (2007) applied PCK theories and inquiry-based and professional development to investigate the teacher professional development in the school-based curriculum development process of one Taipei high school. Six science teachers were involved in the investigation, and their goal was to develop school- and inquiry-based curriculum. Qualitative research methods were applied in the study. Findings indicated that these teachers lacked research method, inquiry-based teaching, and assessment knowledge. During the PD process, they received guidance from expert teachers, and learned research method from their PD group. Their PCK in inquiry-based instruction increased after the study, but these teachers still showed a need to learn more about inquiry-based instruction in the future.

Tsai et al. (2011) applied action research to study one science teacher who tried to integrate AA Vee map into a three-stage inquiry-based instruction in a junior high school science class. The three-staged instruction model of scientific inquiry were "activities of structural inquiry", "activities of exploration of literatures of science fairs", and "activities of guided inquiry learning". Findings indicated that integration with AA Vee map into inquiry-based instruction can gradually develop students' scientific inquiry abilities. Teachers need to adjust the openness of inquiry instruction with students' competencies. In addition, the researcher who was also the case teacher became more and more familiar with the spirit of inquiry-based instruction, understood students' competence in participation inquiry-based instruction, and knew how to conduct inquiry-based instruction.

Summary

The above studies revealed that inquiry-based, practice-based, STEM, cooperative work, school-based, and technological issues were addressed by researchers. These issues were addressed in NYCC and continued focused in TYNECS. The uniqueness

of school-based research was also influenced by TYNECS. Teachers need to design curriculum based on students' daily life context, which means that teachers may need to design curriculum by themselves. Another unique point of these studies is the mentoring or scaffolding. Researchers are interested in finding a mechanism or factors that can facilitate teachers' teaching competence. This is also caused by encouraged group work in TYNECS as well as Taiwanese culture (collective work and learning from authority) (De Jong, 2016).

Conclusion

The goal of this chapter is to introduce the influenced of TYNECS on science teacher education, professional development, and science teacher education research. Based on the TYNECS, science teachers need to acquire knowledge of how to teach core competencies (literacies) for students, and they also need to know how to conduct inquiry-based teaching and integrated curriculum (or inter-disciplinary) teaching. Teachers should have an organized professional development community to learn various competencies required by TYNECS.

In this chapter, we introduce how MOE applied various policies to empower teacher education program and to reshape the requirement of content courses which cover teaches' core competence in teaching integrated-, inquiry-, and practice-oriented science. In the MOE-sponsored projects, we also see that inquiry, practice, STEM, and makers, were highly addressed which reflect goals for TYNECS. In addition, we also find out school teachers play increasingly active and leading role in these projects, which is reflected in the philosophy of democracy philosophy. It can be found science teachers were not alone; they received various support from our government, county, and their schools. Science teachers were found to be using action research more frequently to solve their teaching problems, and they also used journal articles or their theses to report their action research results. Science teachers in Taiwan became increasingly professional and active in participating in various teaching approaches and joined various projects and competitions to express their teaching ideas in a public setting. This kind of involvement is exciting because we have not seen this happen to this extent in the past. We believe as Taiwanese society has become more and more democratic, TEA and various policies have influenced Taiwanese science teachers' participation in this new curriculum reform.

References

Chen, H.-H., & Chiang, C.-L. (2020). From imitating to creating: Pre-service teachers' meta-knowledge under interdisciplinary learning. *Journal of Teacher Education and Professional Development, 13*(2), 1–26.

Chien, Y.-C. (2010). *Development and evaluation of school-based science-fair guidance mentoring program* (Unpublished doctoral dissertation). National Kaohsiung Normal University. Kaohsiung, Taiwan.

De Jong, O. (2016). Comments on section 4: Thoughts on science curriculum reform and teacher learning in western countries and Taiwan. In M.-H. Chiu (Ed.), *Science education research and practices in Taiwan* (*pp.*387–396). Springer.

Fwu, B.-J. (2018). Teacher preparation in response to competence-based curriculum reform for K-12 Education: National Taiwan university's proposal of inquiry-based and competence-based teacher education. *Journal of Research in Education Sciences, 63*(4), 59–87.

Guo, C-J., & Chiu, M.-H. (2016). Research projects on science education funded by the National Science Council in Taiwan from 1982–2012: A historical review. In M.-H. Chiu (Ed.). *Science education research and practices in Taiwan* (pp. 11–42). Springer.

Hsu, Y.-T. (2012). *Pre-service elementary school science teacher professional development in teaching science: take the unit of "inquiry teaching" for example* (Unpublished master's thesis). National Taipei University of Education, Taipei, Taiwan.

Huang, T.-J., & Lin, K.-Y. (2014). A study on pre-service teachers' knowledge integration behaviors in STEM-based hands-on learning activity. *Journal of Technology and Human Resource Education, 1*(1), 18–39.

Jun, W.-J. (2007). *Searching for inquiry: A study of professional development of senior high school teachers in the process of curriculum development* (Unpublished master's thesis). Tamkang University, New Taipei, Taiwan.

Lin, W.-J. (2011). *The task-oriented partnership (TOP) for improving the professional development of pre-service biology teacher* (Unpublished doctoral dissertation). National Changhua University of Education. Changhua, Taiwan.

Liu, M.-H. (2012). *The analysis of science teacher's scaffolding strategies by the remote video system* (Unpublished master's thesis). National Tsing Hua University, Hsinchu, Taiwan.

Lu, Y.-L., Lien, C.-J. (2016). Elementary science education in Taiwan–From the perspective of international comparision. In M.-H. Chiu (Ed.), *Science education research and practices in Taiwan* (pp. 163–180). Springer, Singapore.

Ministry of Education. (2003). *Nine-year continuous curriculum for national elementary and junior high schools—Nature and daily-life technology learning field*. Author.

Ministry of Education. (2018). *Twelve-year national basic education curriculum—National elementary and secondary schools and ordinary high schools-Natural science field*. Author.

Ministry of Education. (2020). *Republic of China teacher professional competence guidance-preservice teacher education stage and preservice teacher education courses standards.* Author.

Ministry of Education Division of Academic Senior High Education. (2020). *K12EA introduces a range of training programs to assist teachers in carrying out Inquiry and Practice courses.* https://www.k12ea.gov.tw/Tw/Station/StationView?filter=63F293A9-0155-41A3-97B7-46E43E4685FE&department_id=23F8C5D5-D314-488F-B85B-0152408E137B

National Taichung University of Education. (2021). *Exquisite teacher training program.* National Taichung University of Education. Retrieved from: http://ms3.ntcu.tw/teepaper/TE99/menu3.html in 21 March 2021

Teacher Education Act. (2014). Laws and Regulations: Database of the Republic of China.

Tsai, M.-C., Lin, W.-J., Yeh, C.-J., Chang, W.-H., & Wang, K.-H. (2011). The Influence of Integrating AA Vee map into the three-staged instruction model of scientific inquiry on the professional development of science teachers. *Journal of Teacher Education and Professional Development, 4*(1), 87–116.

Tseng, H.-Y., & Jang, S.-J. (2009). The action research of integrating web technology and team-teaching in secondary "science and technology" classes. *Journal of Educational Theory and Practice, 19*, 229–266.

Tuan, H.-L. (2021, March). *The implementing outcome of the National elementary and junior high school science teachers' inquiry-based instruction design and professional development project*. Paper presented at the annual conference on chemistry conference. Chung-Li: Central University (March 13, 2021).

Tuan, H.-L., & Lu, Y.-L. (2019). Science teacher education in Taiwan: Past, present, and future. *Asia-Pacific Science Education, 5*(1), 1–22. https://doi.org/10.1186/s41029-019-0044-9

Tuan, H.-L., Wang, K.-H., & Chang, H.-P. (2016). Taiwanese science teacher education research-Capturing the spirit of PCK. In M.-H. Chiu (Ed.), *Science Education Research and Practices in Taiwan* (pp. 309–330). Springer.

Tuan, H.-L., Wang, K.-H., Chang, H.-P., & Treagust, D. F. (2000). The development of an instrument for assessing students' perceptions of teachers' knowledge. *International Journal of Science Education, 22*(4), 385–398.

Wu, S.-F., & Chan, Y.-T. (2008). Tolerance toward ambiguity: A case study of the professional development of a chemistry student teacher in a senior high school. *Chinese Journal of Science Education, 16*(5), 477–493.

Yeh, B.-C. (2011). *An action research of one junior high science teacher's using self-reflection to enhance pedagogical content knowledge development* (Unpublished master's thesis). National Changhua University of Education. Changhua, Taiwan.

Chapter 17
Language Teacher Education in Vietnam: Looking Back and Looking Forward

Le Van Canh

All students are entitled to be educated by teachers who ideally have a "call" to teach, whose minds, hearts, relationships and actions are imbued with strong moral/ethical purposes, who are knowledgeable, caring, respectful, committed, resilient and who always strive to teach to their best and well. The work of teachers as educators – and they do exist – goes beyond confining conceptualizations of teaching as a "craft" or "scientific" endeavor only (Christopher Day, 2019).

Abstract As we look ahead to the future, it is always helpful to look back as well. The purpose of this chapter is to offer a historical background of research into English language teacher education in Vietnam and then highlight a number of emerging themes that seem to hold potential for future research. The chapter looks back at the history of language teacher research in the context of the implementation of the country's new professional standards to serve the politically and economically motivated initiatives in English language education in an attempt to highlight the relevant emerging issues. Looking forward to the future of language teacher education in Vietnam, the chapter recommends how these issues can be potentially addressed so as to support teachers to survive efficiently the complexities and challenges of (be)coming an English language teacher in the time of uncertainty and unpredictability.

Keywords Language teacher · English language · Teacher education · Challenges · Professional standards

Introduction

Since the 1990s, English has slowly not only gained importance but has become the most preferred additional language to learn in Vietnam. For the government,

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English competence is so vital to its young generations in gaining access to scientific knowledge, cutting-edge technologies, and global markets. For parents, most of them regard their children's English competence as an aspirational capital, the key to economic advancement and further education, and are willing to invest considerably in their children' learning English. In response to these emerging demands, English becomes a compulsory subject in the formal education curriculum from the primary to the tertiary level as a government initiative to democratize the possession of English through formal education. However, the quality of English language teaching and learning remains to be much desired both by professionals, parents and policy-makers. Studies conducted in Vietnam indicate that the teaching of the language is fraught with many problems. For instance, after years of learning English, secondary school students do not acquire sufficient competence in English. Students seem to be structurally competent but communicatively incompetent (e.g. Canh, 2007; Canh & Barnard, 2009). As a result, pressure from the mass media on the government to strengthen the teaching of English in schools and to enhance the teacher quality is ever increasing. In 2008, the government decided to reform English language teaching and learning through the initiative, commonly known as the National Foreign Language Education Project under the direct management of the Ministry of Education and Training. The heart of the project is the lifting of teacher English proficiency and their pedagogical competence. Although the project has achieved initial achievements, much still needs to be done to guarantee qualitative improvement in area of teacher education and development. This chapter provides an account of the Vietnamese landscape of English language teacher education (hereafter referred to as E.L.T.E.). The chapter is based on secondary information as well as on what I, as a teacher educator, have observed over the last 20 years.

In the analysis of contemporary Vietnamese English language teacher education, I believe, important historical context cannot be ignored. As Grossman and McDonald (2008, p. 184) have put it, "As we look ahead to the future, it is always helpful to look back as well, remembering the history of our field and how that history influences where we find ourselves today". For this reason, the chapter begins with a look back on the history of Vietnamese education and teacher education before it focuses on the discussion of the current English language teacher practices. The chapter concludes with my recommendations for how E.L.T.E. in Vietnam can cope with the uncertainty of the twenty-first century so as to impact more positively the Vietnamese learners' English language learning.

The Vietnamese Socio-educational Context

As E.L.T.E. is always nested within teacher education more broadly and within the education system generally, this section provides some basic information about the Vietnamese educational environment to help readers understand better why teacher education operates the way it does. Historically, Vietnam was colonized first by the Chinese feudalist dynasties for more than one thousand years, then by the French

for nearly one century. Following its independence in 1945, Vietnam established comprehensive partnership with the former Soviet Union. Because of this history, Vietnamese education was strongly influenced by a mixture of different ideologies: Confucianism, French humanism, and the Soviet model of narrow specialization. Having said that I am aware of the risk of essentializing, and the account here is, hence, not expert. My intention is just to create a macrohistorical backdrop for the discussion of the past, the present, and the imagined future of E.L.T.E. in the country.

The legacy of Confucian education ethics and the influence of Soviet model of education play a more vital role in Vietnamese approaches to education than French influence. They remain powerful even today, in the first decades of the twenty-first century, despite the very recent penetration of European and North American educational ideologies through outsource graduates and cross-border contacts. These can be seen in the way formal schooling is positioned in a social and institutional hierarchy mediated by examination competition, and the purpose of education as transmitting essential knowledge and values to students, rather than helping students learn how to solve problems with the scientific method. Even parents tend to expect teachers to prepare their children for high examination scores (Nguyen & Trent, 2020). High examination scores, in Vietnamese learning culture, are equated with learner competence. Teacher competence tends to be assessed against the students' examination scores. According to Confucian doctrine, the teacher is of a moral guide to students and a source of unlimited wisdom. Unsurprisingly, the unquestioning respect for teachers that is deeply rooted in Confucian philosophy has long been accepted as a dominant moral value embodies a teacher-centred approach to teaching and learning in the country. Accordingly, students learn from the role models and pedagogies their teachers present (Huong & Hall, 2016). Regarding administration, the school principals and educational administrators have a more decisive voice regarding the curriculum implementation and methods of teaching and assessing than the teachers. Despite the rhetoric democracy, teachers are basically voiceless. The blend of the central management via the Ministry of Education and Training as well as the local Departments of Education and Training and the free market has paved the way for the emergence of an "authoritarian mode of liberalism" (Mok, 2009).

The narrow specialization of the Soviet model of education is reflected in the existence of teacher education universities. It is not surprising to come across the name of "university of education", which exists as an independent higher education institution, specializing only in teacher pre-service and in-service education. In these universities of education, student teachers of different subjects are trained in different departments named by their specialized subjects such as Department of Chemistry, Department of Mathematics, and Department of Foreign Languages. There is little professional interaction and communication among these departments. In addition to Departments of Foreign Languages that are situated in different Universities of Education, Vietnam has one state university that specializes in training teachers of different foreign languages. Even in this university, what the department of English language teacher education does is almost unknown to, say, the department of Chinese language teacher education.

In universities of education or departments of education, teachers of all subjects in Vietnam are trained according to the national subject-based curriculum on teacher education. All student teachers have to be certified as having completed a four-year study program in state-authorized higher education institutions and are awarded with the Bachelor's degree in Education in order to enter the teaching profession. School graduates, who choose to become teachers, have to achieve the institutionally required scores in the national entrance examination to be admitted. Having admitted into these institutions, candidates are placed in cohorts in order to take the same courses, in the same sequence, and to complete the training program within the same period of time (4 years). It is widely believed that teachers need to have solid knowledge of the subject they are to teach and the pedagogical content knowledge in order to work effectively in their profession, and these bodies of knowledge are best acquired through formal training. Put differently, teacher education, be it pre-service or in-service, is fundamentally informed by the positivist approach, which is predicated upon the simplistic equation: *Objectives* + *Input* = *Output*. As such, pre-service teachers are considered to be sufficiently competent to embark upon the teaching profession in schools and even in universities once they have been certified as having completed their teacher education program. The following sections discuss specifically how E.L.T.E. is shaped by this ideology.

Looking Back: E.L.T.E. in Vietnam

As Widdowson (2019) argues for the centrality of context in applied linguistics research,

> It is only after analyzing the situated 'real world' issues, and identifying what is locally relevant, does it make sense to decide what kind of disciplinary intervention is relevant for handling them. (p. 48)

Teacher quality has always been one of the spotlights in Vietnamese education landscape, and there have been changes in the field of E.L.T.E. over the last decade. Although those changes are meaningful in many ways, they are not yet sufficiently significant to create a breakthrough towards the desired teacher quality. In this Section, I, therefore, will analyze the practices of E.L.T.E. in Vietnam in an attempt to uncover the related "real-world issues". I agree with what is quoted above from Widdowson's (2019) work that unless the core issues are identified, remedies are unlikely to be effective. For this purpose, the section focuses on an analysis of the teacher education curriculum and practices and continuing professional development of teachers before discusses the issues that emerge from the analysis. The analysis focuses on teacher education (i.e. pre-service training) and teacher development (i.e. continuing professional development) separately.

Teacher Education

English language teachers, like teachers of any school subject, are trained in state-run higher education institutions. Admitted in these teacher training programs are high school graduates who achieve the required scores in the national school-graduation examinations. However, the recent socio-economic changes in the country have discouraged school graduates to apply for teacher training institutions because of teachers' low salaries, limited opportunity for advancement, particularly corruption in employment and the top-down, bureaucratic administration system. In other words, teacher education universities are no longer able to attract the brightest school graduates to join the training programs as they used to be. Instead, they are forced to admit candidates with unsatisfactory academic results (Nguyen & Trent, 2020).

The dominant model of teacher training in Vietnam is the applied science model (Wallace, 1991), according to which student teachers are trained in knowledge derived from Western scientific research. Both curriculum and delivery are informed by "the assumption that they [teacher education providers] must provide teachers with a codified body of knowledge about language learning and language teaching […] compartmentalized in separate course offerings […] transmitted through passive instructional strategies, […] and generally disconnected from the authentic activity of teaching in actual schools and classrooms" (Freeman & Johnson, 1998, p. 402). Such an assumption is premised on the naive, simple view that teaching occurs in a vacuum, unaffected by contextual factors.

The national four-year curriculum, albeit minor variations in terms of content from institution to institution, is predicated upon what Freeman (2016) describes as prescriptive understandings of what is thought teachers should know and be able to do and how they should go about learning this. It is grounded in the process–product paradigm, and informed by "implicit assumptions of teacher-as-technician—one in need of skills and methodologies that would then enable students' language acquisition to just unfold" (Freeman & Johnson, 1998; Wallace, 1991). Because candidates in university-based teacher education programs are high school graduates, the key element in the course structure of the curriculum is the focus on English proficiency together with coursework in academic domains such as psychology, assessment, curriculum design, teaching methods, intercultural communication, and so on. The curriculum is based on the simplistic assumption that pre-service teachers will transfer the knowledge they have acquired at university in the school context without much questioning or adaptation.

In 2014, the *English Teacher Competency Framework* (E.T.C.F.) was issued by the Ministry of Education and Training (M.O.E.T.) as a blueprint for both pre-service and in-service E.L.T.E. The framework, which is an adaptation of the model by Bransford et al. (2005) for teachers in America, composes five domains: (i) knowledge of language, language learning, and curricular content; (ii) knowledge of language teaching; (iii) knowledge of language learners; (iv)professional attitudes and values in language teaching; and (v) practice and content of language

teaching. The E.T.C.F. motivates the revision of E.L.T.E. curriculum towards a competency-based orientation.

The revised ELTE curriculum informed by the E.T.C.F. requires that student teachers be expected to acquire the foundational knowledge (41 credits) including Marxist philosophy, computer skills, Vietnamese culture, etc.), content knowledge (English grammar, lexis, phonology, English proficiency, English-speaking country studies and literature, etc., accounting for 57 credits), and content pedagogical knowledge (38 credits) including psychology, language teaching methods, assessment and testing, practicum, etc.) to be qualified for teaching (Vu & Dudzik, 2020). Regarding English proficiency, all student teachers are expected to achieve level C1 on the Common European Framework of Reference or C.E.F.R. for short at the exit point (Nguyen, 2013). This is measured by the locally developed test called Vietnam standardized test of English proficiency (V.S.T.E.P.). However, an analysis of this revised curriculum showed a major gap between theoretical knowledge and pedagogical knowledge evidenced by limited, decontextualized practice (Vu & Dudzik, 2020). The deficit in contextual knowledge and of situated learning in real settings (Canh, 2014) constitutes one of the obvious weaknesses of the current pre-service teacher education curriculum. Although there is the practicum, it is too short (Nguyen, 2013) with only six weeks of professional placement throughout the four years of study, poorly monitored (Canh, 2014; Vo et al., 2018) due to poor university–school collaboration (Nguyen, 2015). Student teachers are simply sent to schools, placed in the classrooms as observers, and assigned to teach few lessons as guided by the cooperating teachers. There are no supervisors from the home university. Canh's (2014) qualitative case study showed that while the practicum involved supervised teaching and classroom observation in an attempt to familiarize the student teachers with a particular context (Gebhard, 2009), all these activities were undertaken in a superficial manner. There was almost no professional discussion between the school-based cooperating teacher, who played the role of a supervisor, and the student teachers. Student teachers tended to follow obediently the cooperating teacher's instructional strategies for positive assessment, rather than being provided with an opportunity to "come to know their knowledge, how they use that knowledge within the contexts where they teach" (Johnson & Golomkek, 2002, p. 2) so as "to 'construct' identities in social communities of schools" (Freeman, 1994, p. 15). These limitations in the way the practicum was organized contribute to "the fact that student teachers have limited opportunity to develop their contextual knowledge or an understanding of the realities of teaching in schools" (Nguyen, 2013, p. 46). To address these problems, the Ministry of Education and Training is working on a plan to move the practicum to online, but it is not clear how it will be organized to empower student teachers to understand their teaching and use that understanding to explore and adapt their teaching as well as their beliefs about language teaching and learning. This issue is vital particularly when online pedagogy is almost non-existent in Vietnamese educational landscape.

The current curriculum reflects the leading philosophy of Vietnamese language teacher education that the acquisition of standardized knowledge, decontextualized technical pedagogy, and a high level of proficiency makes effective English

language teachers. It seems that most of Vietnamese teacher education policymakers and teacher educators mythically believe that knowledge about language and about teaching automatically implies effective teaching skills. Consequently, when that knowledge is translated into pedagogical practices, several problems, for example a lack of pedagogical diversity and flexibility, are most pronounced (Nguyen & Trent, 2020). I talked with the Chair of the biggest Department of E.L.T.E. and asked if there was one thing he could do about the curriculum, he said, "If there is one big thing I could do to shake up the whole curriculum, I would do that" (Department Chair—personal communication).

Teacher Development

The greatest barrier to continuing professional development of English language teachers in Vietnam is the lack of favourable social conditions for teacher learning. Teachers, be they novice or experienced, receive little or no support, mentoring and supervision and suffer the feeling of isolation (Grassick, 2020). Every school in Vietnam is an isolated island which in inaccessible to the outsiders. Teachers working in different schools can hardly have any opportunity to share their experience or to seek advice from colleagues for the problems they personally encounter in their teaching, let alone reading research papers to get new ideas for teaching their students (Canh, 2002). Worse still, they feel overloaded with a heavy teaching schedule and paper work. Most of them are unmotivated to develop themselves professionally because there are neither incentives nor affordances for their attempts to restructure their teaching practices. As Canh (2020) reported in his study,

> After graduation, they [teachers] have to work in isolation with minimum support for professional development from the education system. Teachers often find themselves having to cope with large classes of unmotivated students in poorly equipped schools. They also have to experience high stress, anxiety, and frustration to produce high rates of passes at the standardized examinations while their monthly salaries are minimal. Unsurprisingly, their motivation towards professional growth is low. (p. 74)

Because of the aforementioned contextual factors, teacher development or continuing professional development of English language teachers in Vietnam is limited to the attendance at centrally organized mandatory in-service courses, which are delivered annually during the summer vacation (usually in July). These courses are framed in deficit terms as challenges to be overcome through better training. All these in-service courses are designed and delivered by university lecturers with two principal foci: enhancing in-service teachers' English proficiency and upgrading their teaching skills. Regarding English proficiency, this is a general concern, and it seems that effective solutions remain ahead. Although all teachers were certified as having achieved the mandated level of English proficiency before entering the teaching profession, maintaining their proficiency is really challenging due to multiple factors. Sadly, the decline of their English proficiency is proportional to their teaching experience (Canh, 2002). Dudzik and Nguyen (2015) reported on the results of 2013 tests in

which 83% of teachers at primary level were ranked below the B1 level and 87% of those at secondary level were below the B2 level on the C.E.F.R. framework. Although these rates decreased dramatically in the following years as effected by intensive in-service training and teachers' motivation to pass the test, Le et al. (2017) showed skepticism that "even though teachers may achieve the mandated proficiency level, one may question whether the measures of these teachers' language proficiency are reliable, or more importantly, whether these teachers can effectively use English for teaching purposes" (p. 26).

The second goal of mandatory in-service training is to update teachers' instructional skills. The curriculum for these training courses is developed by a commissioned university and approved by the Ministry of Education and Training as the national curriculum. Once approved, the curriculum is delivered by university lecturers from a variety of different universities, most of whom have limited knowledge of the classroom contexts in which participant teachers work (Canh, 2020; Grassick, 2020). As the delivery is not monitored, the quality is a question.

Usually, the in-service course was intensive, occurring between one day to one week with the number of participants ranging from 50 to 200. During the course, teacher educators tended to provide the information about the teaching methodology underlying the new curriculum and the textbook. The problem is that in language proficiency enhancement courses, participant teachers were trained chiefly in test-taking strategies in the hope that these strategies would help them to achieve the required score to be certified as "qualified teachers" (*giáo viên đạt chuẩn*). Due to the great variation in teachers' current level of proficiency, the one-size-fits-all approach to both the content and the pedagogy made the course not as effective as it was intended to be. Nguyen (2018) argued that the highly structured top-down mode of delivery challenged the pertinence and effectiveness of these programs as this mode of delivery viewed teachers as conduits for the implementation of the new curriculum. Up to the time this chapter was written, there had been only one large-scale empirical study (Canh, 2020) on mandatory in-service training. The study adopted a grounded theory approach using two methods of data collection: focus group interviews and non-participant classroom observation. The findings showed that while teachers acknowledged the training helped them to learn new teaching techniques, many are frustrated since they cannot use the new curriculum materials and content knowledge after attending the in-service courses to improve students' learning. Unfortunately, it is common for teachers to find themselves teaching in the same way they always did because of the absence of follow-up support (Canh, 2020). This frustration may lead to teachers developing a cynical view towards new initiatives and not being agentive in further professional development. Studies showed that there were teachers who were enthusiastic about restructuring their instructional practices, but they tended to feel frustrated because of the lack of either professional support or "a space" for their creativity (Nguyen, 2017; Nguyen & Bui, 2016; Phuong & Nhu, 2015).

During December of 2020 and January of 2012, I observed a great number ($n = 84$) of high school teachers at their schools. All are based in one of the biggest

cities of Vietnam. What I noticed is most of them just used some classroom techniques introduced to them in the in-service training courses without understanding the pedagogical purpose of those techniques or whether they helped learners to learn anything at all. The post-observation discussion I had with them revealed that they, during the in-service course, were not exposed to the reasoning behind activities and procedures. Unquestionably, they had limited alternative courses of action to consider during decision-making. Neither were they adequately equipped to identify and deal with learning opportunities as well as learners' language issues that emerged while the lesson was going on. What teachers actually did was teaching the book and the language, rather than the students, taking it for granted that all students learned in a homogeneous way, and that they all followed the same learning trajectories despite these teachers' lip-service of learner-centeredness. This is the evidence of the limitations of the approaches to both pre-service and in-service training, which overemphasize the "how" of teaching and the acquisition of certain teaching techniques that are in vogue in the community discourse at the expense of critical inquiries into the justification behind those techniques and mindful exploration of different ways of teaching and different theories. In other words, both teachers are "deprived of a sufficient knowledge base and without being adequately inculcated into any form of culture of inquiry" (Chick, 2016, p. 163). Evidently, a positivist approach to teacher education fails to expose teachers, either pre-service or in-service, to reasoning behind activities and instructional procedures and to provide them alternative courses of action to consider during decision-making. These findings lend further support to what Nguyen (2013) found in her E.L.T.E. curriculum analysis.

Lately, the Ministry of Education and Training has decided to apply a blended approach to teacher in-service training, according to which participant teachers will be provided with reading materials for self-study for five days, then they will have three-day face-to-face training with the university lecturers before they spend other seven days working independently at home to complete the assignment (Ministry of Education and Training Official–personal communication). While it is premature to examine the effectiveness of this innovation because the plan has just issued, it is possible to say that the innovation is not based on the current understanding of the nature of teacher learning. According to Avalos (2011), teacher professional development is "a complex process, which requires cognitive and emotional involvement of teachers individually and collectively" (p. 10) in educational and political contexts that are not always conducive for learning. The blended approach, as described by the Ministry official above, is in fact grounded in the reductionist ideology. It is neither context-sensitive nor teacher-sensitive. What's more, it appears that the emotions teachers experience, which are the heart of learning, during the in-service training course are never considered. Hence, nothing can guarantee that this "innovative" approach will help teachers to make sense of the provisional knowledge codified in the assigned reading materials through the lens of their experiential knowledge for the purpose of reconstructing their practices. Anyway, this new policy further justifies that the concept of teacher development is understood in a limited sense by Vietnamese policymakers. Teachers are viewed as recipients of knowledge presented

by the experts in the fields, rather than as generators of change through increasing or shifting awareness.

Despite its inherent limitations, in-service programs, if appropriately designed and delivered, can offer teachers opportunities to broaden their professional knowledge, skills and attitudes. Three main interrelated aspects of an effective in-service programs that need to be considered from a sound theoretical perspective and insights of local opportunities and constraints are: design, delivery, and follow-up (Canh, 2020). A one-size-fits-all, top-down model does not reflect the Vietnamese diverse teaching realities and individual teachers' unique needs (Giraldo, 2014).

Issues to Be Addressed

Two big issues that emerge from the analysis of E.L.T.E. in Vietnam are (ii) lack of theoretically-informed E.L.T.E. pedagogy and (ii) lack of motivating social conditions for professional development. Below is a detailed discussion of these issues.

(i) *Lack of theoretically informed E.L.T.E. pedagogy.*

Vietnam always pay great attention to the enhancement of teacher quality, which is considered to be the mainstay of educational quality and the success of any educational innovation or reform. The government funding for teacher education is substantial given the country's gross domestic product (G.D.P.). However, much of the attention is paid to curriculum development or curriculum revision with an exclusive focus on the content and activities of teaching, leaving E.L.T.E. pedagogy unnoticed. I myself do not see the current E.L.T.E. curriculum as being seriously problematic because student teachers need to possess explicit and systematic knowledge of language, language learning, and language teaching as well as other foundational knowledge as the first step on their pathway to become effective teachers. This type of knowledge, albeit its importance, can be acquired or accumulated by teachers themselves through independent learning with the help of digital technologies once teachers are emotionally-driven. If intervention is needed, it is the policy that engages teachers in lifelong learning. Lawes (2003, p. 27) argues that "If language teachers do not even begin to have some understanding of educational and applied subject theory, they will be mere technicians and feel themselves to be such".

What, in my view, really matters is the pedagogy, not the curriculum. If the transmission model is still dominant, the failure of teacher education in influencing prospective teachers' classroom performance and long-term professional growth cannot be remedied since the process of converting "knowing into doing" is not automatic (Freeman, 1994, p. 5). Teaching competence, be it conventional, face-to-face, virtual, online, or blended, can by no means be developed through the mere acquisition of a set of particular declarative knowledge, behaviours, or techniques that teachers need to adopt or display.

Johnson and Golombek (2020) call for the urgency of including E.L.T.E. pedagogy in the framework for the knowledge base of E.L.T.E. For them E.L.T.E. pedagogy means "what teacher educators do and say in their activities and interactions and the reasoning behind those activities and interactions" (p. 117). The authors argue that "greater attention to the design, enactment, and consequences of LTE [language teacher education] pedagogy is critical in order to meet the needs of current and future English language teachers in an increasingly diverse, mobile, unequal, and globalized world" (p. 117). E.L.T.E. pedagogy is thus about teacher educators. As Farrell (2019, p. 10) suggests, E.L.T.E. educators "must become more familiar with the world of "real" second language classrooms so that they will be able to notice that there is a mismatch between the contents of their teacher education programs and the lived experiences of the learner teachers in their courses. This means that language teacher educators must maintain some kind of contact with their NQTs [newly qualified teachers] after they have graduated". Johnson and Golombek (2020, p. 119) propose eight interrelated propositions that constitute E.L.T.E. pedagogy. These are:

1. "be located (situated in a specific geopolitical, socio political, cultural, historical and institutional context);
2. recognize who the teacher is and who the teacher wishes to become;
3. be intentional and goal-directed: these intentions and goals must be made explicit;
4. create opportunities to externalize everyday concepts while internalizing relevant academic concepts through authentic, goal-directed activities of teaching;
5. contain structured mediational spaces where teachers are encouraged to play/step into being and becoming a teacher;
6. involve expert mediation that is responsive to teachers' immediate and future needs;
7. have a self-inquiry dimension, involving teacher educators and teachers working together or by themselves, in which they seek to trace teacher professional development as it unfolds over time and place;
8. demonstrate a relationship of influence between teacher professional development (due to LTE pedagogies) and student learning".

I believe that these propositions are helpful to the Vietnamese stakeholders in developing a contextually appropriate E.L.T.E. pedagogy, which is badly needed for Vietnam. Operationalizing these propositions in the E.L.T.E. curriculum and teacher policies can help Vietnam to bridge the gap between pre-service and in-service education and development, thereby enhancing teachers' competencies.

(ii) *Lack of motivating social conditions for professional development*

Learning to teach is a lifelong process, and teachers are always in the stage of *becoming,* rather than *being*. In other words, teacher education and development need to go beyond the pre-service training to include continuous and regular professional development of in-service teachers in located diverse activities. As Tsui (2003) has pointed out,

> [T]he development of expertise in teaching is a continuous and dynamic process in which knowledge and competence develop in previous stages and form the basis for further development. It is also a process in which highly competent teachers constantly set new goals for themselves and accept new challenges. In the process of teaching those goals and meeting these challenges, the gain new insights. It is in the process of constantly gaining new competence that expertise is developed. (p. 7)

What is problematic in E.L.T.E. in Vietnam is the discontinuity between pre-service training and in-service professional development. While, as presented above, there are different in-service professional development programs for English language teachers in Vietnam, these are fragmented, disconnected, and not built upon teachers' lived experience, their stages of development as well as their professional development trajectories. To make the situation worse, the lack of university–school partnership, incentives and opportunities for teachers to reexamine their own practice, and the heavy teaching load create great barriers for teachers' conceptual change.

Framed in Vygotskian sociocultural theory (Vygotsky, 1978), teacher education and development is about "creating the 'social conditions for the development' of L2 [second language] teacher/teaching expertise. It is about engaging in dialogic interactions that assist teachers as they transform knowledge, dispositions, skills, and abilities "in itself, for themselves". It is about exposing teachers to psychological tools that "point the road toward" more theoretically and pedagogically sound instructional practices and greater levels of professional expertise" (Johnson & Golombek, 2016, p. 164).These social conditions or "space" for teachers to move from experiencing various pedagogical approaches and learning to adapt their teaching to their teaching context as well as adapt them to their own teaching (Wright, 2010) are essential to teachers' conceptual change. The issue is more critical in the post-method condition (Kumaravadivelu, 1994, 2006) which foregrounds "[teachers'] flexibility, adaptability, and contextual awareness" (Murray, 2009, p. 17) to see teaching as contextually situated and socially constituted.

From a sociocultural perspective, human learning is defined "as a dynamic social activity that is situated in physical and social contexts and is distributed across persons, tools, and activities" (Johnson, 2009, p. 1). Given the contemporary context of Vietnamese schools, which is characterized as the limited interaction and collaboration among teachers from different schools, limited partnership between universities and schools, limited resources, and the geographical diversities, what Vietnam needs is a school-based system that effectively assists teacher development. The system should include administrator support for professional learning, collaborative, job-embedded feedback cycles, etc. The system should function as the provider of affordances for teachers to try on new instructional practices, to participate in normalized ongoing discussion groups, and to access continuous support and follow-up activities.

Looking Forward

Although nobody can anticipate accurately what the future will be like, we know for certain that driving forces of the twenty-first-century societies such as multiliteracies, lifelong learning, open education resources, and new generations of learners who are digital natives, and neoliberal entrepreneurship, will pose unprecedented challenges on E.L.T.E. teacher education and development. These challenges are universal, but the approach to addressing them should be located. Put another way, the answer to the thorny question of how teacher education and development can best prepare pre-service and in-service teachers to navigate with confidence through a world that is increasingly complex, increasingly volatile, and increasingly uncertain can only be found as a result of informed consideration of the specific sociohistorical, sociocultural, socioeducational, and socioeconomic contexts (Johnson, 2006).

Drawing on my experience and understanding as a teacher educator and teacher education researcher working with both pre-service and in-service English language teachers in Vietnamese diverse educational contexts, I am convinced that empowering teachers is the key to educational quality. Of course, teacher empowerment should be approached in a culturally relevant manner, rather than be understood as how it is presented in western educational discourses. To be more specific, the formidable challenge to E.L.T.E. in Vietnam in the future is how to broaden learning opportunities for teachers so that they are both "pushed" and motivated to become engaged in professional lifelong learning in an attempt to align with the complexities and peculiarities of today's world with engaging epistemic activity to produce knowledge. A good balance between top-down, nation-wide approaches and bottom-up, school-specific approaches can be a good solution in Vietnamese socioeducational and sociopolitical context.

Musset (2010, p. 3) reminds us that teaching "is a complex and demanding intellectual work, one that cannot be accomplished without adequate preparation". Nguyen (2019, p. 1) claims that "In the age of neoliberalism, it is essential for English language teacher education to prepare preservice teachers for working in dynamic and diverse contexts and to recognize the personal diversities that they bring to teacher education and shape their professional learning". However, there are two inherent drawbacks in any university-based E.L.T.E. teacher preparation programs. The first is the time frame, which cannot be extended to more than four years. During this four-year period, the top priority goes to student teachers' English proficiency, which is level C1 on the C.E.F.R. scale. In addition, student teachers have to study to possess knowledge of many other academic courses during the training period. The other drawback is the decontextualized body of declarative knowledge provided in the curriculum. These two drawbacks make the issue of theory–practice divide pertinent. The practicum, even when innovated, cannot help to significantly narrow the gap given the complex realities of teaching. While reflective practice (e.g. Farrell, 2007) has been recommended as a solution (Farrell, 2007), effective reflective practice is dependent on the teachers' skills and experience as well as on their identity and agency (Akbari, 2007; Canh, 2017), but both identity and agency are relational.

Most of the research reported in the literature on reflective practice consists of case studies or implementation of reflection in the teacher training contexts. I do not mean that case studies are invalid; rather I believe case study is a valuable educational research approach. What I want to highlight is that case studies, no matter how well-designed they might be, are context-specific, and the transfer of their findings to other contexts needs to be done with great care. This is because teachers do not work in a vacuum. Where teachers have to teach to the test, where they have to follow the prescribed textbook, where they have limited autonomy, and where collectively distributed practices are the norm, reflection may be of limited impact.

A socially situated view of knowledge (Lave & Wenger, 1991) argues that "the processes of learning are negotiated with people in what they do, through experiences in the social practices associated with particular activities". According to Johnson and Freeman (2001) "when viewed from a socially-situated perspective, we see becoming a language teacher as a complex, socially constructed, developmental process in which formal professional education plays only one small part". So, the solution, at least for Vietnam, is to make pre-service teacher education and in-service teacher development interconnected in order to achieve a continuity that supports individual teachers' trajectories of professional growth. Becoming an effective teacher is a complex and continuous process stretching from pre-service experiences to the end of teachers' professional life. The coherent continuity from teacher education to development can facilitate teachers' continuous reconstruction of the declarative knowledge they have gained from teacher education, thereby generating contextually appropriate pedagogies using and their understandings of the local classroom contexts, their students, and themselves. More than two decades ago, Pennycook (2004) noted that "Learning to teach is not just about learning a body of knowledge and techniques; it is also about learning to work in a complex sociopolitical and cultural political space … and negotiating ways of doing this with our past histories, fears, and desires; our own knowledge and cultures; our students' wishes and preferences; and the institutional constraints and collaborations" (p. 333). The second type of learning is experiential and embodied. Therefore, motivating social conditions or affordances for the continuing professional development of teachers play a decisive role in achieving the desired educational quality.

Few scholars and researchers in the field of language teacher education are skeptical of the fact that learning to teach is a complex and long-term process. This means that the traditional approaches to teacher education that rely on knowledge transmission are no longer sufficient. As Johnson and Golombek (2016, p. 11) explain,

> a persistent challenge for language teacher education is to create learning/teaching opportunities that foster the development of L2 [second language] teacher pedagogical content knowledge. What makes this challenge so persistent is that …because it is emergent, dynamic, and contingent on teachers' knowledge of particular students, in particular contexts, who are learning particular content, for particular purposes, it cannot be acquired in one context and then simply applied to another.

As teacher development is relational, dynamic, emergent, and multifaceted, I would argue that success in teacher education and development in Vietnam, and

perhaps elsewhere, is about the complex dynamic assemblage of teacher agency, teacher identity, teacher emotion, and teacher well-being created within the "systems" relationship between individual teachers and the context in which they are situated. Towards that goal, E.L.T.E. should be informed by a more powerful theoretical framework, which I think of complexity theory (Larsen-Freeman, 2013). The term *complexity* describes a situation where several independent variables come together and interact in ways that are neither random nor very predictable (Larsen-Freeman & Cameron, 2008). Complexity theory is a theory of learning systems that provides a framework for understanding networked systems in teacher education and development. Thus, it provides a holistic view of teacher learning. Scholars have argued for complexity theory's usefulness as a framework to understand and describe how teacher education and development functions as a complex system (see Cochran-Smith, et al., 2014).

Conclusion

This chapter provides an account of E.L.T.E. in Vietnam, how it has been practiced and what major challenges it encounters. Although the chapter is situated in Vietnam, I believe much of what is discussed in the chapter is similar to other contexts. The question of how E.L.T.E. is to change itself to accommodate the needs of current and future English language teachers in an increasingly diverse, mobile, digitalized, technology-mediated, uncertain, unequal, and globalized world is global, but there will never be the global answer. Each country needs to develop her own strategies to address the question taking into consideration her historical, cultural, sociopolitical, socioeconomic, and geopolitical context.

My position in this chapter is teachers in Vietnam need to be empowered within a motivating socioeductional ecology in which they can access professional opportunities, incentives and support for engaging in autonomous practice with appropriate epistemology, pedagogic, and content knowledge.

References

Akbari, R. (2007). Reflections on reflection: A critical appraisal of reflective practices in L2 teacher education. *System, 35*(2), 192–207.

Avalos, B. (2011). Teacher professional development in Teaching and Teacher Education over ten years. *Teaching and Teacher Education, 27,* 10–20.

Bransford, J., Darling-Hammond, L., & LePage. (2005). *Preparing teachers for a changing world: what teachers should learn and be able to do.* San Francisco: Jossey-Bass, (pp. 1–39).

Canh, L. V. (2002, November). Sustainable professional development of EFL teachers in Vietnam. *Teachers' Edition*, 32–37.

Canh, L. V. (2007). A historical review of English language education in Vietnam. In Y. H. Choi & B. Spolsky (Eds.), *English education in Asia: History and policies* (pp. 167–179). Asia TEFL.

Canh, L. V. (2014). Great expectations: The TESOL practicum as a professional learning experience. *TESOL Journal, 5*(2), 199–224.

Canh, L. V. (2017). Reflection on action: Lesson transcript. In R. Barnard & J. Ryan (Eds.), *Reflective practice: Voices from the field* (pp. 128–139). Routledge.

Canh, L. V. (2020).Exploring teacher learning in mandatory in-service training courses: Challenges ahead. In L. V. Canh, H. T. M. Nguyen, N. T. T. Minh, & R. Barnard (Eds.), *Building teacher capacity in English language teaching in Vietnam: Research, Policy and Practice* (pp. 62–79). Routledge.

Canh, L. V., & Barnard, R. (2009). Teaching grammar: A survey of teachers' attitudes in Vietnam. *The Journal of Asia TEFL, 6*(3), 245–273.

Chick, M. (2016). Dialogic interaction and the mediation of learning during pre-service teacher education. In G. Pickering & P. Gunashekar (Eds.), *Ensuring quality in English language teacher education* (pp. 162–168). British Council.

Cochran-Smith, M., Ell, F., Ludlow, L., Grudnoff, L., & Aitken, G. (2014, May). The challenge and promise of complexity theory for teacher education research. *Teachers College Record, 116*, 050302, 38 p.

Dudzik, D. L., & Nguyen, Q. T. N. (2015). Building English competency in preparation for ASEAN 2015. In R. Stroupe & K. Kimura (Eds.), *Asian integration and the role of English language teaching* (pp. 41–71). Language Education in Asia (LEiA) and CamTESOL.

Farrell, T. S. C. (2007). *Reflective language teaching: From research to practice*. Continuum Press.

Farrell, T. S. C. (2019). 'My training has failed me': Inconvenient truths about second language teacher education (E.L.T.E.).*TESL-EL, 22*(4), 1–16.

Freeman, D. (1994). Knowing into doing: Teacher education and the problem of transfer. In D. Li, D. Mahoney, & J. C. Richards (Eds.), *Exploring second language teacher development* (pp. 1–20). City Polytechnic of Hong Kong.

Freeman, D. (2016). *Educating second language teachers*. Oxford University Press.

Freeman, D., & Johnson, K. E. (1998). Reconceptualizing the knowledge-based of language teacher education. *TESOL Quarterly, 32*(3), 397–417.

Gebhard, J. G. (2009). The practicum. In A. Burns & J. C. Richards (Eds.), *The Cambridge guide to second language teacher education* (pp. 250–258). Cambridge University Press.

Giraldo, F. (2014). The impact of a professional development program on English language teachers' classroom performance. *PROFILE Issues in Teachers' Professional Development,16* (1), 63–76.

Grassick, L. (2020). Risk, uncertainty, and vulnerability: Primary teachers' emotional experiences of English language policy implementation. In L. V. Canh, H. T. M. Nguyen, N. T. T. Minh, & R. Barnard (Eds.), *Building teacher capacity in English language teaching in Vietnam: Research, Policy and Practice* (pp. 44–61).

Grossman, P. R., & McDonald, M. (2008). Back to the future: Directions for research in teaching and teacher education. *American Educational Research Journal 45*(1), 184–25.

Huong, H. N. T. M., & Hall, C. (2016). Changing views of teachers and teaching in Vietnam. *Teaching Education*. https://doi.org/10.1080/10476210.2016.1252742

Johnson, K. E. (2006). The sociocultural turn and its challenges for second language teacher education. *TESOL Quarterly, 40*(1), 235–257.

Johnson, K. E. (2009). *Second language teacher education: A sociocultural perspective*. Routledge.

Johnson, K. E., & Freeman, D. (2001). Teacher learning in second language teacher education: A socially-situated perspective. *Review Brasileira De Lingüística Aplicada, 1*(1), 53–69.

Johnson, K. E., & Golombek, P. R. (Eds.). (2002). *Narrative inquiry as professional development*. Cambridge University Press.

Johnson, K. E., & Golombek, P. R. (2016). *Mindful L2 teacher education: A sociocultural perspective on cultivating teachers' professional development*. Routledge.

Johnson, K. E., & Golombek, P. R. (2020). Informing and transforming language teacher education pedagogy. *Language Teaching Research, 24*(1), 116–127.

Kumaravadivelu, B. (1994). The postmethod condition: (E)merging strategies for second/foreign language teaching. *TESOL Quarterly, 28*(1), 27–48.

Kumaravadivelu, B. (2006). *Understanding language teaching: From method to postmethod*. Lawrence Erlbaum Associates Inc.

Larsen-Freeman, D. (2013). Complexity theory: A new way to think. *Revista Brasileira De Linguistica Aplicada, 13*, 369–373.

Larsen-Freeman, D., & Cameron, L. (2008). *Complex systems and applied linguistics*. Oxford University Press.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press.

Lawes, S. (2003). What, when, how and why? Theory and foreign language teaching. *Language Learning Journal, Special Edition, 28*, 22–28.

Le, D. M., Nguyen, H. T. M., & Burns, A. (2017). Teacher language proficiency and reform of English language education in Vietnam, 2008–2020. In D. Freeman & L. L. Dréan (Eds.), *Developing classroom English competence: Learning from the Vietnam experience* (pp. 19–33). IDP Education (Cambodia) Ltd.

Mok, K.-H. (2009). *When neo-liberalism colonizes higher education in Asia: Bringing the "public" back into the contemporary university*. Unpublished paper. Centre for East Asian Studies, University of Hong Kong, Hong Kong.

Murray, J. (2009). Teacher competencies in the post-method landscape: The limits of competency-based training in TESOL teacher education. *Prospect: An Australian Journal of TESOL, 24*(1), 17–29.

Musset, P. (2010). Initial teacher education and continuing training policies in a comparative perspective: Current practices in O.E.C.D. countries and a literature review on potential effects. *O.E.C.D. Education Working Papers, 48*. O.E.C.D. Publishing.

Nguyen, C. D., & Trent, J. (2020). Community perceptions as a source of knowledge for transforming teaching and teacher education in Vietnam. *Journal of Education for Teaching*. https://doi.org/10.1080/02607476.2020.1733401

Nguyen, D. C. (2017). Creating spaces for constructing practice and identity: Innovations of teachers of English language to young learners in Vietnam. *Research Papers in Education, 32*(1), 56–70.

Nguyen, H. P. C. (2015). EFL teaching practicums in Vietnam: The vexed partnership between universities and schools. *Electronic Journal of Foreign Language Teaching, 12*(2), 169–182.

Nguyen, M. H. (2013). The curriculum for English language teacher education in Australian and Vietnamese universities. *Australian Journal of Teacher Education, 38*(11), 33–53.

Nguyen, T. M. H. (2019). *English language teacher Education: A sociocultural perspective on preservice teachers' learning in the professional experience*. Springer.

Nguyen, T. M. H., & Bui, T. (2016). Teachers' agency and the enactment of educational reform in Vietnam. *Current Issues in Language Planning, 17*(1), 88–105.

Nguyen, V. T. (2018). Project 2020 and professional development for high school EFL teachers in Vietnam. In K. Hashimoto & V. T. Nguyen (Eds.), *Professional development of English language teachers in Asia: Lessons from Japan and Vietnam* (pp. 95–108). Routledge & Singapore Association for Applied Linguistics.

Pennycook, A. (2004). Critical moments in a TESOL praxicum. In B. Norton & K. Toohey (Eds.), *Critical pedagogies and language learning* (pp. 327–345). Cambridge University Press.

Phuong. L. N. T., & Nhu, T. P. (2015). Innovation in English Language Education in Vietnam for ASEAN 2015 Integration: Current Issues, Challenges, Opportunities, Investments, and Solutions. In R. Stroupe & K. Kimura (Eds.), *ASEAN integration and the role of English language teaching* (pp. 104–120). IELTS.

Tsui, A. B. M. (2003). *Understanding expertise in teaching: Case studies of E.S.L. teachers*. Cambridge University Press.

Vo, T. K. A., Pang, V., & Wah, L. K. (2018). Teaching practicum of an English teacher education program in Vietnam: From expectations to reality. *Journal of Nusantara Studies, 3*(2), 32–40.

Vu, H. H., & Dudzik, D. L. (2020). Problematizing pre-service English language teacher education curriculum. In L. V. Canh, H. T. M. Nguyen, Minh, N. T. T., & R. Barnard (Eds.), *Building teacher*

capacity in English language teaching in Vietnam: Research, policy and practice (pp. 23–43). Routledge.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes.* Harvard University Press.

Wallace, M. J. (1991). *Training foreign language teachers: A reflective approach.* Cambridge University Press.

Widdowson, H. G. (2019). Disciplinarity and disparity in applied linguistics. In C. Wright, L. Harvey, & J. Simpson (Eds.), *Voices and practices in applied linguistics: Diversifying a discipline* (pp. 33–49). White Rose University Press.

Wright, T. (2010). Second language teacher education: Review of recent research on practice. *Language Teaching, 43*(3), 259–296.

Chapter 18
Pre-service Primary Teachers' Perceptions of a Primary Education Program and an English Language Teaching Practicum: A Macau Case Study

Barry Lee Reynolds, Chen Ding, and Janis Zhiyou Li

Abstract Ensuring the quality of education pre-service English teachers receive is crucial for guaranteeing the effectiveness of the early language learning experiences of their future students. This qualitative case study examined how an English language streamed primary teacher education program and year-long teaching practicum prepared two year-four pre-service teachers to teach English in a local primary school in the Macau SAR. Transcripts of interviews with the two pre-service teachers were subjected to qualitative content analysis to reveal how the education program and the teaching practicum left the participants prepared to teach English in primary schools. The pre-service teachers reported practical and theoretical knowledge acquired from the teacher education program was effective at enhancing their teaching during the practicum to different degrees. In addition, the pre-service teachers were shown to have lacked practical teacher knowledge that could have eased the transition from classroom-based learning to the teaching practicum. This chapter argues that strengthening the link between theory and practice and providing teaching experiences during the teacher education program may ease pre-service teachers' anxiety about the formal teaching practicum while also leading to increased teaching effectiveness.

Keywords Microteaching · Teacher education · English language · Pre-service teachers · Teaching practice · Macau

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Introduction

Stepping into a classroom for the first time has the potential of being a daunting feat for new English teachers. What separates English teachers that anticipate this situation as a new adventure and those that face it with dread is how they have been equipped with proper knowledge in their teacher education programs. Often viewed as the capstone of such programs, the teaching practice provides pre-service English teachers an opportunity to experience what it means to be a teacher: daily contact with English, lesson planning, classroom management, curriculum restraints, interacting with parents and mentors, and, of course, daily interactions with students through teaching (Aimah et al., 2020; Maddamsetti, 2018).

Education programs that produce well-prepared pre-service teachers offer a balance between theory and practice. An issue that is particularly pertinent to English language teachers is proficiency in the target language (Renandya, 2018; Richards, 2017) and the ability of delivering lessons in the target language (Alanazi, 2019). Pre-service teachers should obtain these abilities from both traditional classroom teaching and later practical knowledge obtained through teaching practice in schools. However, many education programs seem unable to offer a transition from classroom learning to the teaching practice. The only solution seems to be the incorporation of microteaching into classroom learning (e.g., Bell, 2007; Legutke & Schocker-v. Ditfurth, 2009; Peker, 2009). However, due to large classes, this is not always a practical option. The more common situation is pre-service teachers begin their teaching practices with trepidation, unprepared for what is to come.

The current study was conducted to investigate the current situation of the English stream in a primary education program at an institution of higher education in the Macau SAR. Born out of a need to better understand the contextual needs of pre-service English teachers in the Macau SAR, this study aimed at investigating how the teacher education program prepared pre-service primary English teachers for their year-long teaching practice and how the teacher education program and the teaching practice prepared these pre-service teachers to become formal primary school English teachers. Insights from this study have the potential of offering suggestions to curriculum planners and policy makers in the Macau SAR to better meet the needs of local pre-service primary English teachers.

Literature Review

Primary English education programs are not common in Asia. Mostly, primary English teachers are graduated either from secondary English education programs or primary education programs which aim to prepare primary teachers for general subject teaching, rather than specialized primary English teaching (Adnyani, 2017). On one hand, this kind of education system does provide the key knowledge necessary for being a future primary English teacher. For instance, they prepare pre-service

teachers with lesson plan writing skills and sufficient English content knowledge to teach primary students (Alanazi, 2019; Hadi, 2019). Moreover, chances of carrying out microteaching and teaching practice are also provided to primary pre-service teachers, allowing them to make a connection between theoretical and practical knowledge (Aimah et al., 2020; Maddamsetti, 2018). On the other hand, due to the lack of specialized knowledge of teaching English to primary students, this kind of education system undoubtedly imposes certain levels of challenges on pre-service primary English teachers. These challenges come from shortcomings inherent in the teacher education programs or the program's inability to mentor pre-service primary English teachers after they have graduated.

Primary teacher education programs do not always properly train pre-service teachers to produce effective lesson plans; some programs limit microteaching opportunities or provide opportunities for microteaching that are artificial. These programs often fail at considering theoretical knowledge in relation to practical applications (Alanazi, 2019; Aimah et al., 2020). Teaching practice is a crucial experience for pre-service teachers to develop a critical awareness about their teaching (Zeichner, 2010). Research has shown that a teacher education program can better prepare pre-service teachers if it maintains a focus on classroom management, interpersonal relationships, and teaching practice mentor relationships (Adnyani, 2017; Maddamsetti, 2018; Uitto et al., 2020). In the sections below, we review relevant literature that discusses these key issues in preparing future primary English teachers, limitations of education programs and teaching practices, and potential solutions researchers have provided for coping with these issues.

Preparing Future Teachers

Researchers have suggested that education programs need to equip pre-service teachers with both theoretical and practical knowledge in order to cultivate professional pre-service teachers (Ozmen, 2012; Rahimi, 2008). Based on our literature review, we found lesson plan writing, English proficiency, microteaching, and teaching practice as four fundamental components of primary English education programs (Alanazi, 2019; Maddamsetti, 2018; Richards, 2017; Yan & He, 2017).

Lesson Planning

Lesson planning refers to a systematic process of deciding what and how students should learn, which also determines the effectiveness of teaching (Alanazi, 2019). Holm and Horn (2003) stated that teachers must pay attention to students' needs while writing lesson plans in order to provide students with effective teaching. Alanazi (2019) stressed the relationship between lesson plan writing and effective teaching, pointing out that innovation and unique thoughts of teachers are needed rather than simply filling in details on a given template. Although template-style lesson planning can save time, it also limits creativity and critical thinking. While pre-service teachers

have acknowledged the significance of lesson planning, they have also reported challenges in writing lesson plans as it requires a sufficient understanding of target students' needs, characteristics, learning levels, among other issues (Alanazi, 2019). Alanazi (2019) suggested pre-service teachers should be given opportunities to get acquainted with potential students to contextualize the process of writing lesson plans. Doing so will allow pre-service teachers to gain an understanding of the potential needs of the targeted students.

English Proficiency

In addition to planning lessons, primary English teachers need to have obtained an English proficiency level that allows them to easily communicate in English and effectively teach using English (Renandya, 2018; Richards, 2017). An inadequate English proficiency has been defined as making an abundance of grammatical errors, marked mispronunciation of targeted words for teaching, a lack of high-frequency vocabulary knowledge, among others (Hadi, 2019). The absence of a developed English proficiency has been attributed to the English as a foreign language (EFL) context that lacks a need for English teachers to use the language outside the classroom (Kachru & Nelson, 2006). Hadi (2019) suggested both teacher educators and pre-service teachers should regularly evaluate and reflect on their efforts in increasing English proficiency; this requires a focus on learning English to a level that enables pre-service teachers to clearly express ideas, communicate smoothly with students, and teach effectively (Renandya, 2018; Richards, 2017).

Microteaching

Courses that train pre-service teachers in writing lesson plans or aim to improve English proficiency can be classified as theoretical-oriented courses. On the other hand, courses that provide pre-service teachers microteaching opportunities, cultivate knowledge about the classroom, increase teaching pedagogy efficiency, and encourage reflection on teaching can be considered as being more practical oriented (Aimah et al., 2020). Microteaching provides pre-service teachers a taste of teaching as it can provide pre-service teachers the opportunity to understand the importance of linking theory and practice (Peker, 2009). Through microteaching, the pre-service teachers begin to form a teacher identity that can prepare them for the teaching practice or even formal teaching (Bell, 2007; Legutke & Schocker-v. Ditfurth, 2009). When pre-service teachers experience microteaching, they not only conduct micro-lessons, but also receive feedback (Legutke & Schocker-v. Ditfurth, 2009). The feedback can be provided by peers and course instructors in both oral and written forms, which catalyzes pre-service teachers' reflection and improvement (Millis, 1991; Metcalf et al., 1996; Vare, 1994; Brent et al., 1996; Benton-Kupper, 2001). Besides engaging in self-reflection, observing peers' microteaching also allows pre-service teachers to develop awareness of tweaking their execution of teaching strategies

(Adnyani, 2017). However, there are some criticisms of microteaching found in the literature, mainly concerned with the artificial nature of microteaching (Bell, 2007). Over-cooperative peers, non-natural classroom settings, and inadequate duration are all considered negative aspects of microteaching (Yan & He, 2017). For example, pre-service teachers may easily assume that their future teaching will be as ideal as they encounter during microteaching, giving the impression that students are always responsive, and that teaching will always occur in large well-equipped classrooms that never encounter disturbances. Yan and He (2017) also pointed out the insufficient time for microteaching which they noted may lead to a failure of execution of a whole lesson. Not providing experience of teaching an entire lesson may lead to incomplete transfer of knowledge or inadequate pedagogical practice. While beneficial in many ways, the limitations of microteaching must be acknowledged.

Teaching Practice

A practical course component of teacher education programs is the teaching practice. Zeichner (2010) proposed that the teaching practice should be considered as a crucial experience of developing knowledge, skills, and critical awareness for pre-service teachers. A good relationship between the pre-service teacher and the mentor is crucial for a successful teaching practice experience (Maddamsetti, 2018; Aimah et al., 2020). Besides monitoring pre-service teachers' performance, mentors are expected to give guidance, provide suggestions, model teaching, and offer feedback to pre-service teachers (Gebhard, 1990). Yet, it is not likely that mentors always consider pre-service teachers as important (Klieger & Oster-Levinz, 2015). Since mentors have their own teaching and administrative duties to consider, it may limit the amount of attention they give to pre-service teachers (Maddamsetti, 2018). Lack of engagement with mentors may limit the benefits of the teaching practice experience for pre-service teachers.

Challenges

After teaching in a formal classroom setting, pre-service teachers often report difficulty in putting theory to practice (Alanazi, 2019; Hadi, 2019). They also report encountering difficulties they did not consider prior to stepping into the classroom such as unexpected classroom emergencies or the need to establish interpersonal relationships (Adnyani, 2017; Uitto et al., 2020).

Discrepancies Between Theory and Practice

There is a discrepancy between theories about technology and actual application of technology in the classroom (Paatsch et al., 2019; Volman, 2005). Theory suggests

information and communication technology (ICT) makes teaching student centered (Volman, 2005), especially for educating young learners (Adnyani, 2017). However, a survey conducted by Paatsch et al. (2019) reported more than two thirds of the 321 primary school teacher participants in Australia never used ICT in their classrooms. While theoretically, particular changes to teaching should result in better learning outcomes, practically, these changes cannot be easily implemented due to a number of restraints placed on teachers.

Classroom Uncertainties

After setting foot into the classroom, it is not long before pre-service teachers encounter the issues of balancing active and passive students, aiming for classroom harmonization, and handling misbehavior (Adnyani, 2017). In Asia, Korean, Japanese, and Taiwanese teachers have reported difficulty in managing student participation and reaching classroom harmonization (Garton, 2014). To lessen the impact of these issues requires providing pre-service teachers with more information about their future students' traits and how to deal with classroom management before formal teaching begins (Adnyani, 2017). In addition to practicing patience with young learners (Bekleyen, 2011), Adnyani (2017) outlined the possible solution of using a reward system to discourage unwanted behaviors. Besides material rewards, praise or instilling responsibilities on well-behaved students can act as encouragement (Adnyani, 2017).

Parent–teacher Relationships

Teachers cannot avoid establishing different types of interpersonal relationships with students, colleagues, principals, and especially parents (Kelchtermans, 2017). Many in-service teachers find it a challenge to get along well with parents (Uitto et al., 2020). In order to overcome the challenge, Uitto et al. (2020) suggested to view the parent–teacher relationship from the aspect of micropolitics which highlights how the power, interests, and influence in schools, to some extent, affect teachers' work. The literature has outlined some micropolitical strategies used by teachers to manage relationships with parents, which include viewing parent–teacher relationships as a technical duty, considering parent–teacher relationships as a trust-building process, and involving other actors in establishing parent–teacher relationships (Uitto et al., 2020). Parent–teacher relationships as a technical duty is defined as the completion of teachers' duties (Uitto et al., 2020) following useful practices founded by schools to encourage communication with parents (Kelchtermans & Ballet, 2002). For example, schools may encourage the use of digital platforms to make communication between schools and parents less time-consuming and more convenient (Uitto et al., 2020). Parent–teacher relationships can be formed through a trust-building process that aims to create interpersonal bonds (Janssen et al., 2012), which is accomplished through the application of several micropolitical strategies such as meeting parents

face-to face, giving them positive feedback of their children, and providing them more information about classroom events (Uitto et al., 2020). Moreover, parent–teacher relationships do not necessarily include parents and teachers only, but also are micropolitically relevant to other actors and relationships like students, colleagues, and principals (Marz & Kelchtermans, 2020). Therefore, when we think about the way to maintain good parent–teacher relationships, we cannot only take parents and teachers' perspectives or interests into account. It is inevitable to encounter micropolitics in schools (Lander, 2001; Uitto et al., 2020) and Uitto et al. (2020) recommended teacher education programs to counter this occurrence by incorporating the teaching of conceptual and theoretical strategies in courses. This has the potential to increase pre-service teachers' understanding about the micropolitical dimension of parent–teacher relationships while helping equip them with micropolitical literacy and techniques for establishing better relationships with parents.

Possible Solutions

In order to overcome the above challenges, researchers have proposed combining and disseminating theoretical and practical knowledge to pre-service teachers while they are enrolled in teacher education programs. Findings suggest that, while deepening primary teachers' knowledge in planning lessons and developing English proficiency, more opportunities to practically apply theoretical knowledge should also be provided (Adnyani, 2017; Paatsch et al., 2019). Adnyani (2017) claimed pre-service teacher reflection is essential as it pushes pre-service teachers to analytically link knowledge and skills to students' learning and growth. Pre-service teachers will be able to gain the ability to cope with future problems that occur during their teaching practice if they can cultivate the habit of reflecting on their teaching performances while still enrolled in teacher education programs. Pre-service teachers can reflect on their own teaching or the teaching of peers and mentors (Aimah et al., 2020; Adnyani, 2017). Amiah et al. (2020) suggested recordings of pre-service teachers' teaching in schools or microteaching in education programs could be used as reference materials for course instructors and pre-service teachers to evaluate, offer feedback, and reflect on (Adnyani, 2017). Thus, even when pre-service teachers are unable to reflect on their own teaching, the observation of peers or a mentor's teaching can still offer opportunities for reflection (Adnyani, 2017). Co-teaching with experienced teachers has also been reported to help new in-service teachers to enhance their teaching skills (Bauler & Kang, 2020). Through such approaches, theoretical knowledge and practical instruction can be combined to build up pre-service teachers' confidence while increasing their preparedness to offer effective teaching (Paatsch et al., 2019).

Study Aims and Research Question

The aim of this study was to illuminate the role that a primary education program in one university in the Macau SAR and its complementary teaching practice played in preparing two pre-service teachers to teach English in a local primary school. Through interpretation of interview data, the study also aimed to evaluate the primary education program and teaching practicum in order to lay groundwork for future studies. This case study was guided with the following research question:

> How did the primary education program and the year-long teaching practice prepare or not prepare the pre-service teachers to teach English in a local primary school?

Methods

The current empirical inquiry used a qualitative research method to investigate the English steam of a primary education program through the recruitment of two participants that were given qualitative semi-structured interviews. Case study was used to focus the research on one bounded system (Merriam, 1988). Setting the boundaries for a case study is important as researchers must align the aims of the study with the focus of the study (Hood, 2009). Here, the bounded system included the two participants and the educational settings of the primary education program and the one-year teaching practice. The case study can be considered instrumental as the aim of the study was to illuminate a particular issue and to "lay the groundwork for future studies [on a topic in] … which little research has been conducted" (Hood, 2009, p.70).

Participants

Convenient sampling was used to recruit two female fourth-year university students enrolled in a primary education program at a comprehensive university in the Macau special administrative region (SAR) of China. After graduating from this program, the students would be considered qualified to teach primary education in the Macau SAR. Students enrolled in the primary education program were placed into either a Chinese language or English language stream based on their preference and language proficiency: both participants recruited for this study were placed in the English stream. The primary education program prepared the students to teach Chinese or English language (depending on the stream) along with other subjects such as math, science, and social studies. Both of the students had graduated from local secondary schools in Macau where the medium of instruction was English. Both students' academic achievements were in the top 25% of their graduating class.

As with the majority of teacher education curriculums (Cheng et al., 2012), the primary education program included two major components: (1) coursework

comprised of general education and subject-based knowledge delivered mostly through lecturing; and (2) and practical field experience housed in a local school context. The former should prepare the pre-service teachers with the ability to integrate theoretical knowledge into the latter practice which takes place in a local primary school context. This is not to say that the former does not contain any practical knowledge training as more practical experiences such as microteaching sometimes are provided. In this sense, both microteaching during formal coursework and teaching practice in the local primary school context represent practical knowledge. Theoretical knowledge, on the other hand, referred only to professional knowledge "codified in books and taught and examined" (Eraut, 1994, p. 76).

Teaching Practicum

In addition to primary education courses, the participants were also required to take part in a one-year English language teaching practicum in which they were placed in a local primary school in Macau. During this year-long teaching practicum, the students were expected to prepare and deliver English lessons as well as assist with various administration duties at the primary school. In exchange for this voluntary work, the primary school provided the students with a small monthly stipend that could be used to cover their transportation and meal costs. The students were matched with both a teaching mentor (i.e., an English teacher in the primary school) and a practicum supervisor (a professor from the university). The two participants were placed at the same school and assigned to different mentors. However, they were assigned the same supervisor. The mentors and the supervisor worked independently with the students to provide support during the teaching practicum. The supervisor was expected to evaluate the students' teaching performance during three different primary school visits that would result in the grade for the teaching practicum. The supervisor evaluated the teaching performance of the students in terms of lesson planning, teaching performance, teacher attributes, and classroom management.

Data Collection

At the end of the practicum, the two students were individually invited to take part in semi-structured interviews that focused on gathering their opinions and views on the primary education program and how it had (not) prepared them for the teaching practicum (see Appendix A). Questions also focused on the balance of theory and practice components in the teacher education program and whether these components were satisfactory. The participants were also probed to provide feedback on their perception of the expectations of the mentors and the supervisors and whether they felt they had met these expectations. As with semi-structured interviews, sometimes the participants discussed topics that were more salient to them. The interview

with participant 1 lasted 23 min and the interview with participant 2 lasted 20 min. Combined, the interview transcripts resulted in 6,467 words suitable for analysis.

Data Analysis

To address the research question, qualitative content analysis was used to analyze the transcripts of the data collected through the interviews. The data analysis process followed those suggested by Schreier (2012). Specifically, first a coding frame was built up using both concept-driven and data-driven approaches. The initial coding frame was developed using a concept-driven approach. Namely, the research question was used for generating the main categories of the coding frame (e.g., *quality of the primary education program* and *quality of the year-long teaching practice*). The interview guide was also referenced to create subcategories under the main categories. Interview questions 4–8 aimed to elicit participants' perception toward the *quality of the primary education program.* Repeated concepts were extracted to form subcategories which included theoretical knowledge in relation to the theories and teaching techniques learned through course lectures and practical knowledge gained from microteaching experiences in the teacher education program. For example, if a participant talked about previously learned education/second-language learning theories or teaching techniques such as how to write lesson plans or how to implement classroom management, each occurrence was categorized as the *quality of the theoretical knowledge* provided by the primary education program. If a participant mentioned experience involved in microteaching, these occurrences were placed under the category of the *quality of the practical knowledge.* Interview questions 9–11 dealt with participants' perception toward the *quality of the year-long teaching practice* for which recurrent concepts regarding teaching practice stakeholders, such as mentors and supervisors, as well as issues occurring in the classroom were placed under this main category. This initial coding frame was then further developed through a data-driven approach by reading through the interview transcripts repeatedly to locate content that might be highlighted for creating further categories and subcategories. Phrases, sentences, and extracts that were related to the main categories were coded and examined for recurrence before combining to form new subcategories. For example, the researchers highlighted the following extract and coded it as *learning from peers' microteaching*:

> I think different [English education] students have different concepts, and I can learn [these] concepts for simple things; sometimes we teach from the same book and then I can copy my classmate or do something like that if it is good. I think it's good to have microteaching.

Then, the code with other related codes such as *learn from professors in microteaching*, and *microteaching lesson experience prepared for teaching kids in teaching practicum* were given a data-driven subcategory *quality of the*

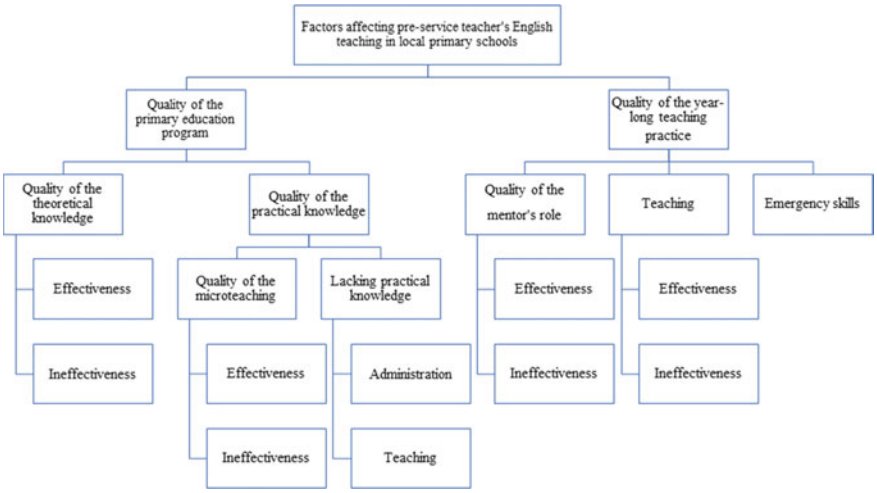

Fig. 18.1 Final Coding Frame for factors that prepared or did not prepare the pre-service teachers to teach English in local primary schools

microteaching and attached to the subcategory at a higher level *quality of the practical knowledge* which is under the main category of *quality of the primary education program.* The finalized coding frame (see Fig. 18.1) was used by the second author to analyze the interview transcripts. The intracoder reliability was ensured by coding the data at two time points (with a one-month interval in between codings) to make comparisons across two time points (Schreier, 2012). The intracoder reliability reached over 98% consistency. The first author and third author also checked the codes with the original interview excerpts and confirmed the generated categories. Any disagreement between coding or categorizing were discussed among the three authors and then resolved. All data analysis was completed using the qualitative research software NVivo 12; this allowed for the researchers to electronically interrogate the qualitative data and increase the searching and coding speed (Leavy, 2014).

Results

The analysis of the interview data revealed the primary education program being both effective and ineffective at meeting the needs of the pre-service teachers. Additionally, the interviews revealed that the pre-service teachers felt some practical knowledge was not provided by the education program that could have better prepared them for the duties assigned to them during the teaching practicum. As for the quality of the year-long teaching practicum, the participants expressed benefits of the practicum while also providing several suggested improvements. The participants' views of the

primary education program and the year-long teaching practice are arranged under two main sections and five subsections.

Quality of the Primary Education Program

The primary education program was evaluated through two angles: the quality of the theoretical knowledge component and the quality of the practical knowledge component. For the theoretical knowledge component, the primary education program seems to have provided adequate training to pre-service teachers on how to plan a lesson and manage a classroom. However, the program could be improved by providing concrete lesson plan samples, paying due attention to building up links between educational theories and teaching practice, and considering the constraints in real classroom settings. For the practical knowledge component, microteaching received the most attention by the participants during the interviews and contributed to their real classroom teaching through peer learning and teachers' and peers' feedback-giving processes. However, the participants also mentioned that the education program appeared to not offer enough training on dealing with administrative tasks and the appropriate use of English as a language of instruction.

Quality of the Theoretical Knowledge Gained from the Education Program

Two types of theoretical knowledge were deemed helpful for teaching in local primary schools by the participants. These included being taught how to plan lessons and manage classrooms. The two participants reported that they were taught a process of lesson planning consisting of preparing teaching materials and choosing appropriate teaching techniques for lessons. For example, participant 2 said "I think lesson planning is a[n] important thing and a good thing for me because I need to plan a lot … and the teaching skills … I learn[ed taught me] how to teach the students". The participants also showed a positive attitude toward the classroom management skills learned in the primary education program. Participant 1 recalled receiving a lecture on how to manage students in a patient manner to encourage good behavior:

> Some of [what the professors told me] is really the same [as what I actually experienced in the school]. For example, in the classroom management [course]...the professor...taught us how to manage our students in the class, because it's really important and we can use the things she taught us in the real classroom. We can [teach] the students...to be good, how to be patient in the class. (Participant 1)

Although the participants acknowledged the usefulness of learning how to plan a lesson, they also pointed out instructions on how to write up teaching plans or to write up a formal lesson plan was undervalued. This made it difficult for them to construct a standard lesson plan when they were teaching in the local school:

> I need more examples [of lesson plans in addition to] the guidelines, because it is a little bit unclear... how to write a lesson plan. (Participant 2)

Theoretical perspectives are needed to inform second language instruction (Brieger, Arghode, & McLean, 2020). Yet, it appeared that the theories learned were not successfully transferred into the participants' teaching practice. Participant 2 mentioned that she had forgotten all of the theories previously taught to her in the teacher education program. Pre-service teachers that have forgotten which theories they have learned would fail to draw upon any theories to guide lesson plan writing and teaching.

Previous research has indicated that primary education programs are facing challenges of how to interpret the curriculum and cover all the curriculum under time constraints (Adnyani, 2017; Hammond, 2012). The participants doubted whether the suggestions given by professors in the teacher education program fit the real classroom context. This indicated a discrepancy between the interpretations of lesson planning/task designs advocated by university professors and the practical constraints of real classroom teaching, such as the rigid classroom space and limited classroom time. This could have also led to the lack of regard in retaining the theoretical knowledge that was taught in the program. Participant 1 shared:

> ...sometimes the professors gave us some feedback or opinions that cannot really be put to practice in the real classroom because it's too difficult for the students and maybe it takes too long. Maybe it's making the things too complicated...the professor said in this activity you can let the students go around the classroom and choose the thing they want, but actually in the real classroom you cannot be like that. You can't control them when you let them run around the classroom; it is very hard to control them. And for time management, you really cannot let that happen.... (Participant 1)

The participants also reported confusion about the contrasting views of their professors from the teacher education program and the mentors in the local schools. One example was of their being encouraged to use technology in their future classrooms but then being unable to do so during their teaching practice. This result seems to support previous research findings that found primary teachers reluctant to integrate technology enhanced teaching approaches (Pattsch et al., 2019). The participants also did not seem to be aware of whether there was a theoretical reasoning why they should be using technology in their classrooms. Participant 2 shared:

> Professors just told me to use videos or [digital technology] like that but my teaching practice school didn't want me to use videos or something like that. They just wanted [me] to use the blackboard and some presentation slides. (Participant 2)

Quality of the Practical Knowledge Gained from the Education Program

Out of all the components of the primary education program that the two participants reflected on, microteaching received the most attention. Microteaching is a common approach in teacher education which requires students to teach a lesson to their classmates in the hope of accumulating lesson planning and delivery experience (Bell,

2007). The participants mentioned three aspects of microteaching that they found helpful. First, the experience of planning and teaching a microteaching lesson made their practicum teaching in the local primary school easier. Participant 1 expressed that the experience she had teaching her classmates was very similar to teaching the students in the local primary school. Second, the participants valued the immediate feedback that microteaching provided from both professors and classmates. In this way, the participants received direct feedback that was used to improve their formal teaching in local schools. Participant 2 recalled her experience of receiving well-structured feedback from professors and classmates after completing an in-class microteaching activity:

> The professors' reflection and the classmates' reflection are very important because when I finish[ed] the microteaching, they [had] a paper for me; their reflections [were] on the paper and then I could [review the comments] and then I [could] improve myself. I think it's a very good thing. (Participant 2)

Besides obtaining feedback from professors and classmates, the third aspect of microteaching that the participants appreciated was the opportunity it provided them to observe their classmates teaching lessons. Opportunities for peer learning is an important component in teacher education (Hawkey, 1995). For example, participant 1 claimed that she appreciated having the opportunity to participate in microteaching activities because it allowed her to learn from others through observation. Both participants mentioned they gained an understanding of how to properly utilize technology and the blackboard, how to manage a class, and how to design learning activities all from observing their classmates' microteaching. As some microteaching activities required the participants and their classmates to use the same learning materials to construct individual lessons, the participants realized through this process that they could improve their teaching by observing their peers. Participant 1 shared what she learned from the experience of observing others teach:

> I can feel the difference, because some of my classmates are really hardworking, and their presentation slides are very colorful, very detailed and...they focused on how to teach or how to use the blackboard..., so every time when...we [completed] a microteaching..., I would learn from them how to use the blackboard, how to manage a class, what activities I could do if one day I'm going to teach the same lesson like them….I really appreciated having the microteaching [activity]...because we learned from others. (Participant 1)

Although the participants voiced positive opinions about microteaching, they also had some concerns about the quantity and the length of microteaching. Participant 1 explained that only a single 10–15 min microteaching experience was not enough to allow her to observe classmates' teaching; she felt a full microteaching lesson would be needed for this to happen. Participant 2 expressed a similar concern, claiming that as they neared the end of their teacher education program more of these activities should be provided instead of increasing the number of lectures given by professors. She felt that pre-service teachers should be given microteaching opportunities starting from year 2 and possibly even year 1 of the teacher education program.

The discrepancy between microteaching and formal teaching has arisen uncertainty regarding to what extent teaching content and skills polished in microteaching

can be transferred into formal classroom teaching (Hawkey, 1995). The participants noted that the behavior of their classmates acting as students during the microteaching activities was quite different from the behavior of the primary education students in the local schools. Participant 2 expressed a need to have interaction with children earlier on in the primary education program so that there would not be such a shock when they entered the formal classroom during the year-long practicum in the fourth year. Participant 1 further shared her experience:

> In [the] university I'm going to teach [my peers], for example, is/am/are. They already know, right? They already know he [goes with] is and they [goes with] are, so they can answer my questions very quickly. And because they act like students, they raise their hands to answer [my question] and they will show that they can really do something.... And all the procedures...[are] very similar… [to the] real classroom. [But] for the learning level, the education level between my classmates and my real students--they are different. So, for example, in the real school [when] I'm teaching [students] is/am/are, I cannot go very smoothly and I cannot just say to them "is for he and she, okay?" You cannot be like that. You need to teach [primary learners] patiently and explain to them what the difference is between is/am/are. So, maybe I just need to spend forty minutes teaching my classmates a lesson [because] they already know [the content] clearly. But for my real school, maybe I need to spend about two lessons to teach [primary learners]. (Participant 1)

Besides the reflections on the microteaching, participants reported certain practical knowledge had not been provided by the teacher education program. School education is a complex system which involves not only the interaction with the children but also the coordination with other stakeholders such as administrators and parents (Walker et al., 2010). The most frequently mentioned practical knowledge that participants were in need of but were not adequately provided in the teacher education program was development in administrative skills. Both participants pointed out that they had known nothing about the required administrative roles of a teacher or the skills necessary to communicate with parents prior to starting their teaching practicum in the local school. For example, participant 2 wished she had learned how to "deal with parents", especially for parents that had high expectations of their children. She shared:

> [I] need to meet their parents. I think it's a terrible thing that [was] new for me because their parents are just like monsters. Yes, they want their children to be the best, but I can't [make that happen]. (Participant 2)

Although there is an increase in teacher education programs that use English as the medium of instruction (EMI), it seems the English teachers that graduate from these programs are still incapable of successfully giving lessons in the target language (Nunan, 2003). Participant 2 expressed her inability to use the English language to teach, especially when teaching vocabulary.

> Sometimes I think I know...how to teach vocabulary. I know the vocabulary and I think the kids will know the vocabulary but sometimes when I teach the vocabulary they just don't know. I can use English to teach but I don't know how to explain vocabulary words in English..... [and] for...some difficult vocabulary I also want to use English [to teach] but in my class I can't use [only] English to teach vocabulary. ...I don't know how to use [only] English to teach... vocabulary. (Participant 2)

Considering the fundamental role of vocabulary in language learning (Wilkins, 1972), it is paramount for a teacher education program to provide pre-service teachers with the skills needed to teach vocabulary. Both participants expressed their need to have more training in the teacher education program about vocabulary learning and teaching. They shared the following during the interviews:

> [I wish] I had been taught how to teach... vocabulary [in the teacher education program before the teaching practice], because in this [teacher education program] we normally learn how to teach writing and then grammar and reading. We don't have a chance to learn how to teach vocabulary. (Participant 1)

> I [am not allowed to] use Chinese [to teach] and even if I used Chinese, I don't know how to explain vocabulary. I think I want to improve this thing. How to teach vocabulary? (Participant 2)

Quality of the Year-long Teaching Practice

The component of the teaching practice that generated the most attention from the participants during the interviews was the role the mentors played in their teaching practice experiences. The teaching practice provided the participants with an opportunity to practice adjusting their teaching to meet different student abilities as well as gain experience in dealing with emergency situations within a classroom. While they reported several positive aspects of the teaching practice experience, they also discussed a need for training on how to incorporate or enhance their teaching with technology.

Quality of the Mentors' Role

Development of mentor–mentee relationships in teacher education programs encourages professional growth of pre-service teachers (Fairbanks et al., 2000). For the current study, the participants found their mentors from the local primary school provided them with models for teaching, interacting with parents, classroom management, and joining administrative meetings. Below, examples are provided on how the mentors provided positive support to the two participants throughout their teaching practice.

Model for Teaching

> I could observe her and then sometimes I would copy her teaching because I thought it's good. (Participant 2)

Interacting with Parents

> I learned how to interact [with the parents] from my [mentor]. She said that I should get some suggestions from her if I needed to but she would still talk to me on her own so I would listen and see what she says and do what she does…I would sometimes observe her interactions with the parents. I think it's just the right thing and the important thing for me to learn. (Participant 1)

Classroom Management

> They help us a lot. So, when I had any questions, [they would provide advice.] For example, students...were very noisy and they didn't want to listen, and they were just very talkative and even some had special needs.... (Participant 1)

> The first time I went to the school [is] when I knew who my students were and what they were like...I didn't have class management skills. So, I had really bad classroom management. So, most of the time I was using about twenty minutes [out of a forty-minute lesson] to get them to be quiet. [Telling students] stop, stop, stop, don't talk anymore, stand up and don't talk…[is] not useful [or] effective. So, I [went] to ask my mentors and…[they] provided me some very useful [advice] and helped me to talk to the students....and then my other mentor provided some classroom management [advice]... she provided me with [skills] to teach them, [and] how to make the class become more interested in my lessons so they would want to [pay attention in] my class.... (Participant 1)

Administrative Meetings

> …they taught me different things, for example how to plan a meeting for the teachers…. I have helped them prepare for the school open day. I think it's also a difficult thing for me because I've never learned how to do such things before, and in this university, we never learned how to do these practical things like how to plan teachers' meetings or how to help on a school's open day. We don't know how to do these things. (Participant 2)

Availability and Relationship Building

Due to the busy schedules of the mentors, the participants sometimes could not receive on-site assistance in a timely manner. Participant 2 shared:

> ...but my mentor has many jobs to do, so sometimes she would be too busy to show me in detail… I know that she wanted to teach me, but she had many jobs to do. She would be tired, and impatient. (Participant 2)

As mentors viewed the teaching practice as a compulsory learning module required by the teacher education program in the university, they have rarely positioned the relationship with the pre-service teachers as an apprenticeship requiring guiding the pre-service teachers from students to formal teachers. This might be a reason why the mentors were less involved in helping the participants with teaching and classroom management issues. As participant 1 put it:

> [A]ctually, [mentors] don't [have] a lot of expectations [about] us because they think that we are really very new and just come for teaching practice…so the first time I went to the classroom, [I knew] no one's going to [be there to] help me. I just [went] to the classroom by myself, and I needed to find my way, find my style to teach [the students] because my mentor won't interrupt my teaching. She [would] just say, "Do it by yourself. Try! You cannot expect us to help you like that and we are not going to do that." Mentors don't expect much from us. They just expect us to teach, [just what] the school needs us [to do]. (Participant 1)

Teaching

The teaching practice in the local primary school provided the participants with opportunities to interact with real learners at various L2 proficiencies and achievement levels. This has made them reflect on language learning task design. For example, participant 1 shared her perspective on how the teaching practice pushed her to learn how to adjust lessons to meet the needs of her mixed-ability class. She shared:

> [During] microteaching [peers] can answer very quickly and all the things seem to be perfect. Things go very smoothly but when you really go to a real school and have to do real teaching, you know that students don't know [things like peers.] You really need to teach them step by step, explain to them very clearly, and take special care of the weak learners. [Giving] one or two examples [is enough for] quick learners...but for the weak learners, they still will not know how to use the grammar correctly. So, you need to balance your class [to support] the quick learners and weak learners. You need to know how to...encourage both types of learners to learn more, and to help [the weak learners] to catch up [with] the class. So, it's really a real challenge but it's very good because this has prepared me to become a real teacher in the future. This experience is very good. (Participant 1)

Balancing academic studies and a full-time teaching practice was a challenge for the participants. They questioned the arrangements and complained that working all day and then studying evening courses often left them feeling exhausted. Participant 2 suggested the teacher education program to take note of other teacher education programs that arrange university courses all on the same day of the week and not arrange teaching practice duties on this day. This way the pre-service teachers can focus on one responsibility at a time. They also hoped that agreements could be reached that would allow them to record some of their lessons taught in the local schools to be used for self-reflection or improvement. Currently, this was not encouraged by the local schools. The students hoped that the university could negotiate this issue with the local schools and explain the benefits of reflective practice.

Emergency Skills

The participants also mentioned that the teacher education program did not prepare them for the type of emergency skills they needed in the local schools. Besides issues related to first aid or occasional mishaps that come with teaching young children, participant 2 emphasized that pre-service teachers need to be told to expect the unexpected. She shared one humorous anecdote:

> Sometimes the primary one students are afraid of insects…and although sometimes a teacher will also be afraid, she has to calm down and just kill the insects for the students or class cannot continue. You just have to go on. (Participant 2)

Discussion

Microteaching is Useful but Must Be Expanded

Aside from imparting theoretical knowledge on pre-service teachers, the teacher education program also provided the pre-service teachers with practical experience through microteaching that allowed for learning about and reflecting on effective teaching practice (Bell, 2007; Peker, 2009). Microteaching is a routine and effective pedagogy in teacher education programs. It has many benefits including reflecting on the teaching via the feedback from the teachers and peers and observing peers' teaching (Aimah, 2020; Bell, 2007; Yan & He, 2017). In general, the participants in the current study agreed that microteaching was an effective way to help them improve by reflecting on the feedback provided by both teachers and classmates, which is consistent with previous research (Benton-Kupper, 2001). Microteaching also allows pre-service teachers to observe peers' microteaching which enables them to improve their own teaching (Adnyani, 2017). This was also found to be the same for the participants in the current study that reported using some of the teaching techniques their peers used in the microteaching sessions. Notably, however, previous research found the role of microteaching supervisors were multidimensional, such as being an instructor, counselor, and evaluator (Dagget et al., 1979; Johnson & Knaupp, 1970), while the interview data suggested the teacher's role was only an evaluator who tended to pinpoint faults and strengths of teaching. Other roles, for example being a counselor to help with pre-service teachers' teaching problems (Aimah, 2020), seemed to have been absent in this teacher education program.

The artificial nature of microteaching has been documented in the published literature and is also reflected in the interview data from the current study (Yan & He, 2017). Although its fallacy is derived from the pedagogical intention to create a simplified but systematic teaching situation where pre-service teachers can experience a short but complete teaching process (Morrison, 2001), the injury is evident. When facing real students who cannot cooperate as the peers in microteaching due to their younger age and lower L2 proficiencies, the participants became anxious and unable to adjust their teaching. This may indicate that a taste of real teaching in the form of microteaching may not be sufficient for pre-service teachers to develop the teaching skills necessary to engage in the teaching practice without further preparation (Yan & He, 2017). Thus, to mitigate the negative influence induced by the artificiality of microteaching, researchers have advocated to either extend microteaching to full-length lesson teaching to better prepare pre-service teachers to teach in a real teaching context (Amobi, 2005) or invite an expert in-service English teacher to

guide the microteaching and reveal in advance the complexities of the real teaching the pre-service teachers will experience after graduating from the education program (Cheng, 2017).

The Mentor's Role in the Teaching Practice Should Be Central

Another crucial means of enhancing pre-service teachers' practical knowledge is through teaching practice in local schools. School mentors are the most important party that assists with this process (Aimah et al., 2020; Maddamsetti, 2018). The participants spoke highly of the positive role that the school mentors have played in guiding them in completing a range of school activities including teaching, classroom management, parent–teacher relationships, and school administration. A meta-analysis of teaching practicum research indicated that the majority of existing research has focused on exploring mentoring approaches and mentoring processes (Lawson et al., 2015). Among them, more emphasis has been put on investigating the mentor's role to model instructions for pre-service teachers' professional development, in particular, almost exclusively orientating teaching practice improvement (Fairbanks et al., 2000; Rajuan et al., 2008). Yet, the current study revealed that the mentoring relationship covered more than shaping pre-service teachers' professional practice and teaching strategies, by including complex social interactions such as dealing with parents and performing school administrative duties. In a word, mentors' other roles were worth attention as the mentoring also aimed to help the pre-service teachers to transfer from pre-service teachers in a university classroom to pre-service teachers in a real teaching context (Stanulis & Ames, 2009).

The participants also encountered obstacles during the teaching practice. It was found that on the one hand, local school mentors seemed to fulfill their role in monitoring pre-service teachers' teaching performance, giving guidance in not only teaching but also dealing with parents, while they, on the other hand, expected the pre-service teachers to be less involved in daily school issues. This was partly because the mentors were overwhelmed with their own work duties and had less time to cater to the pre-service teachers' needs other than giving them opportunities to teach and offer support when sought out (Maddamsetti, 2018). Maddamsetti (2018) suggested both university and practicum school administrators may collaborate and encourage mentors to get more involved in pre-service teachers' teaching practice by providing mentors with incentives for doing so or cultivating recognition of their crucial roles in teacher education.

Another problem the pre-service teacher participants encountered was the transfer of theoretical knowledge learned in the teacher education program to practical applications in the local primary schools. For example, while the participants recalled that professors in the teacher education program advocated the integration of technology into teaching, mentors in the teaching practice school insisted on using traditional teaching tools only. The difficulty in connecting theoretical knowledge learned in teacher education programs to the teaching practice classroom may be an issue that

cannot be resolved until pre-service teachers are in charge of their own classrooms as in-service teachers (Alanazi, 2019; Hadi, 2019).

The participants also voiced a need to have videotaped teaching practice which would allow them to reflect on their teaching. It is a common practice to videotape microteaching that enables supervisors to give video-based feedback and pre-service teachers to conduct video-based reflection (Kpanja, 2001; Quinn, 2000). For example, Kpanja (2001) found that Nigerian pre-service teachers who performed microteaching with the aid of video recording progressed more drastically in teaching skills than those without. Thus, teacher education programs can consider negotiating with local schools to provide a video-based reflection opportunity for pre-service teachers.

Lesson Planning and Practice is Sorely Needed

The participants reported the significance of lesson plan writing skills for preparing appropriate teaching materials and adapting teaching techniques to their future students' needs. This finding backs the definition of lesson planning proposed by Alanazi (2019), which emphasized that effective teaching is the result of effective lesson planning that considers what to teach and how to teach. It was also pointed out by the participants that more concrete examples of lesson plans should have been provided during their studies in the teacher education program, so they would have had a more concrete idea of what a written standard lesson plan should consist of before being placed in local schools. While the teacher education program did encourage innovation and critical thinking, which can result in better teaching outcomes (Alanazi, 2019), such creative ideas should not outweigh the consideration of target students' needs when designing lesson plans. Holm and Horn (2003) stressed the essentiality of students' needs in achieving effective teaching. Alanazi (2019) suggested to provide chances for pre-service teachers to get acquainted with their potential future students prior to the start of a teaching practicum to increase understanding before expecting written lesson plans to be produced.

English Proficiency and English as a Language of Instruction Must Play a Central Role in the Education Program

A sufficient level of English proficiency is required to reach effective communication and teaching in the EFL classroom (Renandya, 2018; Richards, 2017). According to Kachru and Nelson (2006), being immersed in an environment that lacks immediate use of English will stagnate pre-service teachers' English proficiency development. Although both participants were enrolled in a program taught at a university that used English as the medium of instruction, many of the courses in their particular program

were taught using Chinese. Thus, it was not surprising that the participants found it difficult to use the English language to teach; they were lacking many positive examples of how to use the English language as a medium of instruction. Increasing the number of courses taught in English for the primary education pre-service teachers could provide them with good role models of how to use English to teach content knowledge. In addition, more attention should be paid to vocabulary instruction by the primary education program. The participants stated that teaching vocabulary was difficult even if they were permitted to do so using Chinese. As vocabulary plays a fundamental role in language learning (Wilkins, 1972), this should be an area of the primary education program that is duly addressed.

Pre-Service Teachers Need to Be Prepared for Classroom Uncertainties

Through their teaching practice experiences, the participants identified issues that teacher educators in the primary education program can incorporate into their teaching, including how to deal with classroom uncertainties and how to form parent–teacher relationships. Classroom uncertainties mainly arose from mixed-ability classes, misbehaviour, and emergencies. Individual differences in student language proficiency can affect participation, which may then result in the failure of achieving classroom harmonization (Adnyani, 2017). The pre-service teacher participants were not prepared for these issues and only began to consider them after their teaching practice started. While microteaching prepared them for the role of being a teacher, they required further suggestions from their school mentors on how to deal with these issues as they were made to feel anxious and found it difficult to solve without any background knowledge. While their mentors were able to provide adequate advice for dealing with these issues, they probably could have benefited from further teacher education on how to use motivation and patience to handle such misbehaviour (Adnyani, 2017; Bekleyan, 2011). The participants also mentioned a need for emergency skill training to be incorporated into the teacher education program including how to administer first aid, dealing with insects, and calming down overexcited children, none of which were discussed in any of the teacher education courses.

Instruction on Parent–teacher Relationships Should Be Integrated into the Curriculum

The participants claimed interacting with parents was always a stressful event. While unavoidable, there are some strategies that can make these encounters bearable (Uitto et al., 2020). Providing pre-service teachers with teacher education that encourages

adopting micropolitical concepts and theories to communicate with parents could help alleviate some of the stress. Micropolitics refer to strategies used by individuals or groups to meet their interests or goals within an organization (Lander, 2001). Although pre-service teachers may get advice from their mentors just like the participants in the current study, the knowledge of maintaining parent–teacher relationships could be offered in the teacher education courses to supplement the practical advice given by mentors. Uitto et al. (2020) proposed to prepare pre-service teachers with micropolitics literacy and techniques during the teacher education program as a way to get them prepared to form these relationships in the local schools.

Limitations

While the findings of the current study have underscored the need for curriculum adjustments to the primary education program where the participants had received training, these findings should be taken in consideration with the limitations placed on these findings by the small sample size and the context of the primary school where the participants experienced their teaching practice. The aim of this case study was to evaluate the primary education program and teaching practicum in order to lay groundwork for future studies. To have a more solid understanding of the primary education program that the participants experienced would require the recruitment of more participants that were mentored at different primary schools within the Macau SAR. Furthermore, as schools in the Macau SAR are given a lot of authority in curriculum selection and implementation, a more large-scale quantitative survey regarding both pre-service and in-service primary English teachers that have experienced training in the education program to become an English teacher are needed to make more general claims about this particular or other primary education programs in Macau or their associated practicum opportunities.

Conclusions

This case study investigated the teacher education and practicum experiences of two pre-service primary English teachers in the Macau SAR. The participants reported gaining practical and theoretical knowledge from the teacher education program that was effective and ineffective at enhancing their teaching abilities. Although the participants claimed knowledge on how to write lesson plans and manage classrooms was gained, it was still not adequate to perform on par with in-service teachers. They also claimed a need for additional training in how to use English as a language of instruction and how to teach English vocabulary. The participants found the experience of microteaching helpful for their transition from being students to teachers but found the microteaching experiences in the teacher education program too few and not realistic. Enhancing this training for pre-service teachers while they are still

enrolled in the teacher education program could have enhanced their experiences during their teaching practicum. Other issues the participants encountered during the teaching practice that were not incorporated into their teacher education were how to deal with classroom uncertainties, how to build up parent–teacher relationships, and how to perform administrative duties at the local primary schools. The participants found the relationship with their local primary school mentors one of the keys to tackling these unexpected issues. This suggests that increasing the role of the mentors in the local schools could enhance the experience of the year-long teaching practice. Teacher educators and teacher education curriculum developers should consider the issues of the participants and further investigate whether some of the adjustments the participants recommended might be helpful for future students that are educated in this primary education program.

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Appendix A

1. How did or didn't this teacher education program prepare you to teach English for the teaching practice in the local primary school?
2. How did or didn't this teacher education program prepare you to teach English in local primary schools?
3. Are you happy with the teacher education that this program has provided you?
4. Do you think the theories you learned about in the teacher education program were helpful to your teaching practice in the local primary school?
5. What did you find useful or not useful about your teacher education courses at the university?
6. Did you ever have an opportunity to practice teaching during the teacher education program (for example, in-class microteaching)?
7. Did you have the opportunity to observe your peers teach? How did you find their teaching?
8. How did the microteaching prepare or not prepare you for the teaching practice in the local schools?
9. What did you feel were the expectations of your mentor in the local primary school?
10. What did you feel were the expectations of the supervisor at the university?
11. Now that you have finished the practicum, is there anything that you wish you had known before you started? Is there something you wish your current self could tell your pre-practicum self?
12. Is there anything else about the teacher education program or the teaching practice that you would like to share about?

References

Adnyani, L. D. (2017). Pre-service young learner English teachers' reflection through simulated teaching practice. In A. A. Paramartha, G. R. Dantes, I. G. Suryaputra, I. K. Arthana, K. Y. Aryanto, & N. K. Suwastini (Eds.) *Proceedings of the 2nd international conference on innovative research across disciplines* (pp. 233–237). Atlantis Press. https://doi.org/10.2991/icirad-17.2017.44

Alanazi, M. H. (2019). A study of the pre-service trainee teachers problems in designing lesson plans. *Arab World English Journal, 10*(1), 166–182.

Amiah, S., Rukmini, D., Saleh, M., & Bharati, D. A. L. (2020). Pre-service English teachers' voices: What do they expect from a supervisor in a microteaching class? *Journal of Asia TEFL, 17*(3), 1039–1047.

Amobi, F. A. (2005). Preservice teachers' reflectivity on the sequence and consequences of teaching actions in a microteaching experience. *Teacher Education Quarterly, 32*(1), 115–130.

Bauler, C. V., & Kang, E. J. (2020). Elementary ESOL and content teachers' resilient co-teaching practices: A long-term analysis. *International Multilingual Research Journal, 14*(4), 338–354. https://doi.org/10.1080/19313152.2020.1747163

Bekleyen, N. (2011). Can I teach English to children? Turkish preservice teacher candidates and very young learners. *Journal of Early Childhood Teacher Education, 32*, 256–265.

Bell, N. D. (2007). Microteaching: What is it that is going on here? *Linguistics and Education, 18*(1), 24–40. https://doi.org/10.1016/j.linged.2007.04.002

Benton-Kupper, J. (2001). The microteaching experience, student perspective. *Education, 18*, 24–40.

Brent, R., Wheatley, E. A., & Thomson, W. S. (1996). Videotaped microteaching, bridging the gap from the university to the classroom. *The Teacher Educator, 31*, 38–247.

Brieger, E., Arghode, V., & McLean, G. (2020). Connecting theory and practice: Reviewing six learning theories to inform online instruction. *European Journal of Training and Development, 44*(4/5), 321–339.

Cheng, J. (2017). Learning to attend to precision: The impact of micro-teaching guided by expert secondary mathematics teachers on pre-service teachers' teaching practice. *ZDM: The International Journal on Mathematics Education, 49*(2), 279–289. https://doi.org/10.1007/s11858-017-0839-7

Cheng, M. M., Tang, S. Y., & Cheng, A. Y. (2012). Practicalising theoretical knowledge in student teachers' professional learning in initial teacher education. *Teaching and Teacher Education, 28*(6), 781–790.

Dagget, C. J., Cassie, J. M., & Collins, G. F. (1979). Research on clinical teaching. *Review of Educational Research, 49*(1), 151–169.

Eraut, M. (1994). *Developing professional knowledge and competence*. Falmer Press.

Fairbanks, C. M., Freedman, D., & Kahn, C. (2000). The role of effective mentors in learning to teach. *Journal of Teacher Education, 51*(2), 102–112.

Garton, S. (2014). Unresolved issues and new challenges in teaching English to young learners: The case of South Korea. *Current Issues in Language Planning, 15*, 201–219.

Gebhard, J. G. (1990). Models of supervision: Choices. In J. C. Richards & D. Numan (Eds.), *Second language teacher education* (pp. 156–166). Cambridge University Press.

Hadi, A. (2019). Exploring preparation of pre-service teachers' english proficiency and pedagogy: Stories from an EFL teacher education program. *The Qualitative Report, 24*(8), 1946–1966.

Hammond, J. (2012). Hope and challenge in the Australian curriculum: Implications for EAL students and their teachers. *The Australian Journal of Language and Literacy, 35*(2), 223–240.

Hawkey, K. (1995). Learning from peers: The experience of student teachers in school-based teacher education. *Journal of Teacher Education, 46*(3), 175–183. https://doi.org/10.1177/0022487195046003003

Holm, L., & Horn, C. (2003). Bridging the gap between schools of education and the needs of 21st-century teachers. *The Phi Delta Kappan, 84*(5), 376–380.

Hood, M. (2009). Case study. In J. Heigham & R. Croker (Eds.) *Qualitative research in applied linguistics: A practical introduction.* Palgrave Macmillan.
Janssen, M., Bakker, J. T. A., Bosman, A. M. T., Rosenberg, K., & Leseman, P. P. M. (2012). Differential trust between parents and teachers of children from low-income and immigrant backgrounds. *Educational Studies, 38*(4), 383–396.
Johnson, W. D., & Knaupp, J. E. (1970). Trainee role expectations of the microteaching supervisor. *Journal of Teacher Education, 21*(3), 396–401.
Kachru, Y., & Nelson, C. L. (2006). *World Englishes in Asian contexts.* Hong Kong University Press.
Kelchtermans, G. (2017). 'Should I stay or should I go?': Unpacking teacher attrition / retention as an educational issue. *Teacher and Teaching: Theory and Practice, 23*(8), 961–977.
Kelchtermans, G., & Ballet, K. (2002). Micropolitical literacy: Reconstructing a neglected dimension in teacher development. *International Journal of Educational Research, 37*(8), 755–767.
Klieger, A., & Oster-Levinz, A. (2015). The influence of teacher education on mentor teachers' role perception in professional development schools. *Journal of Education for Teaching, 41*(2), 115–127.
Kpanja, E. (2001). A study of the effects of video tape recording in microteaching training. *British Journal of Educational Technology, 32*(4), 483–486.
Lander, R. I. (2001). Educational innovation, management of. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (pp. 4259–4261). Pergamon.
Lawson, T., Çakmak, M., Gündüz, M., & Busher, H. (2015). Research on teaching practicum—a systematic review. *European Journal of Teacher Education, 38*(3), 392–407.
Leavy, P. (2014). *The Oxford handbook of qualitative research.* Oxford University Press.
Legutke, M., & Schocker-v. Ditfurth, M. (2009). School-based Experience. In A. Burns, & J. C. Richards (Eds.), *The Cambridge Guide to Second Language Teacher Education* (pp. 209–217). New York: Cambridge University Press.
Maddamsetti, J. (2018). Perceptions of pre-service teachers on mentor teachers' roles in promoting inclusive practicum: Case studies in US elementary school contexts. *Journal of Education for Teaching, 44*(2), 232–236.
Marz, V., & Kelchtermans, G. (2020). The networking teacher in action: A qualitative analysis of early career teachers' induction process. *Teaching and Teacher Education, 87*, 1–15.
Rajuan, M., Beijaard, D., & Verloop, N. (2008). What do student teachers learn? Perceptions of learning in mentoring relationships. *The New Educator, 4*(2), 133–151.
Merriam, S. B. (1988). *Case study research in education.* Jossey-Bass.
Metcalf, K. K., Hammer, M. A., & Kahlich, P. A. (1996). Alternatives to field-based experiences, the comparative effects of on-campus laborations. *Teaching and Teacher Education, 12*, 271–283.
Mills, R. F. (1991). Micro-peer teaching: Organization and benefits. *Education, 111*, 559–562.
Morrison, B.J. (2001). Teacher training in China and the role of teaching practice. *Working Papers in Linguistics and Language Teaching*, *11*, 16–24.
Nunan, D. (2003). The impact of English as a global language on educational policies and practices in the Asia–Pacific region. *TESOL Quarterly, 37*(4), 589–613. https://doi.org/10.2307/3588214
Ozmen, K. S. (2012). Exploring student teachers' beliefs about language learning and teaching: A longitudinal study. *Current Issues in Education., 15*(1), 1–16.
Paatsch, L., Hutchison, K., & Cloonan, A. (2019). Literature in the Australian English curriculum: Victorian primary school teachers' practices, challenges and preparedness to teach. *Australian Journal of Teacher Education, 44*(3), 61–76. https://doi.org/10.14221/ajte.2018v44n3.4
Peker, M. (2009). The use of expanded microteaching for reducing pre-service teachers' teaching anxiety about mathematics. *Scientific Research and Essay, 4*(9), 872–880.
Quinn, F. (2000). *Principles and practice of nurse education.* Stanley Thornes.
Rahimi, M. (2008). What do we want teaching-materials for in EFL teacher training programs? *Asian EFL Journal, 31*, 1–18.

Renandya, W. A. (2018). What kind of English proficient is needed for effective teaching? Presentation, Invited paper presented in the *Indonesian TESOL Summit*, Century Park Hotel.

Richards, J. C. (2017). Teaching English through English: Proficiency, pedagogy and performance. *RELC Journal, 48*(1), 7–30.

Schreier, M. (2012). *Qualitative Content Analysis in Practice*. London: Sage publications.

Stanulis, R. N., & Ames, K. T. (2009). Learning to mentor: Evidence and observation as tools in learning to teach. *The Professional Educator, 33*(1), 28–38.

Uitto, M., Jokikokko, K., Lassila, E. T., Kelchtermans, G., & Estola, E. (2020). Parent-teacher relationships in school micropolitics: Beginning teachers' stories. *Teachers and Teaching*. https://doi.org/10.1080/13540602.2020.1863205

Vare, J. W. (1994). Partnership contrasts: Microteaching activity as two apprenticeships in thinking. *Journal of Teacher Education, 45*, 209–217.

Volman, M. (2005). A variety of roles for a new type of teacher: Educational technology and the teaching profession. *Teaching and Teacher Education, 21*, 15–31.

Walker, J. M. T., Shenker, S. S., & Hoover-Dempsey, K. V. (2010). Why do parents become involved in their children's education? Implications for school counselors. *Professional School Counseling, 14*(1), 27–41.

Wilkins, D. (1972). *Linguistics in language teaching*. Arnold.

Yan, C. M., & He, C. J. (2017). Pair microteaching: An unrealistic pedagogy in pre-service methodology courses? *Journal of Education for Teaching, 43*(2), 206–218.

Zeichner, K. (2010). Rethinking the connections between campus courses and field experiences in college—and university—based teacher education. *Journal of Teacher Education, 61*(1–2), 89–99.

Chapter 19
Psychology Teacher Education in Brunei: Evolution, Development, Challenges, and Growth

Lawrence Mundia

Abstract Psychology subjects and contents are only taught in the 12th and 13th years of Brunei's school system. Despite this, psychology curriculum has always been included in Brunei's previous and current initial teacher education programs that train all teachers. The pre-2008 teacher education course included psychological modules addressing human development, theories of teaching and learning, and inclusive and special education for all categories of trainee teachers. The post-2008 teacher preparation course created the following specializations: early childhood education; primary education; secondary education; inclusive education; and higher education (Mundia, European Journal of Educational Research 9:685–698, 2020; Mundia, L, Shahrill, M, Jaidin, J. H, Jawawi, R, & Mahadi, M. A. (2016). Brunei's teacher education programs: insights into students' coping and help-seeking strategies to challenges. International Journal of Mental Health Systems, 10(1), Article No. 62. https://doi.org/10.1186/s13033-016-0091-5). Psychology teachers are trained within the secondary school category explained in detail in this chapter. Psychological contents and skills that challenge both trainee teachers and secondary students include quantitative and qualitative research designs, especially experiments, reliability and validity, statistics, qualitative data analyses, teaching and learning higher-order skills, critical thinking, and application of psychological knowledge and skills to problem-solving situations and contexts. The student teachers' main preferred strategies for dealing with distress include task-oriented coping, productive coping, utilizing Internet sources, confrontive coping, planful problem solving, preventive coping, avoidance-oriented coping, and self-control. Psychology school subject and psychology teacher education have bright future in Brunei.

Keywords Psychology · Special education · Teacher education · Critical thinking · Challenges

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Introduction, Background and Setting

Lawrence Mundia obtained his Ph.D. in educational psychology and measurement from Cornel University, USA, as a Fulbright scholar. He is a BPS chartered psychologist, an HCPC-UK registered and licensed practitioner psychologist, and an Associate Fellow of the British Psychological Society. Currently, he teaches psychology, counseling, inclusive education, special education, and teacher education in the Sultan Hassanal Bolkiah Institute of Education, Universiti Brunei Darussalam. He was involved with the preparation of initial teachers in Brunei for 18 years (2003–2021). Previously, he taught the same disciplines at universities in Papua New Guinea, Swaziland, and Zambia. The teaching areas are also his research interests and focus. Recent research has also been conducted on criminality, child and adolescent mental health, students' and teachers' coping strategies, mathematics achievement, and motivation and learning.

The Brunei educational system has four types of institutions (such as government, religious, private, special education centers operated privately, and international schools) all of which need teachers. The government school system consists of five stages. The pre-university level prepares students for entry into university. Academically oriented students progress from preschool to pre-university and then enter university. Other students who, for various reasons exit en route at different levels, follow alternative pathways such as getting a job, attending a vocational school, or enrolling in a technical college. Table 19.1 structurally illustrates the Brunei government system of education. Of these levels of education, only teachers of psychology in pre-university institutions (also known as senior secondary schools or Sixth Form Colleges) are mainly covered in the present chapter. The level is a two-year course divided into two separately assessed and independent sublevels, namely Year 12 (General Certificate of Education Advanced Subsidiary Level or GCE 'AS' Level); and Year 13 (General Certificate of Education Advanced Level, GCE 'A' Level) as previously stated by Mundia (2019). In 2018, there were 3417 combined GCE AS-Level and A-Level students in Brunei of whom 1394 were males and 2023 females (Ministry of Education, 2018). Most of them were in schools located in Brunei-Muara district (2773) with few in Tutong (313), and Kuala Belait (331). There were no statistics on the number of students by subject and gender. The Ministry of Education (2018) also indicated that the Year 12–13 level of education

Table 19.1 Brunei government education system

Education	School/Level	Years/Grades	Age range	Duration/Years
Early childhood	Preschool	None	4–5	2
Primary	Primary school	1–6	6–13	6
Middle	Lower secondary	7–8	13–15	2
Secondary	Upper secondary	9–11	15–17	3
Senior secondary	Pre-university	12–13	17–19	2

had 500 teachers (156 males and 344 females) of whom 399 were in Brunei-Muara district, 54 in Tutong, and 47 in Kuala Belait. The total number of teachers were not reported by subject, gender, and district. However, at the time of preparing this chapter in 2021, the author estimated the total number of psychology teachers in all the Sixth Form Colleges to be 22 (19 females and 3 males).

The Need for Psychology School Subject and Teachers in Brunei

More than 24 subjects are taught and assessed in the Brunei education system. Psychology is a new and popular school subject in Brunei that challenges students. The subject is not taught at Year 11 (General Certificate of Education Ordinary, GCE O-Level) but only taught to Year 12 (General Certificate of Education Advanced Subsidiary, GCE AS-Level) and Year 13 (General Certificate of Education Advanced, GCE A-Level) students (Omar et al., 2014). Students' interest in and demand for the subject are quite high as the subject leads to many science career paths such as becoming a practitioner psychologist, psychotherapist, counselor, psychiatrist, mental health specialist, forensic scientist, criminologist, intelligence officers in the armed forces (military and army), and many other related professions (Mundia, 2019).

The increase in the number of psychology students leads to a demand for more psychology teachers (Mundia, 2019). To meet the instructional needs of psychology students in Sixth Form Colleges, the Sultan Hassanal Bolkiah Institute of Education (SHBIE) at the Universiti Brunei Darussalam (UBD) embarked on the training of psychology subject teachers locally from 2008 until the demand was met (Mundia, 2019). Prior to 2008, Bruneian teachers of psychology received their training from overseas universities. They were graduates with a bachelor or master degree in psychology.

Psychology Content in Previous Brunei Main Teacher Education Program

The previous main teacher education programs for Brunei, trained instructors for many different teaching qualifications such as the certificate in education, diploma in education, the bachelor of arts degree with education, bachelor of science degree with education, and the postgraduate certificate in education. All these programs included educational psychology and educational counseling modules that addressed various aspects of developmental psychology, theories of teaching, theories of learning, child and adolescent mental health, inclusive and special education, introduction to counseling, and school counseling.

Psychology Content in Current Reformed Brunei Main Teacher Education Program

At present, people who aspire to train as psychology teachers in Brunei need to have a first degree in psychology. This permits them to have in-depth knowledge of psychology contents. This type of psychology teacher education was modelled on the UK (Foot, 1995) and is different from the teacher assistant, TA model used in USA (Meyers & Prieto, 2000). The psychology teacher education program does not provide new or additional contents in psychology. Instead, it is focused on providing educator knowledge and skills required by practicing teachers. Some of the educator knowledge and skills taught by the Brunei psychology teacher education program are presented in Table 19.2. Others are adopted from the Brunei Teacher Standards (Minstry of Education, 2013). The program enables its graduates to deliver Year 12 and Year 13 psychology contents and skills to pre-university students in Sixth Form institutions. Year 12 and Year 13 psychology curriculum and examinations are both largely determined and controlled by the Cambridge International Examinations (CIE), an external education agency based in the UK and mentioned above in Table 19.1.

In a study conducted by Omar et al. (2014), different categories of psychology student participants of various ability levels had preferences for different types of psychology teachers. More-able students preferred a cognitive-oriented teacher while less-able students emphasized the affective-oriented instructor. Students in the middle range of the ability scale endorsed both cognitive and affective traits in the ideal teacher traits Omar et al., 2014). A cognitive-oriented teacher is one who pays more attention to academic knowledge and skills, while the affective-oriented teacher prefers addressing the personal behavioral issues of the student.

Table 19.2 Psychology teacher education contents

Aspect of teacher education	Broad contents covered
Curriculum design	Contents; knowledge; and skills in the teacher education curricular
Lesson planning	Objectives; knowledge; skills; activities; teaching aids; lesson evaluation
Teaching	Teaching styles; individualized teaching; group teaching
Assessments	Different types of tests, assessments and examinations
Exceptional students	Students with special needs; gifted learners; making accommodations in assessments
Classroom environment	Seating arrangements; teacher leadership styles; engaging students actively (individuals and groups)
Statistics (understanding and using)	Introductory, intermediate, advanced
Research designs	Quantitative; qualitative; reliability; validity; biases
Student achievement	Enablers; barriers

Effective teachers (also known as ideal or super instructors) are believed to have several common characteristics. Previous research has identified, among others, traits such as communicating high expectations, providing constructive feedback, delivering content in small and structured units, clarity of instruction (see Creemers, 1994; Lowyck, 1994; Scheerens & Bosker, 1997; Omar et al (2014). In addition, effective teachers are also perceived to have good interpersonal behavior and interaction skills that they use in engaging students via learning activities (den Brok et al., 2004; Wubbels & Brekelmans, 1998; Wubbels et al., 2006).

Challenging Psychology Contents and Skills to Brunei High School Psychology Students

Being a difficult subject, Brunei secondary students' performance in psychology generally ranges from moderate to high. The reasons for this are not quite clear and might be due to many factors. For example, psychology is a cognitive science subject closely related to biology, psychiatry, and mental health. The psychology subject in Brunei school system is taught to Years 12–13 students only using mainly journal articles based on quantitative experimental research designs and statistics (Mundia, 2019). Students with insufficient background in subjects or disciplines such as biology, mathematics and statistics often struggle in psychology despite having high interest. Mundia (2019) found that barriers to achievement for Year 12 and Year 13 psychology students included lack of clarity and lack of specificity in test items; difficulties in understanding examination questions; low skills in statistics; inadequate research skills; difficult research design items; and absence of educational interventions. Psychology teachers and teacher education initiatives (both preservice and in-service) need to direct attention and priority at resolving these and other related issues. In addition, secondary student participants in the study (Mundia, 2019) suggested having guidelines on answering examination questions; more discussion of revision questions during practice sessions; and the teaching of critical thinking and time management skills.

Challenging Psychology Contents and Skills to Brunei Trainee Psychology Teachers

The same study cited above (Mundia, 2019) also identified a number of challenging psychology contents and skills to Brunei trainee psychology teachers. These included understanding and mastering: quantitative research designs; sampling strategies; technical issues such as reliability and validity; complicated concepts (e.g. Type I error, Type II error, false positives, and false negatives); applying statistics; and evaluating statistics. These need to be addressed by both preservice and in-service

teacher education. According to this study, help-seeking and peer learning should be used carefully so that they do not defeat the purpose of individual learning.

Another recent study (Mundia, 2020) evaluated the instructional skills that Brunei trainee teachers (both psychology trainee teachers and non-psychology trainee teachers) either mastered or were deficient in. The results of this study showed that participants were proficient on 15 of the 28 skills (Approachable; Confident; Effective communicator; Encourages; Enthusiastic; Flexible; Good listener; Humble; Prepared; Professional; Rapport; Respectful; Sensitive; Striving to be a better teacher; Understanding). The 13 behavioral skills on which trainee teachers were less competent included: accessibility; authoritativeness; creativity; goal-setting; humor; knowledge; using current information; promoting class discussion; applying critical thinking; providing; student-centered teaching; managing class time; developing realistic student expectations; and being technologically competent. The four least developed skills were: being accessible; presenting current information; promoting critical; and having realistic student expectations (Mundia, 2020).

According to Mundia (2020), females scored highest on Humble and Realistic expectations, while males scored highest on Understanding. Trainee teachers aged 31–35 scored highest on: promoting critical thinking; and providing constructive feedback than counterparts. Participants with higher degrees (e.g. Master of Arts) scored higher on Authoritative skills than those with lower degrees (e.g. Bachelor of Arts). Trainees with teaching experience scored significantly higher on: accessible; knowledge about the subject matter; and technological competence, than those with no experience. The findings suggested the need to help pre-service teachers to gain proficiency in all teacher skills to improve the quality of education in the country. Mundia (2020) offers several and extensive suggestions on how to address the identified trainee teachers' deficits. These include how to apply multicultural instructional skills (see Hofstede, 1980, 1986; Banks, 1995).

Prevalence of Depression, Anxiety and Stress in Brunei Student Teachers

Azmin (2016). Effect of the Jigsaw-Based Cooperative Learning Method on Student Performance in the General Certificate of Education Advanced-Level Psychology: An Exploratory Brunei Case Study. *International Education Studies,* 9 (1): 91–106.

With so many modules covered in a short duration of 18 months, the current Brunei teacher education program that was implemented in 2009 is quite intensive (Azmin, 2016). The hard work that students put in to complete the program successfully was likely to have an adverse effect on the mental health of the trainee teachers. Mundia (2009) found that depression, anxiety, and stress were some of the mental health problems that were prevalent in Brunei trainee teachers. According to this study (whose data were collected in 2008 prior to implementation of the current reformed and ongoing teacher education program), females had, in general, more of

these mental health problems than males. In addition, students on the bachelor of education (B.Ed) program were also, in general, more affected by these concerns than those on the postgraduate certificate in education (PGCE) course. In another study by the author (Mundia, 2010a), a student teacher dropped out from the teacher education program due to severe social anxiety which negatively impacted her micro-teaching with peers and teaching practice tasks with students in schools. Unfortunately, none of the affected students received treatment. Trainee teachers, like other students in the university, were required to seek help or treatment on mental health issues on a personal and voluntary basis. Most did not do so as they were fearful of being stigmatized.

Coping with Stress Among Brunei Trainee Teachers

Although research shows that Brunei trainee teachers were affected by depression, anxiety, and stress, for which they did not receive any treatment, only three studies on coping with stress are available. Of these three coping survey studies, one was conducted prior to implementation of the new Master of Teaching (M.Teach) teacher education program (Mundia, 2010b). The participants for the earliest research on Brunei student teachers' stress coping consisted of 118 educational psychology student teachers at the Universiti Brunei Darussalam, UBD, 89 females and 29 males (Mundia, 2010b). In addition, the sample comprised of 71 B.Ed and 47 PGCE students. Overall, three major findings were obtained from the study by Mundia (2010b). First, the task-oriented strategy was the most used coping method followed by the avoidance-oriented style. Second, there were no significant gender and program of study differences in the way participants employed the three coping procedures (task-oriented, avoidance-oriented, and emotion-oriented). Third, age, gender, and program of study were not significantly correlated with the three coping strategies. These coping strategies were found to be distinct ways of reacting to and relieving stress according to the Brunei sample.

The first of the two coping surveys conducted after implementation of the new Master of Teaching (M.Teach) teacher education program involved 76 randomly selected recent graduate teachers (Mundia et al., 2016). According to Mundia et al., 2016 participants endorsed both the productive and non-productive coping strategies. In addition, they depended more on peers, teachers, and Internet sources for help (Mundia et al., 2016). Four major findings were obtained from Mundia et al. (2016). First, task-oriented coping was the most important and significant predictor of success on the M.Teach and MEd programs. Second, females had a higher likelihood of success compared to males. Third, students who consulted relevant Internet resources had higher odds for succeeding compared to those who did not. Fourth, less-able students who collaboratively worked with the more-able peers were nearly two times more likely to perform better than those who did not. Based on evidence from this study, coping and help-seeking were positively and significantly related to academic achievement on the two Brunei main teacher education programs

(M.Teach and M.Ed). Furthermore, the results suggested that vulnerable and at-risk trainee teachers needed appropriate interventions (educational, counseling, and psychotherapy) related to effective use of task-oriented coping and seeking help via cooperative learning, Internet sources, and teacher consultations (Mundia et al., 2016).

The second coping survey administered to MTeach student teachers by Mundia (2017) indicated that confrontive coping, planful problem solving, and self-control were significant main effect predictors of achievement. Two separate sex-interaction variables (male with accepting responsibility and female versus accepting responsibility) were also significant predictors of achievement (Mundia, 2017). Accepting responsibility was therefore helpful to both sexes in achievement (Mundia, 2017). Younger participants aged 22–24 years scored significantly higher on the accepting responsibility subscale than older peers aged 25–26 years (Mundia, 2017). In addition, low scorers on the quantitative reasoning test scored significantly higher on the escape avoidance coping subscale than their more-able counterparts (Mundia, 2017).

Influence of Inclusive and Special Education Policies on Brunei Teacher Education

The 1990s saw the introduction of the inclusive and special education reforms in Brunei (see Ministry of Education, 1997, 1998). Learners with partial, mild, and moderate special needs were functionally integrated into mainstream ordinary schools. Students with high support needs who could not benefit from attending ordinary schools were placed in special education centres. The inclusion and special education reforms aimed at broadening and increasing access to education among people with special needs.

Arguments Against Segregated Special Education Institutions

For a long time, persons with disabilities in developing countries received their education in segregated facilities. This approach, like in developed countries, is being abandoned in favor of inclusiveness, which is a non-categorical strategy. The new post-2008 teacher education program in Brunei, which includes training teachers for the psychology subject, aimed at sensitizing student teachers about the disadvantages of segregated special education, advantages of inclusive education, amendments to examinations and other evaluations to accommodate students with special needs, and the main reasons why inclusive education might fail. Arguments against segregated special education institutions are presented in Table 19.3.

Table 19.3 Arguments against segregated special education institutions

Rights. Disabled persons have the same natural and constitutional rights as non-disabled people including access to and equity in the provision of education. Separating them from others is a discriminatory act or practice
Morality. Disabled persons are part of communities and societies. Segregating them in the provision of education is unethical and morally wrong because it acts as a barrier that prevents preparing them from participating effectively in their communities and societies
Learning. A number of efficacy studies have shown that segregated special education does not, in itself, lead to increased learning of knowledge, skills and behaviors
Labelling. Being labelled "special" not only psychologically leads to reduced self-esteem and self-confidence but also stigmatizes and results in the development of a negative self-made
Attitudes. Segregated educational facilities based on disabilities help create and perpetuate negative attitudes toward the disabled and low expectations from them
Dualism. Maintaining two systems of educational (special and regular) is expensive for most countries
Needs. In the past, people used to be dichotomized into two distinct categories (normal versus abnormal). The new concept of exceptionality stresses that no single person is perfectly or truly normal. Emphasis now is on needs possessed by persons which place individuals on a continuum of needs that can be partial (or mild), moderate, severe and profound
Causes. Most or the majority of all known handicaps and disabilities are caused by scientifically diagnosable biological factors. Negative attitudes to and segregation of the disabled based on speculations and fatalistic beliefs are thus unjustified
Interaction. Segregated educational facilities inhibit disabled persons from interacting with their non-disabled peers in regular schools (Alasim, 2017). Lack of interaction can have detrimental social and psychological consequences on both. Interaction is a key variable in the acceptance of the disabled by teachers and non-disabled students

Arguments for Inclusive Educational Institutions

The idea of including disabled learners in regular or ordinary schools started first in the western world (USA and UK) and then spread to other countries. Many events were responsible for the emergence of inclusion as an educational movement and policy. They include social, political, legal, economic, educational, and decentralization factors as briefly outlined below.

- Social Factors: In the social sphere, the elements that contributed to the development of the inclusive education movement and policy included: (1) a reconceptualization of the notion of disability; (2) results of efficacy research; (3) families of children with disabilities; (4) influence of interest groups and (5) progress and an increase in social justice in some countries. Out of efficacy research emerged a new concept of special educational needs which replaced the old dichotomy or way of categorizing and labelling people into normal versus abnormal. In Britain, the Warnock Report (Department of Education & Science, 1978) stated that no person was perfect and that disability was a matter of degree of severity along a

continuum. This implied that many people than earlier thought had special educational needs which needed to be addressed in school setting. The application of this new concept helped to some extent to break down psychological and legal barriers that separated the handicapped child from his/her non-disabled peers. It was, for example, increasingly deemed wrong to label and discriminate people solely on the basis of a disability. While the results of some efficacy studies are either contradictory or inconclusive on the effects of labelling, it is evident from most other studies that labels stigmatize and have detrimental psychological effects on the people labeled (Dunn, 1968; Heward, 1996). De-emphasis on labelling together with desegregation and institutionalization helped the process on inclusion which is viewed by Stainback and Stainback (1992) as having three major benefits: preparing students for integrated community living, avoiding the ill-effects of segregation and promoting equality. Although findings from some efficacy studies indicated that mere inclusion of disabled children into general education does not always lead to learning benefits, results from many other investigations have consistently shown that when provided with appropriate educational experiences and support, children with special needs benefit more in integrated than in segregated settings (Dunn, 1968; Stainback & Stainback, 1992). These findings partly contributed to the development of notion of responsible inclusion for students with disabilities (Vaughan & Schumm, 1995).

Teachers in regular schools often have negative reactions to the placement of disabled children, particularly the severely and profoundly disabled, in ordinary classrooms (Heward, 1996). Despite this, there is evidence that the negative attitudes gradually become positive for most teachers after interacting with disabled students (Giangreco et al., 1993). Encouraged partly by the positive results of some efficacy studies, families of the handicapped children and interest groups became strong proponents and advocates of the inclusiveness movement. For example, parents of children with disabilities in USA were central to the passage of the PL94-142 law although their involvement in student assessment, program development, and the evaluation of students' progress was limited (Gartner & Lipsky, 1987). Similarly, the parents were also actively involved in the enactment of other subsequent special education laws such as Individuals with Disability Education Act, IDEA and special policies like Individualized Education Program, IEP (Heward, 1996). With regard to interest groups, Tash and individual professionals in special education (e.g. the Stainbacks) were the chief proponents of the inclusive movement (Fuchs & Fuchs, 1994).

- Political Forces: Political controversy had always surrounded the over-reliance on the use of IQ tests to assign children to special educational programs. It was argued that IQ tests were culturally biased against minority children and that they were responsible for producing an over-representation of minority children in special school (Heward, 1996). Too much emphasis was placed on IQ tests at the expense of other equally important sources of concern such as the environment. From the early 1960s, more efforts were directed at improving the family environment of young children in the belief that the quality of the environment was a central determinant of subsequent intellectual development. The segregation of children

on the basis of IQ tests was then seen as an of discrimination and a denial of constitutional rights including equality of opportunity or access to educational provision, the disability rights movement as well as the American black civil rights movement took up the challenge in an effort to produce change in policies and practices through the use of legal system and the legislature (Gartner & Lipsky, 1987). The result was a proliferation of court litigations (including the famous Brown Versus Board of Education case) whose rulings influenced the enactment of various public laws in USA concerning special education the notable ones of which were PL94-142, IDEA and IPFA. The influence of these laws has now spread to many countries both developed and developing.

- Legal Factors: The gap between the aspirations of inclusive education policies and the realities of practice is consistent source of concern for parents of disabled children, special educators, and advocacy groups in Australia (Bain, 1992) and other countries in the world. Although most countries have many progressive policies on inclusive education, these are never fully implemented and there is little follow up on the policies the growing policy-practice gap. Inclusive education policies are implemented at the discretion of the countries/states. Because of the historical failure of the existing inclusive education policies to provide adequate appropriate services, some countries have resorted to legislation as an educational entitlement approach. The main special education laws which were enacted in USA include the Education for All Handicapped Act of 1975 (EHA), PL94-142, PF99-457, IDEA and IPFA. These laws have guaranteed entitlement to special education services for children with disabilities and have also mandated service delivery upon educational providers and consumers at the national, state, and local levels in USA. The laws have also highlighted awareness of special education in schools and communities changing attitudes to, and opportunities for, handicapped individuals in USA (Singer & Butler, 1987).

  Laws affecting special education were also enacted in other countries such as the UK and Italy. In Britain, the Warnock Report recommended the abolition of statutory categorization of handicapped children. It also recommended three types of integration—locational, social and functional—of which only the third (functional) approximated the philosophy of inclusive education. The 1981 Education Act in UK was based on the Warnock Report. The act was just an enabling act not responsible for any fundamental changes in special education because it did not specify the "hows" and "wheres" of what was to be done. In Australia, the state of Victoria was the first to make the deepest changes in favor of integrating special education (see Elkins, 1990). Unlike USA and UK, the federal government in Australia did not pass legislation concerning the provisions of special education. Provision of special education is policy driven and an initiative of a state implemented at its discretion. As a result, the various states are at different levels of advancement as far as the provision of special education was concerned (Casey, 1994; Cole & Chan, 1990). The federal special education policy draws much from the EHP Act in USA. In addition, several states have passed Equal Opportunity Acts in favor of special education. In Italy the process of inclusive education started in 1971 with the passage of National Law 118 which established

the right of compulsory education for children with disabilities in regular schools. This was followed by another law in 1977 (NL 517) which removed the severity of disability as the cause for segregating children (Elkins, 1990). The resources and quality of special education were partly determined by reducing the class size to 20 children and placing a maximum of only two children with special needs per class. To date, various countries have passed affirmative action laws which discourage discrimination on the basis of a handicap. In USA, there is also debate on Regular Education Initiative—REI, which was a Reagan—Bush political strategy to promote inclusive education without favoring the handicapped in a special way (Kaufman, 1989). REI seeks to make special education a goal of regular education, not something imposed on it (Elkins, 1990).

- Economic Factors: Economic interests also feature in the education and care of the handicapped. One of the reasons often given as rationale for the merger of special and regular education is to reduce the cost of education. Operating a dual system of education was not only inefficient but also costly (Stainback & Stainback, 1984). Because special education is more expensive than regular education, an integration of the two might make the system of education more cost effective.
- Educational Factors: Another reason that self-contained special classes are less justifiable is that school programs are now better able to deal with individual differences in pupils than the past (Dunn, 1968). We now know enough how to effectively teach a mixed ability group in a regular setting to meet the instructional needs of mildly to moderately handicapped children. According to Dunn (1968), there are four main forces today working in regular education that can benefit the inclusion of children with special learning needs. First is changes in school organization. There is a lot of emphasis on team teaching and resource rooms. Emphasis is also placed on collaborative/cooperative learning, peer tutoring, and individualized educational programs. In urban area, most children go through a kindergarten, nursery school or preschool (early intervention) before they start formal schooling in regular class. All these resources, methods, and strategies contribute towards meeting the problems of children with special learning needs. Second is the changes in curriculum. Many diverse methods of teaching literacy (reading) and numeracy (mathematics) are now being used in regular schools. These are the initial areas in which disabled children often perform poorly. Inability to perform well in these affects their achievement in other related information and quantitative subjects respectively. Third is changes in school teaching personnel. More ancillary staff are now employed by schools, and these include psychologists, guidance workers, teachers aids, technician, itinerant teachers, support teachers, and other professionals or specialists. Regular school teachers also take courses (pre-service or in-service) in special education and are increasingly able to deal with individual differences. Furthermore, precision teaching methods are increasingly being used (Fontana, 1981). Fourth, there are many advances in educational technology. Online instruction has become more possible because of significant advance in computers (computer-assisted instruction), television, and video machines.

Barriers to Inclusive Education

Shaddock (1999) warns that just because one approach (segregated special education) did not work, do not assume that its apposite will. This chapter identifies and discusses some of the potential factors that may contribute to the failure of inclusive education in Swaziland if they are not adequately addressed. The inclusive approach may also be unsuccessful for a number of other factors (see Wheldall, 1999) other than those listed below. For example, several disability commissions, court cases, and efficacy studies have found evidence both for and against inclusive education being in the best interest of the included student and/or the students and teacher of the regular class (Power & Bartlett, 1999). Three points are worth noting at this juncture. First, the list of setbacks presented below is merely illustrative rather than exhaustive. Second, the barriers are similar to those experienced by other developing countries. Third, inclusive education is feasible and viable in any country provided the barriers to its effective implementation are addressed sufficiently. The major barriers/setbacks and what might be done about them are presented below.

- Schools: These are far too few at the moment compared to the increasing number of eligible clients. They should be increased to improve access to and equity in the provision of education.
- Admission: Current admission criteria and policies for schools are discriminatory in that they require superior on norm-referenced selection tests, levels which most learners with special needs may not meet easily. Admission policies and criteria should be modified to meet needs of exceptional learners with disabilities.
- Quality: The quality of schools will need to be raised. This requires a substantial increase in the funding of schools to enable them to procure the necessary teaching and learning inputs, improve school facilities, increase water and electricity supplies, and other infrastructure.
- Legislation: Experience from elsewhere shows that policy-based special education and inclusive education are rarely implemented to the fullest extent. Appropriate laws will need to be enacted to enforce adequate implementation of the policy.
- Teachers: Are regular school teachers trained in handling learners with special needs? The answer to this question at the moment is no! Something will need to be done along this line in terms of what was discussed in Chap. 3 in this book.
- Attitudes: At present, attitudes of the society, regular school teachers and administrators, and non-disabled learners towards students with disabilities are not known. More research is needed in this area (see Haq & Mundia, 2012).
- Planning: Inclusive education will need to be carefully planned by highly trained professionals and practitioners (Wheldall, 1999).
- Support: Inclusive education will need to be accorded adequate financial and material support to make responsible. Vaughan and Schumm (1995) discuss in detail issues pertaining to responsible inclusion.

- Partnership: Inclusive education requires active collaboration among parties concerned (e.g. non-disabled and disabled children, parents of both children, regular and special teachers, medical and social workers, etc.)
- Transparency: The curriculum, methods (teaching and assessment), and behavior management strategies used should be communicated and made known to all parties concerned and/or interested.
- Evaluation: Educational programs will need to be evaluated constantly thorough empirical research and emerging problems addressed immediately.
- Environment: Both the school and classroom climate or atmosphere should be acceptive, supportive, and conductive to learning. Learners (disabled and non-disabled) and teachers must acquire good social skills (good listening, good observation, non-verbal language) to enhance social interaction. Disabled children need a lot of encouragement.
- Teaching: Instruction should be effective. Prosocial teaching strategies such as peer tutoring, cooperative (collaborative) learning, and group work should be used to promote social interaction and acceptance and minimize loneliness. Individualized educational plans (IEPs) should be included/as part of instruction.
- Curriculum: Syllabuses should be modified to ensure that they are well organized; student-centered; provide instruction and learning that are based on students' learning styles; emphasize acquisition of basic academic and practical skills that promote independent functioning and ensure success.
- Training: Special education components should be incorporated in all teacher education programs (pre-services and in-service) to equip teachers with the necessary skills in handling disabled children.
- Assessment: Tests, examinations, and projects should be modified/adjusted to meet and accommodate the circumstances of children with special needs. Emphasis should be on continuous and multifaceted assessments.
- Buildings: Codes for schools building should be amended to ensure that school buildings are barrier-and-access free to learners with visual and physical disabilities,
- Facilitators: Resource person will need to be appointed in inclusive schools and classrooms. Such personnel may be regular school teachers within the school/classroom trained in special education techniques. Alternatively, resource persons may be from outside (e.g. assistants, aides, itinerants).
- Schools: The increase in schools should be matched with food quality. Quantity without quality is always no good. Increasing schools will help reduce the problems of access to and equity in education.
- Teacher/pupils ratio: The current high teacher–pupil ratios in Brunei should be brought down so that teachers in inclusive schools can give reasonable individual attention to learners with special needs.
- Number of disabled children included in each classroom: Only a manageable number of PWDs should be included in each class (e.g. 2 or 3) to enable the teacher to give them maximum individual attention.

- Incentives: Teachers who take responsibility of handling disabled children should be recognized and appreciated with a little allowance to keep them interested, encouraged, and motivated in doing a demanding task.
- Expectations: Teachers, non-disabled students, parents of non-disabled students, and society in general should not only have positive attitudes towards disabled students but also have positive expectations from them. This will require mounting more sensitization/awareness campaigns in the country.
- Inclusivity. Placement within the least restricted environment (LRE) should be determined individually on a case-by-case basis taking into account all the possible positive and negative factors surrounding the decision.
- Individuality: Educational programs for persons with disabilities and special needs in any setting should be developed from a needs-based assessment or appraisal of the student's current level of functioning.
- Continuum: A range of educational services for persons with disabilities is preferred to match the wide range of disabilities available. Such a continuum or scale of services is discussed in detail by Heward (1996).

Student Assessments and Examinations

Implications of inclusion on formal assessments such as examinations are many and will require innovating strategies by which learners are evaluated. It will be necessary to adapt test instruments to accommodate special needs of learners with disabilities. This will need to be done without lowering the quality of the assessments. With the implementation of the educational reforms (see Ministry of Education, 2008), Brunei now has both internal and external assessments all of which are official and formal and contribute to certification. The main characteristics which are supposed to distinguish these two forms of assessment are listed in Table 19.4.

Murray (1996) discusses in detail some of the specific adaptations that will need to be made to norm-referenced and criterion-referenced tests to be usable by learners with various disabilities. The adjustments to formal test instruments should be made not only to make them suitable for use by disabled learners but also to ensure that such learners are accorded a fair chance or opportunity of experiencing success, a major motivating factor, and a way of creating and maintaining their interest in learning. Table 19.5 below lists some examples of the changes that may need to be considered which teachers should be able to handle fairly competently with additional training in assessment and special needs education. Current teacher education has to play a significant role in imparting these modified assessment skills.

Table 19.4 Differences between internal and external assessments

Internal assessments	External assessments
• Teacher-made tests and projects	• Made by examinations council
• Non-standardized (design, administration, scoring)	• Standardized (design, administration, scoring)
• Continuous assessment	• Public/national examinations
• Formative, informal, semi-informal, cumulative	• Summative, formal and terminal
• Designed by none specialists in measurement, testing and evaluation	• Designed by specialists in measurement, testing and evaluation
• Lower in reliability and validity and possibly more biased	• Higher in reliability and validity and possibly less biased
• Quality (reliability, validity, bias) often not known	• Quality (reliability, validity, bias) often known
• Better at assessing affective and practical contents and skills	• Better at assessing cognitive contents and skills
• Criterion-referenced tests	• Norm-referenced tests
• Cause less stress, anxiety and tension to students	• Cause more stress, anxiety and tension to students
• Demanding task to teachers	• Less tedious task to teachers

Conclusion

Psychology continues to attract Brunei students. The increase in the demand for the subject is expected to grow and require more teachers. Inclusive education has a big influence in the Brunei psychology teacher education program.

Table 19.5 Changes to formal assessments

Exception	Partial/Mild-moderate	Severe–profound
Hearing	All instructions must be written instead of announcing them verbally for a practical presentation the student could prepare a written paper and have it read by another student or an interpreter	An oral translator may translate oral instructions and information oral questions answered via an interpreter
Visual	Large print or braille could be provided and used electronic optical aids (e.g. TV and computer) could be used to enlarge print uses access-barrier free buildings extent time when too much reading and writing are required aids, e.g. computer spell check and calculator may be allowed	Responses may be recorded by taping or typing answers may be directed to writer or scribe Kurzwell reading machine may be used to change print to voice read out avoid complicated language in examination questions consider using alternative examination designs
Physical	Use access-barrier free buildings use assistant/writer/scribe to mark responses on exam papers allow rest period use a quiet room	Use access-barrier free buildings accept different ways of presenting responses e.g. typing or taping use a high desk or drawing board for students with spinal cord problems
Communication	Replace oral exam with written exams Use a separate quiet room with a reader, writer, computer or talking calculator	Allow students to use sign language and have specialists interpret information Use mainly written exams
Learning	incorporate continuous assessment extend time to do the test use a separate quiet room	rely on continuous assessment incorporate informal assessment use a separate quiet room
Intellectual	Break and arrange task into small logical steps use a separate quiet room use simple language in examination questions	Consider using alternative tests strategies and sites give both verbal and written instructions incorporate continuous assessment
Behavior	Remove possible sources of distraction at test sites if possible, use separate quiet room for testing	Give both verbal and written instruction consider using alternative test modes
Gifted	Use both basic and advanced questions in tests	Consider a wide range of test modes e.g. individual projects

Source Modified from conference paper by Murray, 1996

References

Alasim, K. N. (2017). Teachers' attitudes towards the inclusion of students who are hard of hearing in elementary schools in Saudi Arabia. Ph.D. Dissertation. Graduate School, Ohio State University. Program in Education: Teaching and Learning.

Azmin, N. H. (2016). Effect of the jigsaw-based cooperative learning method on student performance in the general certificate of education advanced-level psychology: An exploratory brunei case study. *International Education Studies, 9*(1), 91–106.

Bain, A. (1992). Issues in the integration of regular and special education: An Australian perspective. *Australian Journal of Education, 36*(1).
Banks, J. A. (1995). Multicultural education: Historical development, dimensions and practice. In J. A. Banks & C.A.M. Banks (Eds.). *Handbook of research on multicultural education* (pp. 617–627). Macmillan.
Casey, K. (1994). The Australian scene: Current Issues and policies, Chapter 2 in *Teaching Children with Special Needs:* An Australian Perspective. Social Science Press.
Cole, P. G., & Chan, L. K. S. (1990). *Integration, chapter 2 in methods and strategies for special education.* Prentice Hall.
Creemers, B. P. M. (1994). *The effective classroom.* Cassell.
den Brok, P., Brekelmans, M., & Wubbels, T. (2004). Interpersonal teacher behavior and student outcomes. *School Effectiveness and School Improvement, 15*, 407–442. https://doi.org/10.1080/09243450512331383262
Department of Education and Science. (1978). *Special educational needs (The Warnock Report).* HMSO.
Dunn, L. M. (1968). Special Education for the Mildly retarded—is much of it justifiable? *Exceptional Children, 35*, 5–20.
Elkin, J., (1990). Integration, in A. Ashman & J. Elking (Eds.). *Educating Children with Special Needs.* Prentice Hall.
Foot, H. (1995). Psychology teaching and research. In C. V. Newman (Ed.), *Professional psychology handbook* (pp. 32–37). The British Psychological Society.
Fontana, D. (1981). *Psychology for teachers.* Macmillan.
Fuchs, D., & Fuchs, L. S. (1994). Inclusive school movement and radicalization of special education reform. *Exceptional Children, 60*(4), 29–309.
Gartner, A., & Lipsky, D. K. (1987). Beyond special education: Towards a quality system for all students. *Harvard Educational Review, 57*(4), 367–439.
Giangreco, M. F., Dennis, R., Cloninger, C., Edelman, S., & Schattman, R. (1993). "I've counted Jon": Transformational experiences of teachers educating students with disabilities. Exceptional children, *59*(4), 359–372.
Haq, F. S., & Mundia, L. (2012). Comparison of Brunei pre-service student teachers' attitudes to inclusive education and specific disabilities: Implications for teacher education. *Journal of Educational Research, 105*(5), 366–374. https://doi.org/10.1080/00220671.2011.627399
Heward, W.L. (1996). *Exceptional children: An introduction to special education.* Merill/Prentice Hall.
Hofstede, G. (1980). *Culture's consequences: International differences in work-related values.* Sage.
Hofstede, G. (1986). Cultural differences in teaching and learning. *International Journal of Intercultural Relations, 10*(3), 301–320. https://doi.org/10.1016/0147-1767(86)90015-5
Kauffman, J. M. (1989). The regular education initiative as reagan—bush policy: A trickle down theory of education of the hard-to-teach. *The Journal of Special Education, 23*(3), 256–278.
Lowyck, J. (1994). Teaching effectiveness: An overview of students. *Tijdschrift Voor Onderwijsresearch, 19*, 17–25.
Meyers, S. A., & Prieto, L. R. (2000). Training in the teaching of psychology: What Is done and examining the differences. *Teaching of Psychology, 27*, 258. https://doi.org/10.1207/S15328023TOP2704_03
Ministry of Education. (1997). *Special education policy guidelines.* Unit Pendidikan Khas.
Ministry of Education. (1998). *Handbook on special education for primary school headmasters: Outline of policies and procedures dealing with special education.* Unit Pendidikan Khas.
Ministry of Education. (2008). *Proposed SPN21 curriculum: Draft.* Curriculum Development Division, Ministry of Education.
Ministry of Education. (2013). *Brunei teacher standards.* Government Printer.

Mundia, L. (2020). Assessment of skills development in Brunei trainee teachers: Intervention implications. *European Journal of Educational Research, 9*(2), 685–698. https://doi.org/10.12973/eujer.9.2.685

Mundia, L. (2019). Barriers and enablers of achievement in Brunei general certificate of education advanced level psychology: Views of trainee psychology teachers and sixth form psychology secondary school students. *International Journal of Learning, Teaching and Educational Research, 18*(12), 400–416. https://doi.org/10.26803/ijlter.18.12.23

Mundia, L. (2017). How Brunei trainee teachers cope with distress: Counseling implications. *BMC Research Notes, 10*, 596. https://doi.org/10.1186/s13104-017-2922-0

Mundia, L, Shahrill, M, Jaidin, J. H, Jawawi, R, & Mahadi, M. A. (2016). Brunei's teacher education programs: insights into students' coping and help-seeking strategies to challenges. *International Journal of Mental Health Systems*, *10*(1), Article No. 62. https://doi.org/10.1186/s13033-016-0091-5

Mundia, L. (2010a). The status of a trainee teacher with mental health problems: Dilemmas on inclusion and exclusion in higher education. *Global Journal of Health Science, 2*(2), 172–183.

Mundia, L. (2010b). Brunei trainee teachers' coping strategies for stressful situations. *International Journal of Psychological Studies, 2*(1), 79–88.

Mundia, L. (2009). The prevalence of depression, anxiety and stress in Brunei preservice student teachers. *The Internet Journal of Mental Health, 6*(2), 1–7.

Murray, D. (1996). *Forget charity?* We have a right to fair assessment accommodating student with disabilities need not compromise assessment standards. An unpublished paper presented as a conference on "Partnerships on the Assessment of Student Achievement", held in Auckland, New Zealand, September 22–38.

Omar, N. A., Matarsat, S. R., Azmin, N. H., Wei, V. C. A., Nasir, M. M. M., Sahari, U. K. S., Shahrill, M., & Mundia, L. (2014). The ideal psychology teacher: Qualitative analysis of views from Brunei GCE A-Level students and trainee psychology teachers. *Asian Social Science, 10*(12), 184–194. https://doi.org/10.5539/ass.v10n12p184

Power, D., & Bartlett, B. (1999). Need for inclusive education. *Education Review, 3*(1), 7.

Scheerens, J., & Bosker, R.J. (1997). *The foundations of educational effectiveness*. Oxford: Elsevier Science.

Shaddock, T. (1999). Moral of the story: Don't oversimplify inclusion. *Education Review, 3*(1), 6.

Singer, J. D. & Butler, J.D. (1987). The Education for all Handicapped Act: Schools as Agents of Social Reform. *Harvard Educational Review*, *57*(2).

Stainback, S. & Stainback, W. (1992). Schools as inclusive communities, Chapter 3, in W. Stainback & S. Stainback (Eds.), *Controversial issues confronting special education*. Allyn & Bacon.

Stainback, W., & Stainback, S. (1984). A rationale for the merger of special and regular education. *Exceptional Children, 51*(92), 102–111.

Vaughan, S., & Schumm, J. S. (1995). Responsible inclusion for students with learning disabilities. *Journal of Learning Disabilities, 28*(5), 264–270.

Wheldall, K. (1999). Learning from Barbie's Disabilities. *Education Review, 2*(1), 5.

Wubbels, T., & Brekelmans, M. (1998). The teacher factor in the social climate of the classroom. In B. J. Fraser, & K. G. Tobin (Eds.), International handbook of science education (pp. 565–580). Kluwer. https://doi.org/10.1007/978-94-011-4940-2_32

Wubbels, T., Brekelmans, M., den Brok, P., & van Tartwijk, J. (2006). An interpersonal perspective on classroom management in secondary classrooms in the Netherlands. In. C. Evertson, & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice and contemporary issues* (pp. 1161–1191). Lawrence Erlbaum Associates.

Chapter 20
Pre-service English Language Teacher Employability Issues: Voices from Indonesia

Ashadi Ashadi

Abstract The separation of higher education (previously under the Ministry of Research, Technology, and Higher Education—MoRTHE) from the schooling system (under the Ministry of Education and Culture (MoEC)) caused several problems in Indonesian teacher education. Designed based on evaluation system and standardization, the policy leaves the particulars of the standards and the processes to teacher colleges while implementing context-based teacher education to schools. As a result, gaps can be seen in the implementation of teacher education, particularly when student teachers work with mentors at schools during teaching practicums. Employing a multi-case study in four teacher colleges and four schools, this investigation involved 12 participants consisting of four supervisors (lecturers), four student teachers, and four mentors (school teachers) to reveal the employability issues faced by these stakeholders in the education of student teachers. Relevant policy and course documents were also reviewed previously to identify the potential problems in the area. The result demonstrates varying perspectives from the two sides of different stakeholders on how an employable teacher education process is to be construed. Further feedback on policymaking and the process of constructing employable professional teacher identities can also be seen from the participants' accounts.

Keywords Pre-service second language teacher education · Employability · Multi-case study · Teaching practicum

Introduction

To narrow the gap between initial teacher training, initial teacher education, pre-service training and Richards' definition (1990) of second language teacher education (SLTE) provide a valuable distinction of the central arguments of how beginning language teachers gain knowledge and skills initiate a model of effective teaching.

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SLTE ideas and practices in the world have been affected by the changing views on the English language and its teaching over the past three decades. Freeman and Johnson (1998) outlined the continued influence of these trends on SLTE practice and theory and identified new trends in thinking and practice in SLTE. Meanwhile, Wright (2009) lists a number of three sets of key questions as productive tools in analysing SLTE issues, namely: (i) questions addressing the purpose of SLTE, (ii) questions eliciting the formal experience in initial teacher education (ITE), and (iii) questions on the evaluative process of such programs. Shifts in ideas about and the practice of SLTE in the 1980s lead to the dilemma (Richards, 1990) and reconceptualization of what student teachers learn, and how and where it is learnt.

In terms of coverage, Burns and Richards (2009) show the breadth and depth of SLTE activities that involve a wide-ranging area such as in-service training or professional development. With the emergence of applied linguistics and trends towards cognitivist and social approaches, a rather sharp turn occurred in teacher education practice from the prescriptive to a more developmental approach of autonomous judgement and practical theory (Lockhart & Richards, 1994). The terms such as teacher knowledge (Freeman, 1991), teacher learning (Freeman & Richards, 1996), teacher cognition (Borg, 2003), teacher reflective action (Schon, 1983) and pedagogical content knowledge (Schulman, 1986) were introduced in literature. Then, a new attention towards mentoring student teachers in the school context (Malderez, 2009) led a way to school-based teacher development in which school cultures were given a significant weight in student teachers' learning from experience. This was marked by the rise of various supervision (Randall and Thornton, 2001) and mentoring models in literature (Medgyes & Malderez, 1996).

Further, Golombek (1998) argued that a more socially constructed knowledge base needs to be notably drawn on by teacher educators so that it can help student teachers' knowledge and skills development. Such a view entails a more dialogic and investigative approach to second language teacher education than what Freeman (2002) criticized as "technicist epistemology" in pre-service teacher education. In relation to this criticism, Johnson (2000: 3) adds if, so far, teachers are only regarded as technicians who act as operators in the implementation of theories, methods, and curricular dynamics from scholars and experts who are remote from classroom life. These lead to the proposal that learning to teach is a reflective process marked by dialogic inquiry with colleagues and teacher educators, a process which allows student teachers to theorize their own practice (Johnson, 2009). Such movement is strengthened through the encouragement for teachers to conduct classroom action research as a means to enhance their pedagogical knowledge and evaluative skills in a specific area.

Gray and Block (2013) remind that to know these changes in teacher education more comprehensively, a retreat from and a review of the actual form in which education has been marketized by neoliberal practice and ideology is imperative. There is a firm change in different educations systems and contexts around the world that an overriding managerial wave leading to increased accountability of all professionals including teachers and teacher educators. Under such a circumstance, students are gradually viewed as customers looking for a service, and as a consequence, schools

Table 20.1 Whitty et al. (1998) shift from a professional contextualist of teaching to the technocratic-reductionist

Dimension	Professional contextualist	Technocratic-reductionist
Role model	*Reflexive practitioner*	*Skilled technician*
Criterion of good practice	*Integrity*	*Competence*
Pedagogical aim	*Development of diverse human capabilities*	*Attainment of specific learning outcomes*
Administrative context	*Professional leadership (collaborative)*	*Efficient management (hierarchical)*
Type of motivation	*Intrinsic*	*Extrinsic*
Form of accountability	*Professional commitment*	*Contractual compliance*

and teachers are likely to be seen as service providers. In response to this trend, Ritzer (2011: 1) warns McDonaldlisation referring to "the process by which the principles of the fast-food restaurant are coming to dominate more and more sectors of American society as well as the rest of the world". This process is marked by four features of organizational systems, namely: efficiency, calculability, predictability, and control making up an absolute pattern for standardization. In the case of teacher education, it leads further to a condition previously criticized by Braveman (1974) as a systematic deskilling of workers including student teachers. Reflecting on this situation, Gray and Block (2013) highlight how teacher training has been taken over by philosophies of technical rationality and its associated concepts such as efficiency, calculability, predictability, and control.

Whitty, Power, and Halpin (1998) noticed a move from what was labelled a professional contextualist conception of teaching to the technocratic-reductionist notion. The latter comes from the application of marketing principles to education which views teaching as product oriented and values the acquisition of instrumental skills and knowledge. To summarize, it is important to employ Whitty, Power, and Halpin framework to distinguish both notions (1998: 65) (Table 20.1).

The presented changes in teacher education orientation are not only about making the case for a more sociocultural understanding of the nature of teacher knowledge but also part of an effort to develop an independent academic area for TESOL and language teacher education to be less dependent on related disciplines such as linguistics and Second Language Acquisition (SLA). There is also conflicting result in the literature in terms of what counts as the knowledge base of language teacher education. Is it at the range of several disciplines which include linguistics, education, philosophy, and sociology which needs to be informed by insights and theory from the social sciences or specific on English language teaching? Failure to identify common ground with the social sciences can eventually run the risk of intellectually diminishing the field of teacher education and politically weakening it.

Employability in Teacher Education

Graduate employability has recently been employed as a major criterion for judging the higher education quality (Tran, 2016). It has been applied to graduates of all programs including teacher education of different subjects. Andrewartha and Harvey (2017) and Clarke (2018) note that in Australian and British universities have added a range of skill-based learning outcomes to increase graduate employability in all disciplines. Meanwhile, Sin and Amaral (2017) show that academics and companies in Portugal have worked together in establishing employability criteria for university graduates. In Asia, Burgess et al. (2017) also outline the responses and policies that are being implemented by different stakeholders in several countries like India, Indonesia, Laos, Malaysia, Nepal, Singapore, Taiwan, and Vietnam to enhance graduate work-readiness.

Higher education and industries, including schools, have a shared concern over the employability of the former's graduates (Al Tobi, 2006; Hamdan et al., 2014). However, there are difficulties in establishing firm frames both in its measurement reliability and its predictive validity of future productivity (Suleman, 2018). Several questions are still unanswered, particularly in terms of the training and employability of student teachers. For example, whether university teacher educators share the same criteria with those who will hire teacher candidates. Whether employability becomes an appropriate approach to teacher training? If the candidates' ability and skills associated with employability are likely to improve their capacity to maximize student learning? What other possible factors may influence student teachers' learning outcomes that have not been covered under employability perspective?

However, Hess (2002, p. 174) argues if there is what so called established, research-based canon of essential education knowledge. As a result, the assumption of employability as an academic subject cannot be justified, because although it can be learned, it cannot be taught by academics. Professionals, like teachers, can work effectively in coherent and collective conceptualization through their lived experience. Therefore, attempts by universities to enhance their graduate's employability have been criticized as these are based on subjective assumptions designed as if to serve education industry. While research assumes that employment depends exclusively on the qualities of candidates searching for jobs, employability should, then, be realized as a transactional concept (Clarke, 2018). Universities may have a role is shaping the qualities of the candidates, individuals (in this case, student teachers) can have their own job preferences, and employers (schools) can form the type of qualities required as job requirements. For this reason, this article seeks to elaborate the employability issues from three different stakeholders involved in the area representing supervisors from teacher colleges, mentors from schools, and the student teachers as mentees.

Indonesian Teacher Education Context

Based on Law Number 14 (2005), to become a teacher in Indonesia, one should complete a four-year university degree, gaining a teacher certificate, and showing professional, pedagogical, personal, and social competencies. Student teachers are required to pass a competency test administered by the government (involving universities/teacher colleges and schools) to obtain teacher certification. They can only take the test after completing a one-year professional training program at certain universities (having teacher colleges often called Lembaga Pendidikan Tenaga Keguruan, LPTK). This study, however, sets in one of the courses offered in the four-year university degree mentioned earlier which becomes the first significant period where a student teacher selects a decisive option for their future career. The widely known teaching practicum has been a distinctive mark of teacher education programs all universities with teacher colleges. It involves a collaboration from the higher education through supervising lecturers, the participating schools through appointed relevant subject teachers as mentors in the field, and the student teachers as mentees.

Therefore, voices from these relevant parties involved in the construction of the discourse would help shape the process of sense-making during the practicum. Exploring the concepts and problems of professionalism and professional development of English teachers in Indonesia, Yuwono and Harbon (2010) found that teachers' professionalism seemed to be a proxy of their motives in entering the profession that involves their intrinsic motivation, altruistic belief, and love of the language, perceived gender roles, and difficulties in other professions. Confirming their findings, Suryani (2017) discovers that despite teaching is perceived as a high status from a religious perspective, it remains socio-economically in a middle occupation drawing on FIT-choice theoretical framework (Watt & Richardson, 2007). Indonesian student teachers are likely to have the tendency to enter the profession for a combination of altruistic, pragmatic, and opportunistic motives.

Investigating elementary teacher education in Indonesia, Zein (2012) suggested a bottom-up approach in what he called as a transformative teacher education policy-making involving all relevant stakeholders. It includes a thorough profiling and needs analysis of teachers, cooperation among related stakeholders, and the provision of sufficient funds for teacher training programs by both local and central authorities.

However, with its islandic geographical characteristics and volatile education policy as seen in the separation and unification of ministries, Indonesia faces a serious problem to standardize its teacher education equity and quality. This study is, therefore, an effort to examine what problems exist and persist in effort to improve the quality of teacher education and particularly English teachers from an employability perspective.

Method

A multi-case study was selected to approach the issue of pre-service English teacher employability through teaching practicum programs conducted in four different school settings. The objective is to gain deeper and richer information from stakeholders from different stakeholder positions in response to pre-service teacher employability. This design, according to Eisenhardt and Graebner (2007), enables a broader discovery of theoretical development and extensions of research questions. This multi-case study was conducted in four universities with teacher colleges (Specifically, English education study program) and four schools, involving 12 participants consisting of four supervisors (lecturers from the universities), four student teachers, and four mentors (school teachers) (Table 20.2).

After examining the relevant literature, identifying the gaps in it, and setting up research questions to guide the following process, this study began with document analysis in teacher education in Indonesia. Document analysis, according to Bowen, (2009, p. 27) is a methodical procedure for reviewing or assessing documents both printed and electronic materials which covers the processes of finding, selecting, evaluating, and synthesizing contained information. Relevant and significant information was examined and interpreted to elicit meaning, generate understanding, and advance empirical knowledge. Documents could provide contextual and circumstantial information to confirm or dispute against the results of the other data collected from different sources (Owen, 2014). Atkinson and Coffey (2010) claim that documents represent social facts (realities) which are formed, shared, and used in socially systematic manners (p. 83). In the case of employability and teacher professional, the analysed documents were: Law Number 14 of 2005 on Teachers and Lecturers, Government Regulation Number 74 of 2008 on Teachers, Presidential Decree Number 8 of 2012 on Indonesian National Qualification Framework (IQF),

Table 20.2 Research settings and participants

No	Pseudonym	Role	Institution	Gender	Age
1	Amira	Student teacher	University A/HS	Female	21
2	Bernie	Student teacher	University B/VS	Male	21
3	Cathy	Student teacher	University C/JS	Female	20
4	Don	Student teacher	University D/JS	Male	22
5	Hasan	Mentor	Junior School (JS)	Male	39
6	Joanna	Mentor	Junior School (JS)	Female	47
7	Martha	Mentor	High School (HS)	Female	40
8	Noah	Mentor	Vocational School (VS)	Male	45
9	Steve	Supervisor	University A	Male	40
10	Tim	Supervisor	University B	Male	30
11	Vicky	Supervisor	University C	Female	46
12	Wendy	Supervisor	University D	Female	48

Regulation of the Minister of National Education (MoNE) 16/2007 on Standards of Academic Qualification and Competencies of Teachers, Regulation of the Minister of Education and Culture (MoEC) 49/2014 and Regulation of the Minister of Research, Technology, and Higher Education (MoRTHE) 44/2015 (both documents are identical) on National Standards of Higher Education, Regulation of the MoRTHE no 55/2017 on Standards of Teacher Education, Graduate Profiles and learning outcomes of English Language Education Study Program Association (ELESPA/APSPBI), ELE curriculum documents and Teaching Practicum Handbooks of respective institutions. These documents were thematically analysed and constantly compared to other information gained from different sources.

As the study aims to integrate multiple perspectives on student teachers' employability and to examine how such views are interpreted by different stakeholders, it employed semi-structured individual interviews that involved 12 question items in related themes followed by probes to elicit more detailed responses (Qu & Dumay, 2011). The interview questions covered three elements of questions: main questions, follow-up questions, and probes that helped explore the depth, detail, variety, richness, and differences of employability issues in each case (Owen, 2014). In this way, a thick description of the case could be more elaborated when the instruments enabled rich data collection and further thematic analysis following Braun and Clarke (2006).

The most widely known criteria to achieve trustworthiness among qualitative researchers are Guba and Lincoln's that include credibility, dependability, confirmability, and transferability that are later added with authenticity (1994). To address the issue of credibility, this study employed triangulation in the forms of data collection through the involvement of different interviewed stakeholders and levels of reviewed documents. The stability of the data overtime and the conditions (dependability) was gained through an audit trail from the processes of data gathering, transcribing, coding, and interpretation. Meanwhile, the issue of transferability was addressed by employing purposive sampling and the thick description by writing detailed accounts or excerpts describing situations and their relevant context. Finally, bracketing and data management supported the confirmability of all processes and stages of the study.

Findings

To summarize the lengthy explanations of the data analysis results, this section will be divided into two subsections representing the description of overall findings. First, the imposed meaning of professional teachers that shaped perspectives on the description and definition of professional teachers are deductively traced. The following subsection will then report the inductive voices from different stakeholders in a short combined narrative account. These top-down and bottom-up strategies of displaying the findings are expected to facilitate the comprehension on this complex issue of pre-service teacher employability through the specific context of teacher education.

The Prescribed Description of Teachers as Professionals

The alignment towards teachers is reflected in Law 2005, GovReg, 2008, MONE 2007 Teacher Standards, MoRTHE (Ministry of Research, Technology, and Higher Education) 2017 Teacher Education Standards, and Association Teacher Education Standards. As parts of Indonesian labour system, teachers are the accounted for in the Presidential Decree of IQF 2012 as well as the MoNE/MoRTHE 2015 HE Standards. It is in line with the histories of how the regulations were produced and how the authority of the HE stipulated the standards of teacher professionalism as mandated by the Ministry of Research, Technology, and Higher Education (now, Ministry of Education, Research, and Technology).

In the document analysis, the construct of a teacher and what constitutes as a professional teacher are emerging and repeated as recurring themes in all of the relevant documents. For example, the documents outline the teacher tasks in relation to the indicator of being a professional. The construct of a professional teacher is mentioned explicitly in the three regulations: Law 2005, GovReg 2008, and MoRTHE 2015 HE Standards in the same expression: *A teacher is a professional educator with the main tasks of educating, teaching, mentoring, directing, training, assessing, and evaluating students in formal early (childhood) education, elementary education, and middle education.* (Article 1, Number 1, Law 14/2005).

As for the two other regulations, MONE 2017 Teacher Standards and Presidential Decree of IQF 2012 do not mention this construct at all. Although Law is one of the referred regulations for regulation of MONE 2017 Teacher Standards, this document specifically addresses the standards of academic qualification and competencies of teachers, and thus, it may speculate that the construct of a teacher has been understood by the subjects of this regulation. In the case of Presidential Decree of IQF 2012, the document addresses the Indonesian National Qualification Framework which applies in general to all professions. Therefore, the non-existent of a construct of a teacher, which is specific to one profession, is understandable.

A teacher is a professional educator with the main tasks of *educating, teaching, mentoring, directing, training, assessing, and evaluating students in formal early education, elementary education, and middle education.* (Article 1, Number 1, Law 14/2005). There is a clear separation of the words educating and teaching across the whole documents. The former entails not only working with the mind of the students, but also the characteristics such as personality, stance on life, responsibility, and identity. Whereas the later means giving others lessons in a course and of training for certain knowledge and skills in a particular area. The practices of a teacher that constitute his identity also involve mentoring and directing students. Therefore, the elements of teacher identities as an educator may be defined by his abilities not only in transferring knowledge and information, but also in developing students' skills and inculcating moral beliefs, principles, or values among respective students. Additionally, assessing and evaluating as one of the main responsibilities of a teacher denotes to a significant purpose, namely providing values to students' achievements.

Such responsibility suggests that a teacher needs to possess knowledge and skills to conduct the assessment/evaluation practices.

It is also interesting to review another important construct mentioned in the legal and formal document like Article 1, Paragraph 4, Law 14/2005: *Professional is a job or an activity that is conducted by someone and is the source of his living income which requires expertise and abilities which meet certain quality standards or norms and require a professional education.*

As specified in the document, the professional identity of a teacher is prescriptively compelled through standardization and job-specific trainings as the constituents of professional identities demand certain expertise and abilities in executing teaching jobs. A comparable sense is also identified in Article 1, Paragraph 8, Presidential Regulation 8/2012: *A profession is a specific field of job with certain competences which is recognized by the public.* This the significance of others' (public) acknowledgement is obviously stated in the regulation.

To specify the term "public" who acknowledge a "professional" teacher, the analysis leads to the stakeholders that have the authority to manage the standardization of teachers' expertise and abilities or design and conduct teacher professional trainings. The indication leads to the Ministry of Education and Culture, specifically the Directorate General of Teachers and Education Staff. Especially for pre-service teachers, the HE, in this case teachers' colleges (LPTK), is the institution that manages the teacher education programs (under MoRTHE 2017 Teacher Education Standards). This condition suggests the strength of HE in situating the outlooks of teachers' professional identities. The Pres IQF 2012 also specifies that the public holds the power to control of the elements of identities in the pre-defined set of professional competences. In the case of teaching profession, HE becomes the involved party given the authority by MoEC and MoRTHE to certify the professional status of an individual teacher that entails legal formal acknowledgement and additional allowance from the government.

As the analysis goes down and relates to the other documents such as the study program association formulation of learning outcomes or graduate profiles and institutional documents like curriculum, syllabus, and lesson plans, more terms are found to be more complex that how they are stated in the document. Terminology like attitude, ability, competence, and standard seems to colour the professional qualities and identities of an ideal teacher in the sociocultural context of Indonesia. The governing documents entail that a teacher in Indonesia needs to possess and demonstrate the values of religiosity, humanism, nationalism, entrepreneurship, independence, grit, and academic integrity, and thus, these are imposed on Teacher Education programs in different institutions.

Some problems are identified in the document analysis in terms of how the employable teacher professional identities are presented in the documents and the competing perspectives of employable teacher professional identities in the teacher professional education programs. On one hand, this way of presenting teacher professional identities that covers an array of competences can possibly cause pressure for student teachers meet the requirements. Additionally, as the weight of the teacher education program lies more on higher education than on schools, this can also leave space

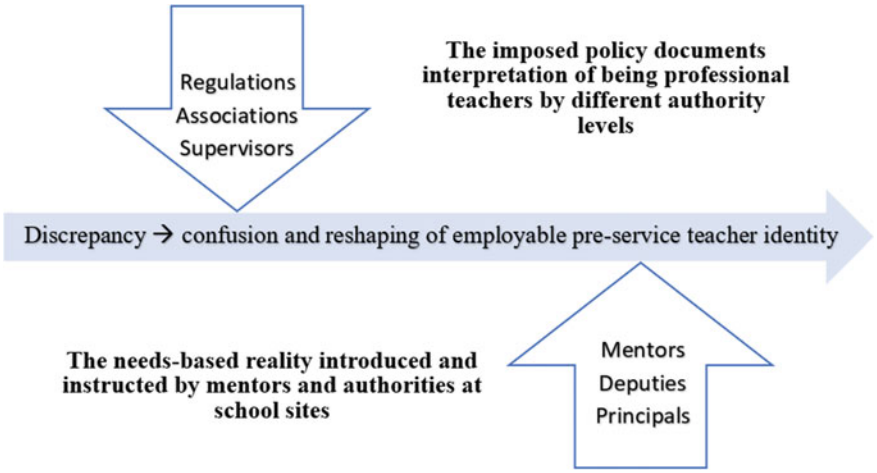

Fig. 20.1 Incongruity on what counts as employable pre-service teachers

for different interpretation of what counts as professional teachers in school sites. As a result, student teachers may find a conflicting expectation of how they should present themselves professionally due to the possible different construal of the terms and demands mentioned in the governing documents. The following figure subsumes the findings based on data analysis of the current study (Fig. 20.1).

Voices in the Field

The governmental and institutional regulations have placed the power of constructing the fundamentals of teacher professional identities largely in the hands of the HE with the given the authority to decide on specific knowledge, skills, and competences pre-service teachers to develop through the learning outcomes in related courses. Meanwhile, the schools seem to have a stronger voice in deciding which practices are to be implemented and imposed on the pre-service teachers. These practices, based on the gathered data, include day-to-day teaching activities, social-related activities, and assessments.

In their first week of the assignment at school, some of the participants voiced concerns over the confusion they had to face in dealing with opinions, instructions, and authorities. Amira, who did the practicum in a rural high school, was a bit confused with the structure of the mentorship she experienced there. *Everyone seemed to give me instructions and I wasn't sure which one I should follow because the principal, the deputy of curriculum, my mentor, his colleagues, and even administrative staff gave me orders.* For almost three weeks, she tried to learn and identify the line of authority in the site.

She told her problems of adaptation to her supervisor, Steve (a lecturer from the higher education), but he could do nothing and only said that she had to stick with what is written in the practicum protocol/guideline. He only reminded her to also consider, "*the school power when she's already in the field*". However, as a new mentee, Amira feared that she could face a bigger problem when such orders and instructions are not well followed. Meanwhile, Don faced another problem with his social role as a student teacher entering the new professional environment in a suburban junior high school. He admitted that to get along and mingle with teachers, staff, and other mentees (often from different campuses at the same time) was sometimes excessive for him. Once, one of the school's Math teachers' parents passed away, and he had to join teachers and staff to attend the funeral and express condolences. *You know what? I didn't know the guy and I even never met that Math teacher before.* Don argued that such social activities are not listed in the practicum guidelines (protocol) including joining Iftar during Ramadhan, for instance, which he thought as not a part of his tasks. This can presumably be interpreted as the obscure definition of social competencies in the documents perceived by the different pre-service teacher education stakeholders in different sites.

In terms of teaching, most participating mentors agreed that there are areas which need improvement from the student teachers' instructional performance. One of them, Hasan, argued that *they need to be more creative, can use audio visual aids comfortably, can develop learning materials for their students, and even attract the students' attention.* Such details are probably absent or given less attention in the related formal document such as the curriculum or practicum guideline/protocol. To become more grounded and practical, the schools through their own policies seem to hold the authority of deciding which practices to be implemented and imposed to the practicing pre-service teachers. Such practices include the daily teaching and administrative activities, social-related activities, and assessments have become sources of sense-making among the participants. They attempted to understand what worked and what did not in relation to the discrepancies they experience from learned theories and field practices. Each school context seems to have a different account of what is acceptable or not in relation to their social roles as teachers. These are likely to contribute to the perceived notion of employable professional pre-service teachers particularly with the social and behavioural acceptance of norms.

In addition to those, each school case also reported the different qualities of pre-service teachers from different teacher colleges as stated by all teacher mentors. They argued that the institutional background of the student teachers played a role in shaping the general perspective of the pre-service teachers' qualities. However, they also agreed that pre-service teacher individual qualities are more prominent despite their institutional background as these qualities can be improved while doing the teaching practicum. *It (institutional background) is not surprising, but if they (mentees) have the individual qualities, they can still be improved,* Noah, who teaches in a favourite vocational high school, echoes his teaching colleagues' voices. This confirms the importance of school as a site for practical learning for these pre-service teachers to apply what they know and master from higher education.

Skills wise, however, the participants' capacities to perform the main teaching tasks involving lesson planning, giving effective instructions, developing learning materials, and establishing rapport with students seem to be central in the field (school site). Mentors also reported that the lack of such skills could seriously cause pre-service teachers to suffer in the future assignment when not tackled seriously. Such voice could also mean that the pre-service teachers' employability level is still under construction and experiencing formation and reformation. Therefore, the field practicum as they experienced in the school may become a way to verify their own belief, knowledge, attitude, and instructional skills while at the same time a means to examine their employability and fit to the profession.

Discussion

The findings above suggest that there is a gap or incongruity between what the policy documents state, expect, and impose from the professional teacher candidates and what the involved institutional authorities perceive and implement in the actual teaching practicum. Such is often termed as policy translation (Mukhtarov, 2014) that is the movement of policy ideas across different spaces and time which includes different institutional levels, rationality of actors in the field, the steadiness of authority, and the ascendency of policy ideas. As we can see from the large-scale document analysis, there has been derivation and repetition of terms indicating alignment to the relevant superior entities. However, when the policy translation reaches the schools, the operational enactment is likely to be exercised by the real condition is each site.

Such gap also indicates the disjunction (Sjølie, 2017) between the theoretical ideas of the supervisors in the teacher colleges and the practical implementation by the mentors in the school sites. Such disconnection may require understanding and collaboration between the mentors and the supervisors in the process of establishing the professional teacher candidates. Otherwise, it may create confusion among the pre-service teachers whether to stick on the learned theories or to adapt to the existing practices.

To further examine the impact of confusion caused by the disjunction, Glazer and Hannafin (2006) remind that teacher's beliefs and interest to interact in teacher professional development have impact on their willingness to collaborate with others. However, the nature of collaboration may also be influenced by other factors, such as the institution, leadership, and context of the collaboration. The differences in beliefs among the stakeholders may possibly impede the partnership of these stakeholders because of the differences in concepts of instruction even when they use the same terminology (Carr, 2002). The differences of beliefs, in the current study, between the mentoring teachers and the supervising lecturers may impact on the mentoring process and product and eventually on the practicing pre-service teachers.

In relation to the difference, Smith and Lev-Ari (2005) found that principals regarded pre-service teacher education in their schools as not part of their professional responsibilities, therefore it is not surprising that only relevant mentors felt the engagement with such practicum program. It could possibly be the effect of the dualism in the management and implementation of teacher education in the past by ministries of research, technology, and higher education (MoRTHE) and of education and culture (MoEC). As a result, all involved parties such as supervisors from relevant campuses, pre-service teachers, and mentors along with school principals felt the shared responsibility was rather unclear. Therefore, the integration of schools and higher education under one ministry can hopefully meet the expectation in improving the quality of teacher education and eventually teacher employability.

Meanwhile, pre-service teachers in the current study admitted to have learned for the field through reflection, similar to those in Lee and Loughran (2000),which (1) included issues or concerns which changed over time during the school-based teaching period, for example: curriculum, assessment, and mode of instruction (online distance learning); (2) was indicated by the sense-making which happened over time throughout their school-based practicum period; and (3) was eased by the specific nature of a school-based teaching programs as more time, occasions, and backing provided. Consequently, (1) a prolonged teaching practicum program would allow pre-service teachers to experience more stances of practicing as professional teachers; (2) the experiences could become a consideration of the diverse contexts in which a student teacher would be assigned to do teaching practicum; and (3) through such pedagogical experiences, pre-service teachers can learn and gain professional development in terms of their pedagogical practices. In short, school-based education allows pre-service teachers to experientially learn about and through the reflection of their practicum experiences.

As we learned from the participating pre-service teachers' voices, their feelings and emotions endured important changes during the learning-to-teach process at school, although they also experienced doubts and frustration early in their teaching practicum period. On the other hand, the feelings of pride and joy from being appreciated by their students could facilitate these pre-service teachers to examine their own perspectives and emotions to some extent. Such acknowledgment led their ideas and measures towards a proper future professional choice, which may later include the decision to become an English teacher. This process, according to Teng (2017), also suggested that the pre-service teachers need to maintain their emotional intelligence skills that controlled emotional state to encourage adaptive actions.

Further, Blackley et al., (2018, p. 864) argue that first placement of teaching practicum is an important experience for pre-service teachers to undergo and reflect on. Gradual critical reflection, according to them, is necessary if pre-service teachers can make sense of their social and professional experiences and to identify themselves as teachers rather than students in a school context. To enable such reflection and projection of future employable self, pre-service teachers, therefore, need to undertake such social and professional experience in more extended period so that their perspectives, opinions, and emotions are thoroughly exerted in a real work setting. In this way, they can navigate themselves through the ups and downs in the practicum

sites while at the same time visualize whether they really fit in the profession to ultimately anticipate and reduce the risk of attrition in the future.

Conclusion

The findings of the current study seem to resonate what Whitty, Power, and Halpin framework (1998: 65) in distinguishing the shifting concepts of professional contextualist and technocratic reductionist. At some point, the supervisors, (pre-service) student teachers, and teacher colleges are likely to embrace the later notion with their conformity to the prescribed policy of professional teachers as mentioned repeatedly in the national (INQF, Education Act), professional (learning outcome formulation), and institutional (syllabus and practicum protocol) documents. They focussed more on the specific skills, competencies, and completion of specific learning outcomes. On the other hand, the school including teachers as mentors, deputies, and principals still regard the professional contextualist nature of school-based teacher education. As a result, they demanded pre-service teachers to embrace professional commitment in the form of integrity, collaborative leadership, and development of diverse capabilities including social and non-job-related capabilities.

Facing such different approaches in their teaching practicum, the participating pre-service teachers were surprised initially, and they needed some time to reconsider their professional identity. The current study and other relevant research have shown that the school-based experiences are significant, to a certain extent, for these student teachers to reshape their ideal professional self. Hence, this stage is expected to offer them with challenges, options, and opportunities to make sense of their future employable identity. The sooner they can make decision on whether to enter or leave teaching would be an advantage to the profession as it could be used to anticipate their work retention or attrition.

Policy-wise, this study has demonstrated the polarity problem of teacher education implementation due to the separation of MoEC and MoRTHE in the Indonesian education system. It also confirms the lag between what higher education has embarked on (technocratic reductionist) and what the schools seem to still embrace (professional contextualist). With the current re-unification of the two ministries, it would be interesting to examine if these issues persist or are effectively solved to improve the employability of pre-service teachers. Future research may also address this issue to explore if such policy has impact on the field implementation of school-based teacher education and whether it can improve or impede the employability of pre-service teachers.

References

Al Tobi, K. (2006). *The effectiveness of teacher recruitment and selection in Oman: An analysis of stakeholder perceptions*. Doctoral thesis, University of Leicester.

Andrewartha, L., & Harvey, A. (2017). Student voice and influence on employability in Australian higher education. *Journal of Teaching and Learning for Graduate Employability, 8*(1), 202–214.

Atkinson, P., & Coffey, A. (2010). Analysing document realities. In D. Silverman (Ed.), *Qualitative research* (pp. 56–75). SAGE Publishing.

Blackley, S., Bennett, D., & Sheffield, R. (2018). Pre-service teachers' articulation of their future selves. *Issues in Educational Research, 28*(4), 849–869.

Borg, S. (2003). Teacher cognition in language teaching: A review of research on what language teachers think, know, believe, and do. *Language Teaching, 36*(2), 81–109.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101.

Burgess, J., Cameron, R., Dhakal, S., & Brown, K. (2017). Introduction: Applicant work-readiness and graduate employability challenges in the Asia Pacific. In *Transitions from Education to Work* (pp. 3–15). Routledge.

Burns, A., & Richards, J. C. (Eds.). (2009). *The Cambridge guide to second language teacher education*. Cambridge University Press.

Carr, K. (2002). Building bridges and crossing borders: Using service learning to overcome cultural barriers to collaboration between science and education departments. *School Science and Mathematics, 102*(6), 285–298.

Clarke, M. (2018). Rethinking graduate employability: The role of capital, individual attributes and context. *Studies in Higher Education, 43*(11), 1923–1937. https://doi.org/10.1080/03075079.2017.1294152

Eisenhardt, K. M., & Graebner, M. E. (2007). Theory building from cases: Opportunities and challenges. *Academy of Management Journal, 50*(1), 25–32.

Freeman, D. (2002). The hidden side of the work: Teacher knowledge and learning to teach. A perspective from north American educational research on teacher education in English language teaching. *Language Teaching, 35*, 1–13.

Freeman, D., & Johnson, K. E. (1998). Reconceptualizing the knowledge-base of language teacher education. *TESOL Quarterly, 32*(3), 397–417.

Freeman, D., & Richards, J. C. (Eds.). (1996). *Teacher learning in language teaching*. Cambridge University Press.

Glazer, E. M., & Hannafin, M. J. (2006). The collaborative apprenticeship model: Situated professional development within school settings. *Teaching and Teacher Education, 22*(2), 179–193.

Gray, J., & Block, D. (2013). The marketisation of language teacher education and neoliberalism: characteristics, consequences and future prospects: John Gray and David Block. In *Neoliberalism and applied linguistics* (pp. 119–148). Routledge.

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of Qualitative Research, 2*(163–194), 105.

Hamdan, K., Aguilar, J., Yee, P., Nee, A., Benitez, X., & Medina, C., et al. (2014). Recruitment, selection, placement, and support in the preparation of quality ofurban secondary teachers. In Pathways to excellence: Developing and cultivating leaders for the classroom and beyond (advances in educational administration (Vol. 21, pp. 221e237). Emerald Group Publishing Limited.

Hess, F. (2002). Tear down this wall: The case for a radical overhaul of teacher certification. *Educational Horizons*, *60*(4), 169e183. Retrieved from https://www-jstor-org.ezp-prod1.hul.harvard.edu/stable/pdf/42927125.pdf.

Johnson, K. (2000) 'Innovations in TESOL teacher education: a quiet revolution', in K. Johnson (Ed.), *Teacher Education: Case Studies in Teacher Practice Series* (pp. 1–7), TESOL.

Johnson, K. E. (2009). *Second language teacher education: A sociocultural perspective*. Routledge.

Lee, S. K. F., & Loughran, J. (2000). Facilitating pre-service teachers' reflection through a school-based teaching programme. *Reflective Practice, 1*(1), 69–89.
Lockhart, C., & Richards, J. C. (1994). *Reflective teaching in second language classrooms.* Cambridge University Press.
Malderez, A. (2009). Mentoring. In Burns & Richards (Eds.) *The Cambridge guide to second language teacher education*, 259–268.
Medgyes, P., & Malderez, A. (Eds.). (1996). *Changing perspectives in teacher education.* Heinemann.
Mukhtarov, F. (2014). Rethinking the travel of ideas: Policy translation in the water sector. *Policy and Politics, 42*(1), 71–88.
Owen, G. T. (2014). Qualitative methods in higher education policy analysis: Using interviews and document analysis. *The Qualitative Report*, *19*(26), 1–19. Retrieved from http://nsuworks.nova.edu/tqr
Qu, S. Q., & Dumay, J. (2011). The qualitative research interview. *Qualitative Research in Accounting and Management, 8*(3), 238–264. https://doi.org/10.1108/11766091111162070
Randall, M. with B. Thornton (2001). *Advising and supporting teachers.* Cambridge University Press.
Richards, J. C. (1990). The dilemma of teacher education in second language teaching. In Richards & Nunan (Eds.), 3–15.
Richards, J. C., & Farrell, T. S. C. (2005). *Professional development for language teachers.* Cambridge University Press.
Schon, D. A. (1983). *The reflective practitioner: How professionals think in action.* Jossey-Bass.
Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4–14.
Sin, C., & Amaral, A. (2017). Academics' and employers' perceptions about responsibilities for employability and their initiatives towards its development. *Higher Education, 73*(1), 97e111. https://doi.org/10.1007/s10734-016-0007-y
Smith, K., & Lev-Ari, L. (2005). The place of the practicum in pre-service teacher education: The voice of the students. *Asia–pacific Journal of Teacher Education, 33*(3), 289–302.
Sjølie, E. (2017). Learning educational theory in teacher education. In *Exploring Education and Professional Practice* (pp. 49–61). Springer.
Suleman, F. (2018). The employability skills of higher education graduates: Insights into conceptual frameworks and methodological options. *The International Journal of Higher Education Research, 76*(2), 263–278. https://doi.org/10.1007/s10734-017-0207-0
Suryani, A. (2017). *Motivations and aspirations of teacher education students in Indonesia.* Cambridge University Press.
Teng, M. F. (2017). Emotional development and construction of teacher identity: Narrative interactions about the pre-service teachers' practicum experiences. *Australian Journal of Teacher Education, 42*(11), 117–134.
Tran, T. (2016). Enhancing graduate employability and the need for universityenterprise collaboration. *Journal of Teaching and Learning for Graduate Employability*, *7*(1), 58. https://doi.org/10.21153/jtlge2016vol7no1art598.
Watt, H. M., & Richardson, P. W. (2007). Motivational factors influencing teaching as a career choice: Development and validation of the FIT-Choice scale. *The Journal of Experimental Education, 75*(3), 167–202.
Whitty, G., Power, S., & Halpin, D. (1998) *Devolution and choice in education. The school, the state and the market*. Open University Press.
Wright, T. (2009). Towards a revised role for English language teacher education in the developing world. In N. Hussain, A. Ahmed, & M. Zafar (Eds.), *English and empowerment in the developing world* (pp. 27–43). Cambridge Scholars Publishing.
Yuwono, G. I., & Harbon, L. (2010). English teacher professionalism and professional development: Some common issues in Indonesia. *Asian EFL Journal, 12*(3), 145–163.

Zein, M. S. (2012). *Language teacher education for primary school English teachers in Indonesia: Policy recommendations*. Unpublished doctoral dissertation. Australia National University. https://doi.org/10.25911/5d78d8e8eb4d7

Chapter 21
Oral Feedback on Pre-service Teachers' English Language Lesson Plans: A Macau Case Study

Jin-Jy Shieh, Barry Lee Reynolds, and Xuan Van Ha

Abstract Teacher educators ensure the professional development of pre-service teachers through mentoring aimed at raising awareness of practice elements that need improvement. This mentoring, often provided through oral feedback sessions, is necessary for teacher educators to assess whether pre-service teachers' professional knowledge (e.g. pedagogical content knowledge) has been enhanced through teacher education programs. This case study examined the foci of oral feedback provided by a teacher educator on four mainland Chinese pre-service English teachers' lesson plans—a curriculum design and materials development for English teachers' course assignment. Transcripts of oral feedback sessions with the four pre-service teachers were subjected to qualitative and quantitative content analyses. Results showed that the teacher educator provided feedback-on-task, process, self-regulation, and self. In response to the elements of the lesson plans, the teacher educator mostly focussed his feedback on lesson plan objectives, goals, and procedures. Teacher educators may consider combining written and oral feedback and increase the amount of feedback on process. As English language teachers require a special combination of content and pedagogy that is gradually constructed through teacher education curricula, the Curriculum and Instruction master's program in which the pre-service teachers were enrolled could be enhanced by providing additional English language education courses.

Keywords Oral feedback · Educator feedback · Lesson plans · English education · Pre-service teachers · Teacher education curricula

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Introduction

Studies have shown that teacher educators have a far-reaching influence on pre-service teachers' professional development through teacher education programs (Lunenberg et al., 2007; Shieh & Reynolds, 2021). Teacher educators not only shape and change pre-service teachers' beliefs about curriculum design, teaching, learning, and assessment (Shieh & Reynolds, 2021), but they also serve as role models for pre-service teachers by demonstrating what teachers and teaching should be like (Lunenberg et al., 2007). In addition to the roles of serving as a teacher and teaching model, teacher educators play the role of supporting pre-service teachers' learning about various aspects of teaching (Korthagen et al., 2005). This often occurs through interaction between teacher educators and pre-service teachers in the form of feedback.

Feedback has been seen as a powerful tool for supporting and improving learning (Black & Wiliam, 1998; Bloxham & Boyd, 2007; Earl, 2013; Evans, 2013; Hattie & Timperley, 2007; Leung et al., 2020; Schuldt, 2019). There are different methods for delivering feedback (Earl, 2013; Evans, 2013; Ha & Murray, 2020; Hattie & Timperley, 2007; Leung et al., 2020; Schuldt, 2019): written or oral, formal or informal, formative or summative, corrective or reflective, evaluative or descriptive, cognitive-focussed or skill-focussed, individual or group, digital or analog, and so on. Due to several reasons, pre-service teachers often receive written feedback from their teacher educators (Evans, 2013). However, students in higher education have often shown dissatisfaction with written feedback (Black & McCormick, 2010; Bloxham, 2015; Earl, 2013; Evans, 2013) due to its one-way communication model (Bloxham, 2015). This issue is exacerbated by faculty that do not deliver feedback appropriately (Ghaderi & Farrell, 2020).

Students often have difficulties in understanding what the feedback has targeted and are keen for a dialogue with teachers about their work in order to better understand how to improve performance (Agricola et al., 2020; Bloxham, 2015). One solution to this issue would be for teacher educators to deliver oral instead of written feedback. Oral feedback involves "interactive dialogue where the teacher can explore and steer by sensitive challenge, [and] should surely be one of the main ways through which the learner is apprenticed into the world of academic discourse by being inducted into its practice" (Black & McCormick, 2010, p. 497). Individual face-to-face oral feedback delivered by teacher educators could be emphasized in teacher education programs (Black & McCormick, 2010; Leung et al., 2020), thereby drawing on socio-constructivist principles of formative assessment. Oral feedback complements contemporary assessment trends as it aims to cultivate self-reflective and self-regulatory learners as well as to facilitate the interaction between teacher educators and pre-service teachers (Evans, 2013).

Considering the important role of teacher educators in advancing the knowledge of pre-service teachers, the potentials of oral feedback for enhancing pre-service teachers' learning, and the limited focus of the feedback studies involving pre-service teachers (Evans, 2013), the current study is, therefore, timely. It explored how a teacher educator delivered individual face-to-face feedback to pre-service teachers in a postgraduate teacher education program.

Literature Review

Oral Feedback

Feedback in higher education is receiving increasing research attention (Evans, 2013). However, there is no consensus on how to define feedback (Evans, 2013; Van de Ridder et al., 2008). Van de Ridder et al., (2008, pp. 192–193) reviewed a number of articles that attempted to define feedback and found these definitions included nine explicit characteristics: (1) content of information that should be conveyed: cognitive; evaluative; or about a standard, results, effects, behaviour, or the feedback recipient; (2) aim of the feedback: motivational, for improvement, or to promote reflection; (3) feedback recipient: the person to whom the information is sent; (4) form of the information to be communicated: oral, written, specific, and non-evaluative; (5) preparation before the information can be conveyed: collecting results or observing the subject; (6) source of the information: from the person him/herself (internal feedback), task results, or another source (external feedback); (7) feedback provider: the person who gives the information; (8) communication conditions: timeliness, directness, and (9) contextual factors: for example, the place where feedback is given (p. 192–193).

Oral feedback can be defined from different perspectives. One is from the learner's perspective; researchers view oral feedback as the information that the learners obtain in response to their performance (Meyer, 1995). Another view considers oral feedback from the teacher's perspective; oral feedback is provided by the teacher to the learner without any interaction (Evans, 2013). The third perspective emphasizes the interaction between the teacher and the learner (Carless et al., 2011). The fourth perspective views feedback as an integrated process in which all elements in the previously discussed are included. In this study, we adopt the integrated view from Ghaderi and Farrell (2020, p. 685) and define oral feedback as a process in which a teacher (in this case, a teacher educator) provides specific information verbally to a learner (in this case, pre-service teachers) based on direct observation of the learner's performance to improve performance towards a predetermined goal through the process of dialogue.

Learners prefer to receive individual oral feedback provided by teachers (Black & McCormick, 2010; Ha & Nguyen, 2021; Leung et al., 2020). Agricola et al. (2020) found that students have more positive perceptions towards feedback when it is

delivered orally by teachers; they found students placed a higher value on oral feedback compared with written feedback. In contrast with written feedback, oral feedback involves interactive dialogue (Black & McCormick, 2010), focusses on the nature of two-way communication (Bloxham, 2015), and emphasizes conversations between teachers and learners (Agricola et al., 2020). Both a cognitivist and a socio-constructivist views of feedback exist in the theoretical discussions surrounding oral feedback. In the view of the cognitivists, feedback "is closely associated with a directive telling approach where feedback is seen as corrective, with an expert providing information to the passive recipient" (Evans, 2013, p. 72). On the other hand, the socio-constructivist perspective sees feedback as facilitative; the teacher provides comments and suggestions to empower students to conduct revisions on their own and helps students to obtain new understandings through dialogue (Evans, 2013). Recently, a socio-constructivist view of feedback has received greater emphasis from educators and researchers as this view values the dynamic nature of learning where both the teacher and the student learn from each other through dialogue and participation in the interaction process (Evans, 2013).

Feedback Purpose

Feedback has been analysed for its purpose in education. Evans (2013, p. 71) stated that "the aim of feedback is to enable the gap between the actual level of performance and the desired learning goal to be bridged". Hattie and Timperley (2007, p. 86) held the same view that "the main purpose of feedback is to reduce discrepancies between current understandings and performance and a goal". Ghaderi and Farrell (2020, p. 686) considered "the purpose of feedback is to help the learner to improve and to achieve a goal". In sum, the main purpose of feedback is to achieve a goal by narrowing the gap between current performance and expected performance.

Feedback Foci

Researchers have attempted to categorize feedback foci. Brown and Glover (2006) created a coding system of written feedback that included five foci of comments given during the feedback process: (1) comments on content (e.g. error or omission), (2) comments on students' skills (e.g. presentation or English usage), (3) comments on further learning (e.g. referring to resource materials), (4) motivational comments (e.g. praise for achievement), and (5) demotivational comments (e.g. criticism). Hattie and Timperley (2007, p. 86–90) categorized feedback into four levels: (1) feedback about a task or product (feedback-on-tasks), (2) feedback about the process used to create a product or complete a task (feedback-on-process), (3) feedback about the self-regulation during task completion, including greater skill in self-evaluation or confidence to engage further in completing a task (feedback-on-self-regulation),

and (4) feedback about person that is directed to the "self" and often unrelated to performance on the task (feedback-on-self). These two taxonomies may appear different at first glance. However, upon a closer look, it becomes clear that Brown and Glover's (2006) feedback foci can be integrated into Hattie and Timperley's (2007) categories. For example, comments on content and skills development are sub-categories of feedback-on-tasks, while comments to encourage further learning are sub-categories of feedback-on-process. Similarly, motivational and demotivational comments are sub-categories of feedback-on-self.

Feedback Delivery

Scholars (Earl, 2013; Evans, 2013; Ha & Murray, 2020; Hattie & Timperley, 2007; Leung et al., 2020; Schuldt, 2019) have recognized that feedback can be provided in different forms: written or oral, formal or informal, formative or summative, corrective or reflective, evaluative or descriptive, cognitive-focussed or skill-focussed, individual or group, digital or analog, and so on. Due to the importance of feedback in teaching and learning, research has focussed specifically on individual feedback. For example, various studies have investigated the frequency and patterns of oral corrective feedback. This research agenda has generally categorized oral corrective feedback into six types, namely recasts, explicit corrections, elicitations, repetition, clarification requests, and metalinguistic feedback (Ha & Murray, 2020; Lyster & Ranta, 1997). Students have shown a preference for individual oral feedback provided by teachers (Black & McCormick, 2010; Ha & Nguyen, 2021; Leung et al., 2020). Agricola et al. (2020) also found that students have more positive perceptions towards feedback when it is delivered orally by teachers; they found students placed a higher value on oral feedback than written feedback.

Based on the literature reviewed above, the nature of oral feedback has been synthesized and presented in Table 21.1. For this study, oral feedback is more formal and formative-oriented, both corrective and reflective, evaluative and descriptive, with the foundations of both a cognitivist and a socio-constructivist view of feedback. The focus on oral feedback in this study is on the level of task, process, self-regulation, and self in which the task is the writing of a lesson plan.

In summary, oral feedback has been a focus of educational research for the past few decades due to its significant roles in teaching and learning. However, the majority of previous studies have been conducted with school contexts or undergraduate contexts. At postgraduate levels, some studies have focussed on teachers' written feedback provided on students' assignments. Little is known about oral feedback provided by teacher educators for pre-service teachers. In the context of pre-service teacher education, course assignments pertaining to students' designing of lesson plans are an important component of students' work. Teacher educators' feedback on this kind of work is essential in advancing pre-service teachers' knowledge, skills, and experiences, and it can shape pre-service teachers' beliefs and practices regarding various aspects of teaching. Effective feedback from teacher educators helps pre-service

Table 21.1 Nature of oral feedback

Defining oral feedback
Oral feedback refers to the process when a teacher provides specific information verbally to a learner based on direct observation of the learner's performance with the intention to direct the student's performance towards a predetermined goal through dialogue
Oral feedback theoretical foundations
Both a cognitivist (feedback is seen as corrective) and a socio-constructivist views of feedback (feedback is seen as facilitative) were used as supporting theoretical perspectives
Feedback purpose
The purpose of feedback was to reduce discrepancies between the actual level of performance and the desired learning goal in order to improve and achieve the learning goal
Feedback foci
The feedback foci mainly included four dimensions: the level of task performance (comment on content), the level of process in understanding how to do a task (comments to develop a student's skills), the regulatory or metacognitive process level (comments to encourage further learning), and/or the self or personal level (unrelated to the specifics of the task that include praise and criticism)
Feedback delivery
Feedback could be delivered in different forms such as written or oral, formal or informal, formative or summative, corrective or reflective, evaluative or descriptive, individual or group, digital or analog, and so on. Feedback could occur in different forms, including recast, elicitation, clarification request, commenting, repetition, and praise

teachers become well-prepared for their subsequent teaching. Understanding this kind of feedback can inform implications for teacher education programs, curricula, and teacher educator professional learning. This study was, therefore, designed to address this research gap. Accordingly, the following two research questions were proposed to guide the study:

1. What were the teacher educator's foci for oral feedback on pre-service teachers' lesson plans?
2. Which lesson plan elements does the teacher educator focus on during individual face-to-face oral feedback sessions with pre-service teachers?

Methodology

The main purpose of this study was to document a teacher educator's practice of providing oral feedback to postgraduate pre-service teachers that had been assigned a teacher education task of writing a lesson plan. The additional aim was to examine what elements of the written lesson plan the teacher educator focussed on when providing feedback. In order to investigate oral feedback given by a teacher educator, a qualitative case study was conducted. The case was an object to be studied (Stake, 1995), namely the feedback provision process between the teacher educator and the pre-service teachers. This definition of case fits well with what Merriam (1998, p. 9)

referred to as a "bounded system". It is important when targeting an object for study that the researchers clearly define the "boundaries and contexts" of the system (Yin, 2003, p. 13). In the later sections, we clearly describe the learning context that initiated this oral feedback process between the teacher educator and pre-service teachers. As this study mainly aimed "to present a detailed, contextualized picture of a particular phenomenon", it can be regarded as a descriptive case study (Hood, 2009, p. 71). To make the research focus clearer and concise, this study focussed on the transcripts of oral feedback sessions to understand the nature of oral feedback provided by the teacher educator. Thus, how the background of the teacher educator and pre-service teachers may have affected the oral feedback process was not examined. However, to provide a clearer understanding of the context of the oral feedback bounded system, the participants, learning context, and feedback procedures are further described below.

Learning Context

The participants were enrolled in a Master of Education in Curriculum and Instruction with a concentration in English language teaching. The program consisted of three compulsory courses in curriculum and instruction, one compulsory course in research methodology, one compulsory course in English curriculum design, two compulsory electives in English language teaching, and the option to write an applied thesis and take one additional elective course or to write an academic thesis with no need to take further courses.

Curriculum Design and Materials Development for English Language Teachers aimed to acquaint students with the strategies and principles of materials development for English language teaching. In general, the students learned about the process of second language curriculum development, and in particular, they learned about how to prepare materials for specific lesson types. The role of theory in the course was to aid discussion of instructional principles and provide a basis for analysis of different approaches to curriculum design. The course aimed to balance discussions on both theoretical and practical issues. Practical experience in designing English language curriculum and materials relevant to specific student populations was emphasized. Topics of the course included second language learning models, second language learning principles, language course syllabi, lesson planning, unit work, scheme of work, language learning tasks, and English language materials development.

Student performance in the course was assessed through (1) group/class discussion and attendance; (2) a written unit plan requiring materials development, adaptation, and evaluation with three lesson plans; and (3) an oral report requiring critical reflection and in-depth analysis of their unit plan. While the unit plan required the learners to include an overview of the three lessons, they were only required to write out in full one to two of the three lesson plans. The current study focussed only on one aspect of the unit plan assignment-one completed written lesson plan.

The students had the option to adapt teaching and learning materials from an English textbook appropriate to the learners they targeted to teach, or they could develop their own teaching materials. The students were required to indicate a specific student population for the lesson plan by providing a description of the targeted students' background and existing knowledge, the teaching methods they aimed to employ, and the reasons why they felt these were appropriate (in the form of a rationale statement). Students were asked to consider classroom resources and available teaching aids/materials as well as the type of language learning tasks suitable to meet the lesson goal(s) and objective(s). The lesson plan was required to contain each of the following sections: target students, rationale, goals, objectives, materials, assessment, procedures, and appendix.

Participants

One teacher educator from a higher education institution in the Macau SAR was recruited for the current study. At the time the study was conducted, the teacher educator had 14 years of experience in teaching English language as a subject in various educational settings and contexts within Asia and the United States. The teacher educator had 1.5 years of experience in English teacher training and mentoring.

Four pre-service English teachers studying for a Master of Education in Curriculum and Instruction with a concentration in English language teaching at a comprehensive university in the Macau SAR were recruited for the current study. They are referred to in this study as pre-service teachers Alice, Barbara, Cathy, and Doris (pseudonyms). Alice used English at the CEFR B2 level, Barbara and Cathy at the C1 level, and Doris at the B1 level (Council of Europe, 2001). The pre-service teachers were in their first semester of studies and enrolled in the course *Curriculum Design and Materials Development for English Language Teachers.* They had all obtained undergraduate degrees in Business English, English Language & Linguistics, or English Studies from universities in mainland China. After obtaining their master's in education, the four students had plans to return to mainland China to obtain certification to teach English in primary or secondary schools.

We adopted purposeful sampling to recruit these participants for three reasons. First, we had access to the teacher educator that was teaching the course. Second, the teacher educator had plans to use oral feedback in the course. Third, the pre-service teachers were enrolled in the teacher education course in which they would receive oral feedback from the teacher educator. Altogether, recruiting these participants made it easier for us to observe how a teacher educator provided oral feedback for pre-service teachers on their lesson plans.

Feedback Procedures

The pre-service teachers could receive optional face-to-face feedback from the teacher educator during scheduled consultation office hours. Among the eight students enrolled in the course, four (50%) students opted to receive face-to-face feedback from the teacher educator. The teacher educator required the pre-service teachers to bring a written draft of their lesson plan to the feedback session and targeted the required lesson plan elements when providing the feedback: target students, rationale, goals, objectives, materials, assessment, procedures, and appendix. While no rubric was used to guide the feedback, the pre-service teachers had been provided a handout that included a description of each lesson plan element and the expectations for what each of the lesson plan elements should contain (see Appendix A).

Data Collection

The feedback sessions with the four pre-service teachers were audio-recorded and then transcribed verbatim. As the language of instruction was English, the teacher educator gave feedback in English, and English was used as the language for communication between the teacher educator and the pre-service teachers. The pre-service teachers had scheduled for 30-min consultation sessions, but most went over this time. Unfortunately, due to a recorder malfunction, only 11 min of one of the feedback sessions were recorded. Thus, while the total time of the four feedback sessions was around 126 min ($M_{\text{minutes}} = 31.5$, SD = 4.2), only 106 min ($M_{\text{minutes}} = 26.5$, $SD = 11.2$) was available for transcription. This resulted in a total of 13,802 word tokens ($M_{\text{tokens}} = 3450.5$, $SD = 1645.2$) for analysis.

Data Analysis

We applied both qualitative and quantitative content analysis (Camprubí & Coromina, 2016) to the data. For qualitative content analysis, a theory-driven framework (Cresswell & Creswell, 2018) based on the literature review was constructed. The framework was constructed based on Hattie and Timperley's (2007) and Brown and Glover's (2006) feedback foci: feedback-on-task, feedback-on-process, feedback-on-self-regulation, and feedback-on-self.

Feedback-on-task referred to comments given related to how well the task was performed; there were seven feedback-on-task foci. "Correctness" and "incorrectness" referred to whether a concept was referred to in the task appropriately. "Errors" referred to grammatical errors or when a concept was given a wrong name or label. "Omissions" referred to an element of the task that was missing while "information" referred to a part of the task that required additional information to be provided

before it could be considered complete. "Presentation" referred to the formatting of the lesson plan. "English language use" concerned the non-idiomatic use of English. Feedback-on-process referred to comments given related to the understanding of how the task should have been completed; there were three feedback-on-process foci. "Understanding" referred to whether pre-service teachers understood how to complete the lesson plan task. "Further actions" related to actions pre-service teachers needed to take to improve their lesson plans. "Resources and materials" referred to comments about books or articles that could be used by the pre-service teachers for task improvement. Feedback-on-self-regulation referred to comments related to regulatory and metacognitive processes including "self-evaluation" and "error-detection". "Self-evaluation" referred to feedback aimed at facilitating pre-service teachers' self-consideration and decisions on how to improve their lesson plans. "Error-detection" referred to feedback that encouraged pre-service teachers to detect errors on their own. Feedback-on-self referred to comments not related to the task or was given regarding self or something personal, including "praise for achievement", "praise for the person", and "criticism". "Praise for achievement" referred to feedback related to the quality of the lesson plan. If the praise was about the person, then it was considered "praise for the person". "Criticism" referred to feedback that contained negative words.

Creswell and Creswell (2018, p. 313) advised researchers to "winnow" data at the start of content analysis. Thus, during analysis, our focus was on the feedback the teacher educator provided. Qualitative content analysis was conducted in four steps. First, we read the four transcriptions of the feedback sessions very carefully and used memoing to obtain a sense of the whole data set. Next, we listened to each recording twice to match the speech and transcription in order to grasp a feeling of how the teacher educator provided feedback as well as obtain a deeper sense of the whole data set. Then, we applied the qualitative content analysis framework to each transcription. In order to assure the quality of the coding, the first author coded one of the four transcripts for the second author to confirm whether the coding was acceptable or not based on the coding framework. After reaching a consensus, the remaining three transcripts were coded by the first author. Finally, the results of qualitative content analysis were written up for this chapter.

For quantitative content analysis, a framework based on the lesson plan assignment criteria was constructed (see Appendix). Feedback should assist students in clarifying what constitutes good task performance (Nicol & Milligan, 2006). Furthermore, linking the feedback to the assessment of the task through explicit guidance (Evans, 2013) can increase its effectiveness (Gibbs & Simpson, 2004). To uncover which elements of the lesson plan the teacher educator focussed on when providing feedback, we calculated the number of words spoken by the teacher educator regarding each element of the lesson plan for each pre-service teacher.

Results

Qualitative Content Analysis Results

Feedback-On-Task

The teacher educator provided feedback that covered different foci of feedback, including "correctness", "incorrectness", "errors", "omissions", "information", "presentation", and "English language use". However, the occurrences of feedback for each of these foci varied. Only one occurrence of feedback on "correctness" was found ("This one is ok".; Doris). It might have been difficult for the teacher educator to provide a single judgement on whether the entire task was completed properly due to the multiple elements required for writing a lesson plan. Three occurrences of feedback-on-task "incorrectness" were found: these related mostly to the meaning of specific concepts, such as "objective" (Barbara) and "narrative" (Cathy). More feedback on "errors", such as grammatical errors (Alice, Doris), was found among the pre-service teachers' lesson plans. The teacher educator provided most of the feedback on the pre-service teachers' "omissions" and "information". As a lesson plan contains many elements, it seemed that the pre-service teachers found it difficult to perform well on all of them and left out several parts including "Assessment" (Barbara), "Criteria" (Doris) and lacking some detailed information for these and other elements. Feedback provided by the teacher educator on "presentation" regarded formatting issues. The teacher educator also provided feedback on language use, especially in reference to how to use specific language chunks such as "be able to" (Alice) when writing learning objectives (Table 21.2).

Feedback-On-Process

There are three examples of feedback on the process foci, including "understanding", "further actions", and "resources and materials". The teacher educator did not provide feedback on understanding. This is not surprising considering that the four pre-service teachers had come to the meetings with a completed draft of the lesson plan. Thus, they understood how to complete the task and instead needed feedback on other feedback-on-process foci to improve their lesson plans. More specifically, the teacher educator used formative feedback to point out "further actions" that pre-service teachers should take to improve their lesson plans. "You have to think about it and write in detail" (Alice). The teacher educator also pointed the pre-service teachers to other "resources and materials" that could be used to enhance their lesson plans, including those provided in the course "Go back and look at the handouts that I gave you and see how the objectives are written" (Alice). These are examples of feedback that was initiated by the teacher educator. Still, other instances of feedback were also initiated by the pre-service teachers. After a discussion about teaching narrative

Table 21.2 Qualitative content analysis of the teacher educator's feedback

Feedback foci/Pre-service teacher		Pre-service teacher Alice	Pre-service teacher Barbara	Pre-service teacher Cathy	Pre-service teacher Doris
Feedback-on-task	Correctness	None	None	None	This one is ok
	Incorrectness	It is not an objective of your course. Why not just say something like "a goal is to become aware of different reading strategies?"	None	It is not a narrative	None
	Errors	This should be "are". There is a grammar error here. You need to go fix this one	None	None	Let us capitalize "Mandarin". You need to say, "She is 8 years old", not "She 8 years old"
	Omissions	I suggest you make another objective to go with this. You have to set some criteria	You are supposed to have one section about assessment. You should say which sentence is the topic sentence. You better make a note of it, somewhere here about the grouping, to make it better. You might have more objectives	None	You need to always have some criteria. Maybe you can write two different objectives

(continued)

Table 21.2 (continued)

Feedback foci/Pre-service teacher		Pre-service teacher Alice	Pre-service teacher Barbara	Pre-service teacher Cathy	Pre-service teacher Doris
	Information	For this part, you need to also tell some background about the students' general language ability. Maybe just a sentence or two is enough for that	What is a good level of English proficiency, maybe you can describe it a little bit more? We might need a little bit more information	For this part, you are not so detailed	You just tell the total number and tell how many you want them to use
	Presentation	None	You do not need the space here. You can delete this font	None	None
	English language use	You cannot say "are able to get familiar with". Usually, we have the word "by". I think you need to use words like "speak out". You cannot say things in objectives like "get used to"	None	None	None
Feedback-on-process	Understanding	None	None	None	None

(continued)

Table 21.2 (continued)

Feedback foci/Pre-service teacher		Pre-service teacher Alice	Pre-service teacher Barbara	Pre-service teacher Cathy	Pre-service teacher Doris
	Further actions	You have to think about it and write in detail	I think you can split it up to make it even better. I think you can go back and add a couple more. Take notes, and bring the notes to today's class	None	You can go back and think about it and rewrite it. You can go and you can revise the goals and objectives It might be good if you have some pictures for them. I think you can go back and you can work on it
	Resources and materials	You need to look back over some of the examples I gave you. Go back and look at the handouts that I gave you and see how the objectives are written	I think I asked you on the handout to put it in here	Our library has some good ones	None

(continued)

Table 21.2 (continued)

Feedback foci/Pre-service teacher		Pre-service teacher Alice	Pre-service teacher Barbara	Pre-service teacher Cathy	Pre-service teacher Doris
Feedback-on-self-regulation	Self-evaluation	If you think this is something that is important in the lesson, then you have to go back and see if you need to add another goal if you are going to focus your lesson on that	Make sure you focus on what you taught in the class. You can go back if you use anymore and fix those	So if somewhere we wrote in narration, we better fix those things. You think about that and see what you can do	How do you want to judge whether they have written the sentences well or not? You can make your decision about each one. You have to make a decision like what or how you will grade and what criteria you will set. You can keep the hobby if you want
	Error-detection	None	None	None	None
Feedback-on-self	Praise for achievement	I think this part seems pretty good. That sounds good. I think there is some good stuff here	Good rationale! Clear! It is a very clear learning goal. It looks good. The other thing seems good. Anyway, you did a great job	Actually, it is quite good, the lesson is good, I think. Just do a few little things, and it will be even better	I think the procedure part is fine. The game is good
	Praise for the person	None	You can do it!	Come on, you are so good. You do not need 30 min	None
	Criticism	None	None	None	None

writing, Cathy asked the teacher educator "Are there some writing books to classify the narrative?" The teacher educator suggested a source "Our library has some good ones".

Feedback-On-Self-Regulation

There are two examples of feedback-on-self-regulation foci, including "self-evaluation" and "error-detection". The teacher educator provided feedback on self regulation to all four pre-service teachers. For example, the teacher educator told Alice "If you think this is something that is important in the lesson, then you have to go back and see if you need to add another goal if you are going to focus your lesson on that". This self-regulating feedback prompted Alice to evaluate task quality and make a decision. In contrast, no error-detection feedback was provided. This may have been due to time constraints and instead the teacher educator simply provided direct feedback on most of the issues that appeared to him. Another consideration could have been the lack of training or pedagogical knowledge previously obtained by the pre-service teachers. Without this knowledge base, the teacher educator may have felt it would not have been possible to simply use stimulation for self-error checking.

Feedback-On-Self

There are three examples of feedback-on-self foci, including "praise for achievement", "praise for the person", and "criticism". The teacher educator praised all of the pre-service teachers but did not offer any words of criticism. Still, praise did not always come without giving guidance for further actions to be performed. For example, the teacher educator praised pre-service teacher Cathy for her achievement and pointed out further action that was necessary, "Actually it is quite good, the lesson is good. I think just do a few little things and it will be even better".

Quantitative Content Analysis Results

Teacher Educator Feedback Focus

The results of the quantitative content analysis of the teacher educator's feedback on the lesson plan elements are shown in Table 21.3. The teacher educator did not provide feedback on all elements of all the pre-service teachers' lesson plans. At times, this could have been because the pre-service teacher did not include that element or that the teacher educator found no fault with the element.

The teacher educator provided more feedback on objectives, followed by goals, then procedures, and finally target students. The amount of feedback provided on

Table 21.3 Quantitative content analysis results for teacher educator's feedback on lesson plan elements

Element/Pre-service teacher	Pre-service teacher Alice	Pre-service teacher Barbara	Pre-service teacher Cathy*	Pre-service teacher Doris	Total words
Target students	701	107	31	34	873
Rationale	11	6	0	0	17
Goals	383	45	0	24	2905
Objectives	2734	1503	0	2477	6714
Materials	0	12	0	0	12
Assessment	0	221	0	27	248
Procedures	0	601	0	563	1164
Appendix	0	0	0	0	0
Total Words	3829	2495	31	3125	11,933

*Note** = recording malfunction resulting in fewer words (see Sect. 3.4)

objectives was over twice the amount provided to goals. This indicates that the pre-service teachers required more guidance in how to properly write objectives through explanation, example providing, and clarifications. Goals were often discussed in connection to the objectives as these are related to one another through assessment. Less feedback on the procedures of the lesson plan was provided, indicating that generally, the pre-service teachers could write clearly what they planned for the lessons. However, whether what they planned was fully articulated with goals, objectives, and assessments is critical to writing a qualified professional English language lesson plan.

Discussion and Implications

Feedback On Task, Process, Self-Regulation, and Self

The teacher educator provided feedback-on-task, feedback-on-process, feedback-on-self-regulation, and feedback-on-self to the pre-service teachers. The lion's share of feedback was coded as feedback-on-task, supporting Hattie and Timperley's (2007, p. 91) observation that this common focus of classroom corrective feedback "builds more surface knowledge". In addition, the feedback-on-process and feedback-on-self-regulation provided by the teacher educator encouraged "deep processing and mastery" of the task (Hattie & Timperley, 2007, p. 91). However, feedback-on-process and feedback-on-self-regulation are considered the most effective and valuable feedback foci in terms of their effects on task improvement and have a greater potential of leading to goal achievement and self-regulated learning (Hattie & Timperley, 2007). Therefore, the teacher educator should have aimed to provide more feedback-on-process and feedback-on-self-regulation in order to cultivate self-regulated pre-service teachers. While the teacher educator also provided feedback-on-self, Hattie and Timperley (2007) considered this focus of feedback less effective as it is not informative in nature in that it does not provide specific information for the pre-service teachers to use to help improve task performance. Schartel (2012) and Shute (2008) further suggested that feedback should focus on performance and not the individual. Yet, Brown and Glover (2006) claimed most people expect praise even though it is often considered as a basic feedback focus. Although feedback-on-self has been considered by researchers as ineffective in terms of improving task quality, it is still acceptable to praise students' achievements because students expect to receive praise. Using criticism could damper performance as it can be demotivational (Brown & Glover, 2006; Ha & Murray, 2021), provoke emotional reactions (Ghaderi & Farrel, 2020), and reduce the overall effect of feedback (Schartel, 2012). Although the teacher educator pointed out several areas that necessitated improvement in the lesson plans, no words of criticism were found.

The teacher educator adopted both cognitivist and socio-constructivist views of feedback. The teacher educator provided both corrective and facilitative feedback. However, a socio-constructivist view of feedback appeared to have received more emphasis from the teacher educator. This was evident through the value the teacher educator placed in the dynamic nature of learning through dialogue with the pre-service teachers (Evans, 2013). Further developing turn-taking strategies when conversing with the pre-service teachers could further facilitate the effectiveness of the provided feedback.

Feedback-On-Lesson-Plan-Elements

According to Nicol and Milligan (2006), good feedback practice entails teachers clarifying with students what constitutes good performance. Gibbs and Simpson (2004) further suggested that feedback effectiveness can be enhanced by connecting feedback with assessment expectations through guidance (Evans, 2013). The teacher educator was an exemplary example as the feedback provided was done so in order to improve the pre-service teachers' performance through connection to clear criteria and assessment. However, the teacher educator neglected to provide feedback on all lesson plan elements. One possibility could have been the time limit for meeting with each pre-service teacher or the teacher educator's evaluation placed more emphasis on particular elements than others (e.g. objectives received much more attention than rationale). Another possibility was that the pre-service teachers could have mastered particular lesson plan elements while neglecting others. In such cases, the teacher educator could have provided other foci of feedback to further indicate what the pre-service teachers had done properly in order to inform the pre-service teachers that they had met the criteria set for those particular lesson plan elements. The teacher educator's feedback could have been enhanced by limiting the feedback to particular elements, encouraging multiple sessions of feedback, and asking the pre-service teachers to review the recordings of the feedback sessions. This view of feedback was supported by scholars (Evans, 2013; Ghaderi & Farrell, 2020; Gibbs & Simpson, 2004; Hattie & Timperley, 2007) that emphasized the main purpose of feedback should be to bridge the gap between students' existing performance and the desired goal in order to meet the assessment criteria resulting in better learning outcomes. Another option would be to combine both written feedback with oral feedback. This could occur by the teacher educator reading the lesson plan and providing written feedback prior to meeting the pre-service teachers for oral feedback sessions. Not only would this save time during the meetings for more oral feedback to be given to the pre-service teachers, but it could also enhance the quality of two-way communication between the teacher educator and pre-service teachers during such sessions (Black & McCormick, 2010; Bloxham, 2015). This also increases the potential for pre-service teachers to better understand what and how to work on to improve their learning outcomes (Agricola et al., 2020; Bloxham, 2015).

Although the pre-service teachers had been given training in lesson plan writing, it appeared that their English language education content knowledge was lacking. Feedback will be less effective for students that "lack [the] necessary [content] knowledge" to fully benefit from feedback (Hattie & Timperley, 2007, p. 91). Although not a main focus of this study, it was quite obvious to us that the pre-service teachers lacked the pedagogical content knowledge for how to design good English lesson plans and did not have clear awareness of how to write up the individual lesson plan elements in a standard manner. One clear implication would be for the program to further increase the number of courses related to English language education in order to fully prepare pre-service teachers to step into the classroom to teach English. Providing such opportunities to the pre-service teachers through curriculum revision could also help enhance the feedback that they receive in this course.

Limitations

The case study data were analysed using frameworks constructed based on theories, published research literature, and a teacher educator's assessment criteria. Even with such frameworks, it is difficult to avoid subjective involvement when coding (Brown & Glover, 2006), resulting in a limitation of the study results. Furthermore, only the oral feedback given by one teacher educator to four pre-service teachers' lesson plans was analysed. As the teacher educator and the pre-service teachers were not interviewed, it is hard to confirm the perception or the impact of the feedback from the teacher educator's or the pre-service teachers' points of view. As these issues were not addressed in the current study, future investigations are still needed.

Conclusions

Teacher educators have a profound impact on the professional development of pre-service teachers. In addition to demonstrating how to be a teacher, teacher educators should make pre-service teachers aware of their strengths to feel encouraged and weaknesses to be improved so that they can develop their beliefs, knowledge, and skills required for good teachers. This often happens through oral feedback that is aimed at improving pre-service teachers' learning outcomes. The foci of oral feedback include feedback-on-task, feedback-on-process, feedback-on-self-regulation, feedback-on-self, and feedback-on-lesson-plan-elements. Among them, feedback-on-task, a cognitive-oriented corrective feedback focus, is the most common. Feedback-on-process and feedback-on-self-regulation, focussing on task completion strategies and self-directed learning skills, respectively, are considered more effective feedback. Feedback-on-self has been considered to be the least effective focus of feedback, even though students may expect to receive such feedback from teachers.

The current case study provided a picture of a teacher educator's oral feedback provided to four pre-service teachers in a postgraduate language teacher education course in Macau. The result of the analyses found that the teacher educator provided different foci of feedback but mostly focussed on feedback-on-task. Among various elements of the lesson plans written by the pre-service teachers, lesson objectives and goals received the most attention from the educator's feedback. To improve the pre-service teachers' quality of learning, the curriculum of the teacher education program should be updated to increase more pedagogical content knowledge courses, and teacher educators should consider increasing feedback-on-process and feedback-on-self-regulation and combining written feedback with oral feedback.

Appendix A

For each *Lesson Plan*, students will:

1. Demonstrate that they understand that the lesson is designed for a specific group of students by including a description of the group of students in a section titled "**Target Students**".
2. Provide a rationale for teaching the lesson included in a section titled "**Rationale**". This section should be around 300–500 words in length.
3. Construct goal(s) for the lesson and list them in a section titled "**Goals**".
4. Write instructional objectives for the lesson which include the criteria for detailed, unambiguous objectives included in a section titled "**Objectives**".
5. Provide a list of materials needed to give the lesson in a section titled "**Materials**". If these materials have been designed, then details on the design process should be provided. All materials will also need to be provided for evaluation by the course instructor.
6. Indicate method of assessment/evaluation (e.g. verbal/kinesthetic), how language measures will be made (e.g. informally/formally; rubric/checklist), and how target students will be informed; this information will be included in the section "**Assessment**". Copies of any assessment or evaluation measures should be included.
7. Write up "**Procedures**" that includes detailed directions for carrying out the lesson, intended teacher talk, and anticipated student responses/interaction. Expected time for *each step* should be indicated in parentheses, e.g. (10 min). All teacher talk and expected student talk should be written out in detail.
8. Add any additional information, references, or self-designed materials to a section titled "**Appendix**".

References

Agricola, B. T., Prins, F. J., & Sluijsmans, D. M. A. (2020). Impact of feedback request forms and verbal feedback on higher education students' feedback perception, self-efficacy and motivation. *Assessment in Education: Principles, Policy and& Practice, 27*(1), 6–25.

Black, P., & McCormick, R. (2010). Reflections and new directions. *Assessment and Evaluation in Higher Education, 35*, 493–499. https://doi.org/10.1080/02602938.2010.493696

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education, 5*, 7–74. https://doi.org/10.1080/0969595980050102

Bloxham, S. (2015). Assessing assessment: New developments in assessment design, feedback practices and marking in higher education. In F. Heather, S., Ketteridge, & S. Marshall (Eds.), *A handbook for teaching and learning in higher education: Enhancing academic practice* (4th ed., pp. 107–122). Routledge.

Bloxham, S., & Boyd, P. (2007). Providing effective feedback. In S. Bloxham & P. Boyd (Eds.), *Developing effective assessment in higher education: A practical guide* (pp. 103–116). Open University Press.

Brown, E., & Glover, C. (2006). Evaluating written feedback. In C. Bryan & K. Clegg (Eds.), *Innovative assessment in higher education* (pp. 81–91). Routledge.

Carless, D., Salter, D., Yang, M., & Lam, J. (2011). Developing sustainable feedback practices. *Studies in Higher Education, 36*, 395–407. https://doi.org/10.1080/03075071003642449

Camprubí, R., & Coromina, L. (2016). Content analysis in tourism research. *Tourism Management Perspectives, 18*, 134–140.

Council of Europe. (2001). *Common European framework of reference for languages: Learning, teaching, asessment*. Council of Europe.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative and mixed methods approaches* (5th ed.). Sage.

Earl, L. (2013). *Assessment as Learning: Using classroom assessment to maximize student learning.* Corwin Press.

Evans, C. (2013). Making sense of assessment feedback in higher education. *Review of Educational Research, 83*(1), 70–120. https://doi.org/10.3102/0034654312474350

Ghaderi, I., & Farrell, T. M. (2020). Toward effective feedback: From concept to practice. *Surgery, 167*, 685–688.

Gibbs, G., & Simpson, C. (2004). Conditions under which assessment supports students' learning. *Learning and Teaching in Higher Education, 1*(1), 3–31.

Ha, X. V., & Murray, J. C. (2020). Corrective feedback: Beliefs and practices of Vietnamese primary EFL teachers [Advanced online publication]. *Language Teaching Research.* https://doi.org/10.1177/1362168820931897

Ha, X. V., & Murray, J. C. (2021). The impact of a professional development program on EFL teachers' beliefs about corrective feedback. *System, 96*, 102405. https://doi.org/10.1016/j.system.2020.102405

Ha, X. V., & Nguyen, L. T. (2021). Targets and sources of oral corrective feedback in English as a foreign language classrooms: Are students' and teachers' beliefs aligned? *Frontiers in Psychology, 12*, 697160. https://doi.org/10.3389/fpsyg.2021.697160

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81–112.

Hood, M. (2009). Case study. In J. Heigham& R. Croker (Eds.) *Qualitative research in applied linguistics: A practical introduction.* Palgrave Macmillan.

Korthagen, F. A. J., Loughran, J., & Lunenberg, M. (2005). Teaching teachers: Studies into the expertise of teacher educators. *Teaching and Teacher Education, 21*(2), 107–115.

Leung, A., Fine, P., Blizard, R., Tonni, I., & Louca, C. (2020). *European Journal of Dental Education.* https://doi.org/10.1111/eje.12637.

Lunenberg, M., Korthagen, F., & Swennen, A. (2007). The teacher educator as a role model. *Teaching and Teacher Education, 23*, 586–601.

Lyster, R., & Ranta, L. (1997). Corrective feedback and learner uptake. *Studies in Second Language Acquisition, 19*(01), 37–66. https://doi.org/10.1017/S0272263197001034

Merriam, S. B. (1988). *Case study research in education.* Jossey-Bass.

Meyer, R. E. (1995). Feedback. In L. W. Anderson (Ed.), *International encyclopaedia of teaching and teacher education* (2nd ed., pp. 249–251). Elsevier.

Nicol, D. J., & Milligan, C. (2006), Rethinking technology-supported assessment in terms of the seven principles of good feedback practice. In C. Bryan, & K. Clegg (Eds.), *Innovative assessment in higher education*, Taylor and Francis Group Ltd

Schartel, S. A. (2012). Giving feedback—An integral part of education. *Best Practice and Research Clinical Anaesthesiology, 26*(1), 77–87.

Schuldt, L. C. (2019). Feedback in action: Examining teachers' oral feedback to elementary writers. *Teaching and Teacher Education, 83*, 64–76.

Shieh, J.-J., & Reynolds, B. L. (2021). The origin and impact of an ESL teacher's beliefs on curriculum design. *Asia Pacific Journal of Education, 41*(3), 574–593. https://doi.org/10.1080/02188791.2020.1832043

Shute, V. J. (2008). Focus on formative feedback. *Review of Educational Research, 78*(1), 153–189. https://doi.org/10.3102/0034654307313795

Stake, R. E. (1995). *The art of case study research.* Sage Publications.

Van de Ridder, J. M. M., Stokking, K. M., McGaghie, W. C., & ten Cate, O. T. J. (2008). What is feedback in clinical education? *Medical Education, 42*(1), 189–197.

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Sage Publications.

Chapter 22
Biology Teachers' Perceptions of Their Working Environment in the Context of China's Educational Reform

Chunlei Zhang and Enshan Liu

Abstract The primary purpose of this study was to explore teachers' perceptions of their working conditions and workplace learning. An instrument *Science Teacher Working Environment Survey (STWES)* was developed based on our pilot study. The survey was sent out online during a two-week distant professional program session. We received 543 valid records. Exploratory factor analysis results showed that teacher perception included four factors: school support, application of ICT, practice reflection, and peer collaboration. A learning environment model (PICE) was constructed to explain teachers' workplace learning. One-way ANOVA analysis showed that teachers' scores of these factors significantly differentiate for different teacher backgrounds, school contexts, and students' characteristics. This finding suggested that teachers' backgrounds could affect their perception of working contexts and workplace learning, which was different from (Hirsch, E., & Emerick, S. (2006). We found a modest positive correlation between teachers' perception of working contexts and workplace learning ($r = 0.427$, $p = 0.000$, $n = 543$). As teachers' perceptions varied significantly, teachers need appropriate programs and local supports. These results also suggest that policymakers and researchers should pay more attention to the school learning communities in which teachers possess lower perceptions.

Keywords High school · Biology teacher · Perceptions of working conditions · Perceptions of workplace learning · Learning environment

Introduction

Several international science education standards such as Next Generation Science Standards (NGSS) advocate for science teachers to adopt more student-centred instructional practices in which scientific ideas and thinking are learned with science

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practices (NGSS Lead States, 2013; NRC, 2012, 2015). The goal is for students to learn not only science ideas but also how ideas are generated by science—in essence, how science works (AAAS, 2009). Achieving this goal requires an instructional shift away from the transmission of facts toward designing tasks that create space for students' active engagement in science learning.

In order to achieve high "quality education", Chinese policymakers have launched a new round of educational reform to change the examination-oriented educational system in mainland China since 2001 (MOE, 2001). In 2003, Ministry of Education of China released the new High School Biology Curriculum Standard (trial) (HSBCS) publically. HSBCS aims to improve students' scientific literacy and promote active learning. It encourages teachers to develop students' ability of science inquiry, critical thinking, communication and collaboration, collecting and processing information, and so on. It also encourages teachers to take advantage of ICT and online resources in their teaching and learning. High school biology textbooks, classroom teaching, and assessments are all expected to be aligned with the standards. This top-down standard-based reform had been spread all over the country from 2007 to 2011. In 2017, new curriculum standards have been published by the Ministry of Education (MOE) of China in order to improve students' scientific literacy and promote students' active learning of disciplinary core ideas (MOE, 2001; MOE, 2017a; MOE, 2017b), which influence more than 200 millions Chinese students in K-12 schools (MOE, 2015).

Many education reforms failed when it comes to schools and classrooms, because reform supporters, including policymakers, school principals, and education researchers, often belittle the complexity of changing teacher practices (Hoban, 2002). It is generally acknowledged that teacher is the key to the success of any educational reform. But teachers' long-hold beliefs are stable and resistant to change. In order to make sure teachers change their beliefs and develop related teaching capabilities, both national and local formal training programs were launched in China. Before every province entering the reform, teachers would attend a two-week national online training program during their summer vocation. China policymakers and reformers also emphasize the evaluation of teachers' classroom teaching in order to promote reform-based teaching. These measures made teacher more likely to hold student-centred teaching beliefs but were unsuccessful in changing teaching practice, because teachers' beliefs can be inconsistent with their classroom practices (Ertmer et al., 2001; Fang, 1996; Lin, 2008; Nargund-Joshi et al., 2011). In order to make correct education policies and decisions, Chinese researchers have begun to emphasize the use of rigorous evidence to evaluate educational programs and practices, and more and more evidence-based education research has emerged (Slavin et al., 2021). For example, Lin (2008) found that science teachers in a south-east city of China who reported student-centred teaching beliefs may keep using teacher-centred lectures giving students little control of their learning. Teachers may hold collective silence, avoidance, and self-deception attitudes towards national college entrance examination reform (Xu et al., 2021). So only bringing external pressures to bear upon teachers without proper supports can hardly make any change.

On the other hand, although both national and local professional development programs (PDPs) were provided in China, most in-service teachers still have

few opportunities to engage in formal PDPs, especially long-term and sustained programs. In this case, informal workplace experiences (e.g. peer collaboration) become the only option for learning (see Van Eekelen et al., 2006; Verloop et al., 2001). Melville & Wallace (2007) found workplace learning affected not only teacher subject matter knowledge but also their pedagogical content knowledge and their teaching practices. A large-scale survey demonstrates that working conditions are critical to increasing student achievement and retaining teachers (Hirsch & Emerick, 2006). And it is this professional context and school environment that shapes teacher efficacy and satisfaction (Hirsch, 2008). Besides putting more efforts on formal training and teacher evaluation, policymakers and researchers should also emphasize the importance of investigating and supporting teachers' workplace learning.

In China, workplace learning activities mainly include school-level and city-level programs. At school level, teachers may visit each others' classes and discuss the lesson together. Beginning teachers are usually paired with experienced teachers in the first couple of years. Teacher leaders of the subject also organize study groups to prepare lessons together or do lesson studies. City-level programs are usually lectures and lesson studies. Sometimes they also organize teaching competitions or lesson design competitions to encourage teachers to enhance their knowledge and skills, such as organizing inquiry-based learning and collaborative learning. But the quantity and quality of teachers' workplace learning activities can vary greatly in different schools and areas. Are these activities and local school supports enough for teacher to adopt the reform in their school setting? Little is known.

Theoretical Framework

Knowing what factors can decide teachers' adoption or rejection the reform is a precondition for the success of educational reform. Researchers have identified many of these factors such as teachers' beliefs, knowledge, attitude, teaching practices, community support, class size, professional learning time, high-stakes testing, PDPs, curriculum, students' ability, and available teaching resources (Burton, & Frazier, 2012; Feyzioğlu, 2009; Nargund-Joshi et al., 2011; Richards, Levin, & Hammer, 2011; Van Driel et al., 2001; Yeung et al., 2012). Teachers may adapt the reform under three preconditions: they agree with the goal of the reform; they have capability to carry it into practice; external environment support and encourage them to do so. Both internal factors (teachers' beliefs and capability) and external factors (school context) can play a role in this process.

In order to understand peoples' learning, behaviour change, and effective performance, Martin Ford (1992) developed a theory of motivation—Motivational Systems Theory (MST). In this theory, motivation is defined as the organized patterning of three psychological functions that serve to direct, energize, and regulate goal directed activity: personal goals, emotional arousal processes, and personal agency beliefs (PAB). He uses the following equation to define motivation.

$$\text{Motivation} = \text{Goals} \times \text{Emotions} \times \text{Personal Agency Beliefs}$$

Using this multiplicative equation, Ford suggests if one component is missing, a person will not motivated to initiate activity, even if other components are present. So, in the case of teacher learning, we infer that teachers' personal agency beliefs may also play a crucial role in teachers' adopting the reform.

According to Ford's theory, two types of personal agency beliefs may function in teachers' workplace learning: capability beliefs and context beliefs. Teachers' capability beliefs are beliefs about ones' ability or skill to meet the goal of the reform. They directly affect teachers' instructional and learning decisions and actions. Teachers' context beliefs are beliefs about the responsiveness of the environment (external factors and/or people), which may help or hinder teacher meeting the goals of the reform. In education, contexts can be broadly classified into the designed environment (e.g. buildings), human environment (e.g. students, faculty), and social cultural environment (e.g. cultural norms) (Ford, 1992, p. 134).

Both formal training and teacher evaluation emphasize aligning teachers' teaching beliefs and goals with the reform and developing related capabilities. But the local context where teachers' workplace learning happens is largely neglected. Teachers' personal agency beliefs, especially the context beliefs, are less studied and addressed.

So, this study is going to explore both biology teachers' learning beliefs and context beliefs and the relationship between the two. This study mainly focusses on teachers' workplace learning. One reason is that teachers' workplace learning is necessary and frequent for teachers' professional development. Another reason is that workplace learning is the only professional learning approach that is accessible for most of Chinese biology teachers.

In this study, both teachers' learning environment perception and practice description items were included in our survey to capture the interactions between teacher learning and workplace environment. Items descripting teachers' capability and context beliefs were also included. In this study, capability beliefs refer to teachers' beliefs of their ability and engagement in workplace learning. Context beliefs refer to the external support that they perceive in their working context, including both material support and social support, such as supports from administrators and colleagues.

Research Questions

With many barriers in front of teachers and increasing pressure to adopt reform-based teaching approach, there is a significant need to explore if teachers can adopt the reform through their workplace learning. How supportive do they perceive their workplace learning environment? How much do they engage in their workplace learning (such as teaching experiment, reflection, and technology integration)? All these perspectives will decide what teacher really do in their classroom teaching and whether the reform will be successful. But few studies explore these questions

for Chinese biology teachers specifically. This study aims to offer evidence and directions to policymakers and educational leaders to support teachers' workplace learning. Thus, the following research questions will guide this study.

- How supportive do senior high school biology teachers perceive their workplace learning environment? How much do teachers engage in their workplace learning activities?
- How different teacher groups differentiate in their perceptions? (e.g. different provinces, school context, teacher characteristics, and so on).
- What is the relationship between teachers' perception of work conditions (PWC) and perception of workplace learning (PWL)? Do teachers' perception patterns support them to adapt the reform?

Literature Review

More Attention Should be Paid to Biology Teachers

For some historical reasons, biology used to be not tested in the National College Entrance Examination (NCEE) for a period of time in China. Even now it is still less likely selected for high-stake exam such as the NCEE or just occupies the least score percentage in the exam. As a consequence, school principals believe that biology is less important than other science disciplines, so they tend to put less time and effort on biology teaching. Biology teachers are confronting much more challenges in ensuring their teaching time and resources than teachers of other science discipline. They are more likely to be suffering with their teaching conditions and professional learning.

Another challenge for biology teachers is the conflict between high-stake exam and the standards. Examination system has a long history in China, and today it still plays a very crucial role in guiding teachers' teaching and students' learning. But Lu and Liu (2012) found that biology examinations such as High School Exit Examinations generally require lower levels of cognitive skills and failed to align with the standards (HSBCS). So in this situation, biology teachers also have to confront the conflicts between assessments and the standards, which make them more reluctant to change their teaching practice.

In addition, there is also a big gap in educational resources between the east and the west in China. In the east developed regions or big cities such as Zhejiang or Shanghai, students have better learning conditions, resources, and more excellent teachers, but in the undeveloped west regions, some schools are lack of learning resources especially good teachers. A case study showed that beginning teachers in Tibet were reluctant to commit themselves to teaching as a lifelong career, largely because of the low status and poor compensations of the teaching profession (Su et al., 2002). Even at the same region, key schools of province and key schools of city generally have better teaching resources and teachers than general schools. Although these school

titles are gradually unused, the gaps between schools are hard to change. So, teachers in undeveloped regions or poor schools are very likely to meet more difficulties in adopting the reform .

Working Context is Crucial for Educational Reform

Teachers' learning takes place as a result of teachers' participation in everyday activities in the working context (Darling-Hammond, 1998; Henze et al., 2009; Putnam & Borko, 2000; Kwakman, 2003). Luft et al. (2011) found that most of the new teachers—regardless of induction program—shared similar beliefs and PCK at the end of the second year, which means school context plays an important role in teachers' beliefs and PCK development. University education programs in China also put much energy on encouraging teacher candidates' reform-based practice and assume that they can sustain these teaching orientations after they graduate. However, Richards, Levin, and Hammer (2011) found that candidates' student-centred teaching practices tend to dissipate once they leave the program. So based on their case study evidence, they argued that both intellectual and emotional community supports are necessary for sustaining preservice teachers' reform-based practices.

Experienced teachers also meet many challenges in implementing more student-centred methods. These obstacles included teachers' lack of time, difficulties to change old practice and beliefs, conflicts between ideal standards and the reality of science classes, and the school context such as class size, students' motivation and ability, and school culture.

As teachers' workplace learning is school context situated and work-oriented, it plays a key role in teacher professional development in educational reform context. And the most feasible way for teachers to master new theories and the reforms is to let teachers build their knowledge base and teaching repertoire in their real working contexts (Tang & Zhu, 2005). So, school working context can play an import role in helping teachers adopt the reform and sustain their reform-based practice. The working context includes not only the designed environment but also the human

environment and social cultural environment (Ford, 1992). According to Ford, the designed environment includes buildings, labs, equipments, software, and so on. The human environment is composed of mainly students, faculties and principals in school. As to the social cultural environment, it refers to the culture norms of school, local region, or even country.

Based on a large sample survey, Hirsch and Emerick (2006) reported that working conditions are also critical to increasing student achievement and retaining teachers and teachers' perceptions of working conditions reflect actual school conditions. Working context is also important for teachers' retention. Johnson et al. (2012) also confirmed that teachers who have positive perception of their school context are more satisfied and plan to stay longer. According to their study, the critical elements of the work environment for teachers are not narrowly conceived working conditions such as clean and well-maintained facilities or access to modern instructional technology but the social conditions—the school's culture, the principal's leadership, and relationships among colleagues.

Science Teachers' Capability Beliefs and Context Beliefs

Mansour (2011, p. 348) found that teachers do not operate in a vacuum, and their beliefs are shaped by both the immediate and wider educational contexts in which they work. These contexts include three levels: the educational management contextual level, the workplace (school) contextual level, and the classroom contextual level. Teachers are not just simply form or socialize by the sociocultural contexts in which they operate but, they are, in fact, active participants in the interactions with these sociocultural contexts, which created the conditions for how they teach in schools. It is necessary to consider all these aspects to assess teachers' context beliefs.

Andersen et al. (2004) assessed the self-efficacy of new elementary teachers from Denmark at the beginning, middle, and end of their first year of teaching. They found that positive changes in self-efficacy seemed positively related to the occurrence of environmental factors helpful to teaching ($r = 0.401$; $p = 0.011$; $n = 39$). It indicates that context plays a role in forming teachers' positive beliefs. But if teachers' context beliefs can affect teachers' engagement in workplace learning still need further study. Lumpe et al., (2000) found teachers participating in long-term science PDPs possessed fairly positive context beliefs and, according to Ford's theory, should be capable of effective functioning in the classroom. But teachers' context beliefs in the context with little long-term PDPs are rarely studied.

Although the number of studies into informal workplace learning has significantly increased over the past decade, very few studies are concerned with different teacher groups' Perception of Working Conditions (PWC) and the relationship of PWC with PWL (e.g. teaching experiment and reflection). Given that teachers' PWC reflect actual school conditions and affect teachers' professional learning and students' achievement (Hirsch & Emerick, 2006), it is timely to examine teachers' PWC and

PWL, not only for retaining teachers and properly distributing resources, but also for designing supportive learning environments and programs for special teacher groups.

This study can contribute on the following areas. First, this study can help us understand what factors affect science teachers' perception of their working conditions and workplace learning activities. This information is necessary for building a more supportive local school community and learning environment for science teachers, which is precondition for successfully educational reform. Second, it also can inform us the relationship between science teachers' working conditions and their workplace learning. Third, it can also provide important information for policymakers and reformers to distribute educational resources and learning programs more reasonably.

Method

To assess biology teachers' perception of work context and workplace learning, we mainly employed a quantitative approach. Quantitative study can be more appropriate for this study to study large-scale representative sample and measure teachers' perceptions and beliefs of their workplace learning. It can also be able to generate more general conclusions for policymakers and teacher educators to make critical decisions.

Participants

The participants came from six provinces (Chongqing, Sichuan, Guizhou, Tibet, Gansu, and Qinghai), included both beginning teachers and experienced teachers. The participants have different teaching experiences and come from different type of schools. Table 22.1 shows the demographic information of the participants.

Instruments and Procedures

Data were collected from an online survey instrument designed to assess teachers' workplace learning experiences. Analyses for the present study rely on data from items used to elicit teachers' characteristics, school context, students' characteristics, perceived competence in teaching practice, reflection, application of ICT, and perceptions of working condition, school support, and peer support.

The survey included three parts. The first part asked teachers to report their gender, teaching experiences, professional title, degree, major, college, and awards. The second part collected information of school context and teaching context, such as school location, school type, work load, class type, and students' performance and

Table 22.1 Demographics of study participants

		Frequency	Percent
Total		543	100
Gender	Female	224	41.3
	Male	319	58.7
Experience	1-10Y	215	39.6
	10-20Y	146	26.9
	20Y +	178	32.8
Title	Senior	107	19.7
	Middle class 1 (M1)	205	37.8
	Middle class 2 (M2)	231	42.5
Award	National Level (NL)	58	10.7
	Province Level (PL)	140	25.8
	City Level (CL)	133	24.5
	District Level (DL)	66	12.2
	School Level (SL)	63	11.6
	No Award (NA)	83	15.3
Degree	Technical (T)	31	5.7
	Bachelor (B)	498	91.7
	Master (M)	14	2.6
Teacher major	Biology (BIO)	516	95.0
	Other Science Discipline (OSD)	23	4.2
	Non Science Discipline (NSD)	4	0.7
Teacher interest in biology	Very Like (VL)	180	33.1
	Like (L)	267	49.2
	Average (AV)	96	17.7
Province	Chongqing (CQ)	80	14.7
	Sichuan (SC)	134	24.7
	Guizhou (GZ)	136	25.0
	Tibet (TB)	6	1.1
	Gansu (GS)	141	26.0
	Qinghai (QH)	22	4.1
School type	Key School of Province(KSP)	115	21.2
	Key School of City(KSC)	109	20.1
	Key School of District(KSD)	28	5.2
	General School(GS)	291	53.6
Class size	1–40	19	3.5
	40–50	90	16.6

(continued)

Table 22.1 (continued)

		Frequency	Percent
	50–60	178	32.8
	60–70	175	32.2
	70–80	58	10.7
	80 +	23	4.2
Workload (number of lessons per week)	0–5	23	4.2
	6–10	43	7.9
	11–15	288	53.0
	16–20	142	26.2
	21–25	34	6.3
	26 +	13	2.4
Student major	Science (S)	230	42.4
	Liberal Art (LA)	22	4.1
	Both	291	53.6
Student performance	Well (W)	35	6.4
	Middle Plus (M +)	84	15.5
	Middle (M)	135	24.9
	Middle Minus (M-)	141	26.0
	Poor (P)	148	27.3
Student interest in biology	Very Like (VL)	10	1.8
	Like (L)	107	19.7
	Average (AV)	395	72.7
	Dislike (D)	29	5.3
	Hate (H)	2	0.4

interests. The third part was composed of statements of both teachers' working contexts and their workplace learning experiences. All items were Likert-5-point scales. Teachers were asked how much they agree with each statement according to their real situations ('Strongly Disagree' = 1, 'Disagree' = 2, 'Undecided' = 3, 'Agree' = 4, and 'Strongly Agree' = 5,). Before the survey, it is claimed that these data can just be used for educational study, and there is no right or wrong answers.

The online survey was sent out during a two-week long online teacher training session. More than 5000 senior high biology teachers attended the online training program. The survey was announced in teachers' training assignment board. All teachers could notice it and decide whether they would like to volunteer to participate in this study. At the end of the training, we received 543 anonymous valid records in total.

Validity.

This survey is revised based on our pilot study (Zhang & Liu, 2010). In our pilot study, we made up our items based on literature and sent the survey out with some open-ended questions related to teacher's workplace learning (e.g. what factors facilitate or hinder your professional learning in working context). Based on teachers' answers to these questions, we identified a range of themes including administrative support, peer collaboration, teaching reflection, experimenting new ideas or methods, learning resources, networks and information technology, professional programs, student feedbacks, and work conditions (e.g. equipments). Since most high schools have access to computers and Internets, technology (ICT) plays a more and more important role in teachers' teaching and learning, especially when resources are very limited in undeveloped area. Several items about teachers' application of ICT in their teaching and learning are also included in our survey.

Based on the item analysis of our pilot data, we deleted some items that have low correlation coefficient with total score and revised a couple of items slightly according to the main themes of teachers' responses to the open questions. Two content experts (science teachers and teacher educators) were asked to examine the relevance and representativeness of the items of the survey independently for building its content validity. Table 22.2 shows the final items of the *BTWLS* used in this study.

Correlation analysis revealed that the four factors were strongly correlated with the total score ($r > 0.6$, $p = 0.000$) and the correlation coefficient is higher than that between each factors (Table 22.4). It also provides evidence for good construct validity of the instrument.

Analysis of Data

We used SPSS 23.0 to analysis our data. First, KMO and Bartlett's Test of Sphericity show that our data are suitable for factor analysis. In psychometric analysis, if KMO >0.8 (value = 0.902) and Bartlett's Test of Sphericity sig <0.05 (sig = 0.000), then the questionnaire was suitable for a factor analysis.

Then, we carried out exploratory factor analysis to identify the main component factors. Four factors with eigenvalues greater than 1 were extracted and identified as school support (7 items), application of ICT (6 items), practice reflection (5 items), and peer collaboration (3 items). The total variance explained reached 61.4%.

The four-factor model has good suitability because all items loading are higher than 0.598, which showed a high correlation of each factor with the total score (Table 22.2). Every factor has an internal consistency reliability value measured by Cronbach's alpha between 0.727 to 0.903, which shows that the instrument has good internal consistency reliability (Table 22.3).

Table 22.2 Factors loading of items in BTWLS

KMO = 0.902 Bartlett's Test of Sphericity sig = 0.000				
	f1	f2	f3	f4
1. Our school has provided a lot of convenience for teachers' professional learning	0.877			
2. Our school provides teachers with a lot of books, magazines, CD-ROMs, and other learning resources	0.809			
3. I am very satisfied with the environment for professional development	0.802			
4. Our school provides many opportunities for information exchange and sharing of resources for teachers	0.793			
5. Our schools have very good hardware conditions for teachers' professional learning	0.767			
6. School leaders provide a lot of support for my new teaching ideas and experiments in teaching and research	0.734			
7. The learning atmosphere among teachers in our school is very good	0.598			
8. I often use the Internet to get some learning resources that I need		0.794		
9. ICT is of great help for my personal professional development		0.775		
10. I can use ICT well for professional learning		0.739		
11. I like to learn how to use the computer or network technology for teaching		0.732		
12. I can make a good use of search engine, forum to get information and resources for my professional learning		0.721		
13. Making use of computer and network can help me to teach more effectively		0.698		
14. I can record and reflect my teaching purposely			0.748	
15. I know how to promote my professional development through teaching reflection			0.728	
16. I always record the encountered accident or successful teaching methods in my instructions			0.715	
17. I keep teaching record and reflection to adjust my teaching methods and pace			0.702	
18. I organize and review my own lesson plans, teaching reflection and teaching materials periodically			0.668	
19. Colleagues will share new found courseware and good articles with all members in our teaching research group				0.754
20. The communications between colleagues helped me a lot in my professional development				0.742

(continued)

Table 22.2 (continued)

KMO = 0.902 Bartlett's Test of Sphericity sig = 0.000				
	f1	f2	f3	f4
21. I have many friends for assistance or discussions when I confront difficulties in subject or student management issues				0.724
Variance Explained %	21.24	17.06	13.36	9.72
Cumulative Variance Explained %	61.39			

Table 22.3 Internal consistency of each factor and total survey

Factor name	Items (n)	Cronbach's alpha
1. School supports	**7**	**0.903**
2. Applications of ICT	6	0.859
3. Practice reflection	5	0.789
4. Peer collaborations	3	0.727
Total survey	21	0.891

Table 22.4 Means, standard deviations, and Pearson correlations

Variables	M	SD	TS	1	2	3	4
Total score (TS)	3.45	0.53	–	0.824**	0.624**	0.691**	0.667**
1. School supports	2.78	0.89		–	0.288**	0.299**	0.436**
2. Applications of ICT	3.86	0.67			–	0.363**	0.378**
3. Practice reflection	3.77	0.59				–	0.353**
4. Peer collaborations	3.65	0.75					–

Note $N = 543$; All Pearson correlations were statistically significant, $^{**}p < 0.01$

Correlation analysis was also carried out to explore the relationships between each factor and the total score. In order to answer the study research questions how different group teachers percept and engage in their workplace learning, a one-way ANOVA was used to identify if there were significant differences between different teacher groups' scores of each factor. If there were significant differences, then post hoc multiple comparisons (LSD) would be further used to probe the significant differences between groups.

Findings

Question 1: How Positive are Teachers' Perceptions of their Learning Environment?

Table 22.4 shows the means, standard deviations of the four factors, and the total score. If we divide our scale (from 1 to 5) into three levels: negative (from 1 to 2.33); neutral (from 2.33 to 3.66); positive (from 3.66 to 5). Then, we found teachers' perception of *school supports* ($M = 2.78$ SD $= 0.89$) was at neutral level and below the middle point 3, which means that teachers generally perceive their school not supportive enough. Teachers' perception of *Peer Collaborations* was a little higher. But it was still at the neutral level ($M = 3.65$ SD $= 0.75$). Because *school support* and *peer collaborations* are the main components that teachers receive in their school context, we use these two factors to largely represent teachers' PWC, which was also at neutral level ($M = 3.04$ SD $= 0.75$). So, teachers generally hold neutral PWC.

Accordingly, *application of ICT* and *practice reflection* can largely represent teachers' PWL. Both scores of these two factors were higher than 3.66 and belong to positive level. As a result, teachers' PWL was also in positive level ($M = 3.82$ SD $= 0.52$), which indicated that teachers generally hold positive perception of their engagement in their learning and teaching activities.

Question 2: How Teachers' Perceptions Differentiate?

One-way ANOVA analysis was used to test score differences across different teacher characteristics, school context, and student characteristics. For example, one-way ANOVA result showed that practice reflection score differed significantly across different teaching awards groups, $F(5, 537) = 3.205$, $p = 0.007$. Post hoc multiple comparisons (LSD) showed that teachers with national awards hold significantly higher score of practice reflection than city level, school level, and no awards groups, which means that teachers with national awards tend to be more reflective in their teaching practice according to their own perceptions.

Table 22.5 shows the summary results of significance levels of one-way ANOVA analysis.

As shown in Table 22.5, teachers' scores differed significantly across different teacher groups (sig $= 0.05$, n $= 543$), including both teacher characteristics (teaching years, awards, professional title, interest on biology, and workload), school contexts factors (location, students' performance, and learning interests), and student characteristics (student major, interests, and score). The following is a summary of the post hoc multiple comparisons (LSD sig $= 0.05$) results.

Table 22.5 Summary of one-way ANOVA significance levels

		School Support	Peer Support	Practice Reflection	ICT Application	Total Score
Teacher	Experience	***				**
	Title	***	**		**	***
	Awards	*		**	*	**
	Interest	***	***	***	***	***
School	School	**				*
	Location	**				**
	Workload	*				
	Class Size		*			
Student	Major			**		**
	Score	***	*			***
	Interest	***	*	***	***	***

Notes $n = 543$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

(1) Teachers with different characteristics hold different PWC and PWL

We found that teachers 0–10 year group had significantly higher *school support* score and total score than did other groups. Teachers who had received higher level awards had higher score on *school support*, *practice reflection*, *application of ICT,* and *total score*. Teachers who has more than 20 lessons per week had significantly lower *school support* and *total scores* than did other groups. The more interest a teacher had in biology, the higher the score the teacher had on every factor and total score.

(2) Teachers in different school contexts hold different PWC

As shown in Table 22.5, teachers' score of *school support* differed significantly across different provinces. *Post hoc multiple comparisons* results showed that teachers from Guizhou and Sichuan provinces had significantly lower *school support* score and total scores than other provinces. Teachers in general school or less than 40 student class have significant lower *school support* score.

(3) Teachers in different classroom contexts hold different PWC and PWL

The better students perform, the higher score teachers have on *school support*, *peer collaboration,* and total score. The higher students are interested in learning biology, the higher score teachers have on all four factors and the total score. Teachers who teach science major students have higher score on Practice Reflection than other teacher groups did.

Question 3: What is the Relationship between Teachers' PWC and PWL?

We used *school support* and *peer collaboration* to stand for teachers' perception of their learning environment and *practice reflection* and *application of ICT* to stand for teachers' competence and engagement in their workplace learning. There is a modest relationship between the total scores of teachers' PWC and PWL ($r = 0.427$, $p = 0.000$, $n = 543$), which means teachers are more likely to have positive PWL when they hold positive PWC.

A plot of PWC by PWL score revealed that many teachers displayed relatively negative PWC. They also displayed weak PAB patterns (Ford, 2002), such as being vulnerable, tenacious, and discouraged, which ring alarm bell for reformers and policymakers in China.

Discussion

Factors that impact Teachers' PWC and PWL

Teacher and students characteristics may affect both teachers' PWC and PWL, while school context mainly affects PWC.

1. Some teachers' characteristics (workload, experience) may only affect PWC, while others (awards, professional titles, and interest) affect both PWC and PWL.

In this study, biology teachers' characteristics, such as experiences, awards level, and interest in subject, do affect their PWC. They may also affect teachers' PWL. This finding is different from Hirsch and Emerick's (2006) conclusion that teachers view working conditions similarly, regardless background and experience. In addition, less experienced (0–10 years), highly awarded, and high interest in biology teachers tended to have more positive PWC. It also means that as teachers' experience increase, if they are not very interested in biology and awarded, they tend to have negative PWC. One possible reason is that less experienced teachers (0–10 years) received more support from school principals and administrators, because they are believed to be more capable and easily to adapt the reform. In order to achieve widely and endurable change in classroom teaching, we should also not neglect marginalized teacher groups, such as experienced but not outstanding teachers. From this data, we suggest that teachers' perceptions are more complex than previous study have suggested (Hirsch & Emerick, 2006), teachers with different background and experience may perceive the same working context differently and act differently (Hoekstra et al., 2009).

2. School context characteristics such as school type, locations, and class size affect teachers' PWC, but they do not affect teachers' PWL.

Teachers in different school location, school type, and size of class have significant difference in their external perceptions. This supports the conclusion that school context may affect teachers' external perceptions such as school support and peer collaborations. There is still a big gap in educational resources between different provinces and schools in China. As a result, teachers in undeveloped regions and general schools perceive less support because these schools are lack of good working conditions and learning resources.

One surprising result is that teachers with class size less than 40 perceive less peer support than other groups. In China, the class size would usually be 40–50 in urban area school and 50–60 in suburban area. It can become much larger in undeveloped regions when lack of schools. Sometimes, poor school can also have smaller class size because large number of students dropping out or fierce competitions on student sources between schools. When looking at the location and school type of these teachers, 18 out of 19 were come from general school in undeveloped regions. We can infer peer support, and collaboration rarely happens in these marginalized schools.

3. Some student characteristics may only affect PWC, some only affect PWL, and some affect both PWC and PWL.

As shown in Table 22.5, there are significant difference in teachers' *practice reflection* score across different students majors, which means that student major may only affect teachers' *practice reflection.* According to teachers' answers to the open-ended questions of our pilot study, student questions can also urge teachers to reflect and help grow professional knowledge. Students who major in science tend to ask more questions and take more responsibility in their biology learning, which cause their teachers to be more reflective of their teaching practice in order to help student understand more clearly and deeply.

Another result is that students' score affects teachers' PWC. Teachers who reported better performance perceive higher score of PWC but not PWL. Because of school competition, better performance students are more likely select and study in better schools, which would provide more school and peer support to teachers. Accordingly, teachers who reported poor performance of their students are more likely happen in poor schools and they are lack of school and peer support.

Student interest of learning biology can both affect PWC and PWL. Students learning interest is another index of school performance, so supportive school more likely has students interested in learning and teacher receives more school support and peer support. When students are interested in learning biology, teachers are more like to experiment, reflect their teaching methods, and integrate ICT in their teaching and learning.

The Relationships between PWC and PWL

This study showed that there is a modest positive correlation between teachers' perception of working conditions and perception of workplace learning. It means that teachers' perception of the external environment and their own internal engagement and self-efficiency are positive related. This relationship has been reported by some previous studies (Bandura, 1993; Leithwood, 2006; Meirink et al., 2009), and this study confirmed this finding again. Andersen et al. (2004) also found that teachers' positive changes in self-efficacy were positively related to the occurrence of environmental factors helpful to teaching.

There are at least two ways to explain this positive correlation between PWC and PWL. One explanation is that teachers tend to be more confident in their workplace learning if they receive more school support or engage in peer collaboration. Another explanation is that teachers who have higher self-efficiency and positively engage more in their workplace learning are more likely to perceive the positive aspects of their learning environment. Although PWC and PWL may interact with each other in teacher workplace learning, we argue that PWC seems to the dominant factor in deciding teachers PAB patterns (see Fig. 22.1) in this study. PWC can more evenly distinguish different types of teachers. More studies are needed to further explore this causal relationship between PWC and PWL.

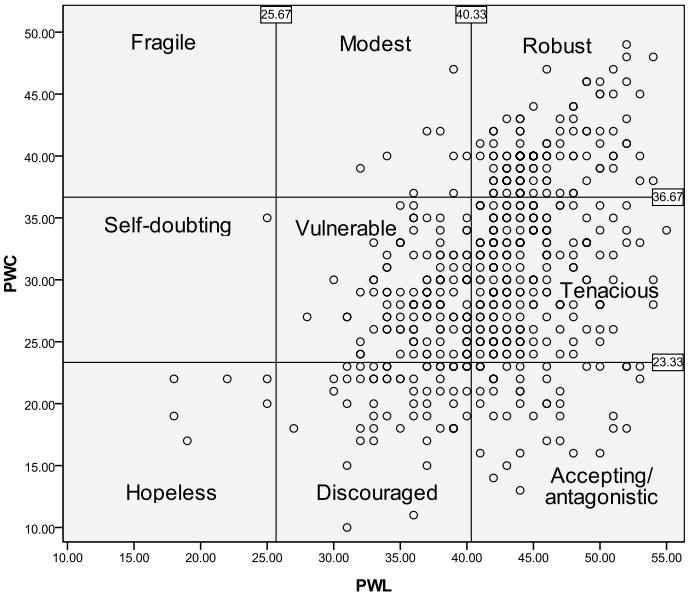

Fig. 22.1 Plot of PWC by PWL score

Teachers' Personal Agency Belief Patterns

As Fig. 22.1 revealed, many teachers displayed relatively negative PWC and weak PAB patterns (Ford, 2002), such as Tenacious, Vulnerable even Discouraged and Accepting/ Antagonistic. According to Ford (2002),

> a Tenacious PAB pattern is high in motivational potency … but some degree of environmental unresponsiveness is viewed as predictable and unsurprising… A vulnerable pattern is characterized by uncertainty or vacillation between favorable and unfavorable expectation for goal attainment. People in this pattern are unlikely to be negative enough to inhibit progress toward important goals; however, they may trigger symptoms of anxiety and worry and contribute to a cautious approach to goal setting and goal seeking. (P135)

Although teachers possessing Tenacious PAB pattern are associated with "strength in dealing with obstacles and challenges" (Ford, 1992, p.134), they also view their environment as predictably unresponsive. Teachers with this pattern are very likely to adopt Vulnerable or Accepting/Antagonistic PAB patterns, if they were not give enough support structure to keep them motivated.

But teachers in Discouraged and Accepting/Antagonistic PBA patterns both hold negative context beliefs and showed some degree of distrust or hostility toward the environment. According to Ford (2002),

> Discouraged people are less likely to focus on their personal deficiencies than on the impossibility of making progress in the current context… The Accepting/ Antagonistic PAB patterns are both characterized by a general sense of self-adequacy combined with a significant degree of distrust or hostility toward the environment. People manifesting these patterns generally blame some aspects of the context rather than themselves for problems and failures. (P135–136)

For teachers with these patterns who are struggling with their learning environment, it becomes more crucial to give them necessary support. The reform-based teaching requirement is often stressful to teachers, and more support are needed to bring about changes in teachers' professional behaviour (Haney et al., 1996). Pushing forward the reform cannot only depend on increasing pressure on teachers' practice by assessment. Policymakers and teacher educators should collaborate to build supportive workplace learning environments for teachers. Both administrative and peer support are badly needed for teachers to bring enduring educational change.

Teachers' Interactions with their Workplace Learning Environment

The result of factor analysis indicates that teachers' adaption to learning environment can be divided into four factors: school support, peer support, practice reflection, and ICT application. These four factors reflect both the extra school support and teachers' adaption to their learning environments. Teachers' perception of school support and peer support indicts individual teacher's interaction with the community.

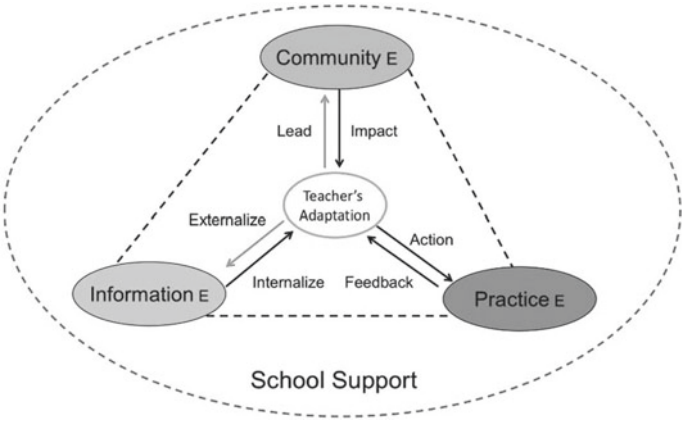

Fig. 22.2 Teachers' learning environment model (PICE model)

Practice reflection factor reveals teachers' interactions with the practice field such teaching and reflection. The factor of ICT application can be an index of teachers' interaction with the information learning environment. Thus, teachers' learning environment includes three sub-environments: *practice learning environment*, *information learning environment,* and *community learning environment*. We proposed a PICE learning environment model to explain these interactions. Figure 22.2 shows teachers' interactions with their learning environment in this model.

Practice environment is mainly the environment of teachers' teaching practice, such as students, classroom teaching facilities, laboratories, and other teaching environment. *Community environment* means the local community in which teacher works, such as the relationship formed at work and teachers' role and status in the working organization. *Information environment* is where teachers can acquire or share their personal experiences, information and knowledge, such as books, magazines, Internet, of all kinds of media, library, and other place. So, in this PICE model, teachers' learning environment is composed of three sub-environments.

Three sub-environments are relative divided, and there are mutual overlaps between different sub-environments. One sub-environment can also interact with the other two. But each environment has its own characteristics and specific way of interaction with teachers. For example, in the practice sub-environment, teachers try new teaching ideas and get feedback, which will increase their own skills and knowledge of teaching in return. In community sub-environment, teachers' teaching beliefs and knowledge may impact each other through interpersonal conversions or collaborations. In the information environment, teachers can interact with the knowledge carrier (books, journals, blogs, and social media), internalize and externalize their knowledge, and also express and spread their knowledge. Teacher knowledge is formed and developed in the interaction with the environment, and different sub-environments may contribute their knowledge development in different ways. For example, in information environment, teachers may have access to system explicit

knowledge which others teachers externalized to solve real problems. The knowledge from the practice environment is often tacit, vague, and subjective, but very practical and operatable. In addition, the practice environment is a place where teacher applies and tests their knowledge from the community environment and information environment, which are integrated into specific teaching strategies and routines.

Teachers' answers to open questions in this survey also support this learning environment model. According to teachers' replies to open questions, the impediments of professional development are mainly distributed in the community environment and information environment, while contributing factors have more balanced distributions in the three environments (light color arrows and ellipses show the weak parts of the learning environment, see Fig. 22.2). In addition, having strong personal initiatives are also important to promote teachers' professional development.

Implications

Based on these results, we suggest the following to policymakers and teacher educators.

We should not assume that teachers are able to receive enough support in school context to adapt the reform. Empirically assessing teachers' PWC and PWL are necessary for policymakers to distribute teacher learning resources and programs. According to the results, we suggest providing more supports and resources in schools where teachers have lower perceptions of their working conditions. Among all the provinces are in the west less developed area of China, teachers from Guizhou and Sichuan more badly need support than other provinces. Policymakers should also pay attention to teachers in *general schools* and provide them more supports. If teachers' PWC and PWL are ignored, then it would become unrealistic to expect teachers to adapt the reform and change their classroom teaching.

Based on the results, both environmental and personal characteristics can affect teachers' PWC and PWL. Policymakers also can enhance teachers' positive perceptions and learning activities by lightening teachers' workload properly and fostering teachers' interest in their teaching subjects. What is more, encouraging the collaboration rather than competition between teachers in the same school would help teachers possess more positive PWC.

As there are significant differences in teachers' PWC and learning activities between different teacher groups, teacher educators should design and provided a variety of supportive programs that can meet teachers' special needs. According to the results, teachers' Practice Refection and Application of ICT were not changing significantly with increasing teaching experience, so additional related professional supports and learning opportunities should also be provided for in-service teachers, especially those who are in unsupportive working context.

Conclusion

Assessing teachers' PWC and PWL can help us determine teachers' fitness to workplace learning environment and uncover potential problems teachers confront in their school contexts. Teachers perceive only moderate school support, which is the lowest among teacher perceptions. Most teachers showed vulnerable, tenacious, and discouragement PAB patterns (Ford, 2002), which should ring alarm bell for reformers and policymakers in China. School context, teachers' backgrounds, and students' backgrounds can all have effects on teachers' PWC. But only teacher and student backgrounds have effects on PWL. Teachers and students interests in biology are very good indexes of both PWC and PWL. PWL is positively related with PWC, which implies that supportive school context cannot be neglected in both teachers' professional learning and adoption of the reform.

The PICE model provides us a theory framework to analyse and construct teachers' learning environment. We can make use of this model to analyse the problems in the process of teachers' interaction with their learning environment and search for targeted solutions. This study found that the interaction of teachers and community environment and information environment is mainly one-way, they are more likely passively receiving external information and impacts from environment, but rarely create or improve the community environment, express, and exchange knowledge actively.

With the popularization of information and communication technology, such as computers, mobile phones, and other digital devices, information environment has become an integral part of teachers' professional learning environment. Survey results show that the support teacher badly needed is an online learning platform where teacher can access rich teaching resources, share teaching experience, collaborate with each, and get timely feedback for long-term professional learning.

This study mainly applied quantitative method to address the research question based on teachers' self-report. Further qualitative studies are needed to answer the question that how teachers' perception acquired and how different factors in their working context affects their professional learning. The positive correlation between PWC and PWL is confirmed again, but the casual relationship between the two still needs further study. More studies are also needed to explore how to build a supportive learning community in local schools with limited resources in a general school in undeveloped area, since teachers in these contexts badly need support.

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References

American Association for the Advancement of Science. (2009). *Benchmarks for scientific literacy*. Oxford University Press.

Andersen, A. M., Dragsted, S., Evans, R. H., & Sørensen, H. (2004). The relationship between changes in teachers' self-efficacy beliefs and the science teaching environment of Danish first-year elementary teachers. *Journal of Science Teacher Education, 15*(1), 25–38.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*, 117–148.

Burton, E., & Frazier, W. (2012). Voices from the front lines: Exemplary science teachers on education reform. *School Science and Mathematics, 112*(3), 179–190.

Darling-Hammond, L. (1998). Teacher learning that supports students learning. *Educational Leadership, 55*(5), 6–11.

Ertmer, P., Gopalakrishnan, S., & Ross, E. (2001). Technology-using teachers. Comparing perceptions of exemplary technology use to best practices. *Journal of Research of Computer in Education, 33*(5), 1–26.

Fang, Z. (1996). A review of research on teacher beliefs and practices. *Educational Research, 38*(1), 47–65.

Feyzioğlu, E. Y. (2009). Science teachers' beliefs as barriers to implementation of education reform. *Journal of Baltic Science Education, 11*(4), 302–318.

Ford, M. E. (1992). *Motivating humans: Goals, emotions, and personal agency beliefs*. Sage.

Haney, J. J., Green, B., Czerniak, C. M., & Lumpe, A. T. (1996). Teacher beliefs and intentions regarding the implementation of science education reform strands. *Journal of Research in Science Teaching, 33*(9), 971–993.

Henze, I., van Driel, J. H., & Verloop, N. (2009). Experienced science teachers' learning in the context of educational innovation. *Journal of Teacher Education, 60*(2), 184–199.

Hirsch, E. (2008). Key issue: Identifying professional contexts to support highly effective teachers. National Comprehensive Center for Teacher Quality.

Hirsch, E., & Emerick, S. (2006). Teacher working conditions are student learning conditions. Retrieved March, 24, 2007.

Hoban, G. F. (2002). *Teacher learning for educational change: A systems thinking approach*. Open University Press.

Hoekstra, A., Korthagen, F., Brekelmans, M., Beijaard, D., & Imants, J. (2009). Experienced teachers' informal workplace learning and perceptions of workplace conditions. *Journal of Workplace Learning, 21*(4), 276–298.

Johnson, S. M., Kraft, M. A., & Papay, J. P. (2012). How context matters in high-need schools: The effects of teachers' working conditions on their professional satisfaction and their students' achievement. *Teachers College Record, 114*(10), 1–39.

Kwakman, K. (2003). Factors affecting teachers' participation in professional learning activities. *Teaching and Teacher Education, 19*(2), 149–170.

Lin, J. (2008). On Teaching conceptions and teaching behaviors of secondary science teachers[中学科学教师教学观念和教学行为研究]. Beijing Normal University Dissertation.

Lu, Q., & Liu, E. (2012). Alignment between High school biology curriculum standard and the standardised tests of four provinces in China. *Journal of Biological Education, 46*(3), 149–164.

Luft, J. A., Firestone, J. B., Wong, S. S., Ortega, I., Adams, K., & Bang, E. (2011). Beginning secondary science teacher induction: A two-year mixed methods study. *Journal of Research in Science Teaching, 48*(10), 1199–1224.

Lumpe, A. T., Haney, J. J., & Czerniak, C. M. (2000). Assessing teachers' beliefs about their science teaching context. *Journal of Research in Science Teaching, 37*(3), 275–292.

Mansour, N. (2011). Modelling the sociocultural contexts of science education: The teachers' perspective. *Research in Science Education, 43*(1), 347–369.

Melville, W., & Wallace, J. (2007). Workplace as community: Perspectives on science teachers' professional learning. *Journal of Science Teacher Education, 18*(4), 543–558.

Ministry of Education of PRC. (2003). *High school biology curriculum standard (Trial)*. People's Education Press. (In Chinese).

Ministry of Education, P. R. China. (2001). Notice of the Ministry of Education on printing and distributing the "The Outline of Compulsory Education Curriculum Reform (Trial)" [教育部关于印发《基础教育课程改革纲要 (试行) 》的通知]. Retrieved from http://old.moe.gov.cn//publicfiles/business/htmlfiles/moe/s8001/201404/xxgk_167343.html.

Ministry of Education, P. R. China. (2015). China education overview: National education development in 2013[中国教育概况——2013年全国教育事业发展情况]. Retrieved from http://www.moe.gov.cn/jyb_sjzl/s5990/201503/t20150331_186797.html.

Ministry of Education, P. R. China. (2017a). Notice about the issuance of 'Course Plan for Senior High School' and Subjects' Curriculum Standards for Senior High School" [教育部关于印发《普通高中课程方案》和普通高中各学科课程标准的通知]. Retrieved from http://www.moe.gov.cn//publicfiles/business/htmlfiles/moe/s8001.html

Ministry of Education, P. R. China. (2017b). Biology curriculum standards for senior high school [普通高中生物课程标准]. People's Education Press.

National Research Council. (2012). A framework for K–12 science education: Practices, cross-cutting concepts, and core ideas. Retrieved from http://www.nap.edu/download.php?record_id=13165.

National Research Council. (2015). Science teachers' learning: Enhancing opportunities, creating supportive contexts. Retrieved from https://www.nap.edu/catalog/21836/science-teachers-learning-enhancing-opportunities-creating-supportive-contexts.

Nargund-Joshi, V., Rogers, M. A. P., & Akerson, V. L. (2011). Exploring Indian secondary teachers' orientations and practice for teaching science in an era of reform. *Journal of Research in Science Teaching, 48*(6), 624–647.

NGSS Lead States. (2013). Next generation science standards: For states, by states. The National Academies Press. Retrieved from https://www.nextgenscience.org/.

Putnam, R. T., & Borko, H. (2000). What do new views on knowledge and thinking have to say about research on teacher learning? *Educational Researcher, 29*(1), 4–15.

Richards, J., Levin, D., & Hammer, D. (2011). Supporting preservice teachers' reform-based practices: The importance of intellectual and emotional support in a community. Online Submission, Paper Presented at Annual Meeting of the American Educational Research Association.

Slavin, R. E., Cheung, A. C. K., & Zhuang (庄腾腾), T. (2021). How could evidence-based reform advance education?, *ECNU Review of Education*, *4*(1), 7–24. https://doi.org/10.1177/2096531120976060.

Su, Z., Hawkins, J., Zhao, C., & Huang, T. (2002). Student teachers in tibet: A case study. *Journal of Education for Teaching, 28*(1), 17–33.

Tang, C., & Zhu, J. (2005). A comparative study of teachers' perceptions of project learning in Honking and Shanghai. *Journal of Education, 33*(1), 207–220. (In Chinese).

Van Eekelen, I. M., Vermunt, J., & Boshuizen, H. P. A. (2006). Exploring teachers' will to learn. *Teaching and Teacher Education, 22*(4), 408–423.

Verloop, N., Van Driel, J. H., & Meijer, P. (2001). Teacher knowledge and the knowledge base of teaching. *International Journal of Educational Research, 35*(4), 441–461.

Van Driel, J. H., Beijaard, D., & Verloop, N. (2001). Professional development and reform in science education: The role of teachers' practical knowledge. *Journal of Research in Science Teaching, 38*(2), 137–158.

Xu, J., Liu, H., & Huang, Y. T. (2021). The wolf is coming: How secondary teachers regulate emotional experiences when facing Chinese education reform. *Educational Studies, 00*(00), 1–18. https://doi.org/10.1080/03055698.2021.1886055

Yeung, Y., Lee, Y., & Lam, I. (2012). Curriculum reform and restructuring of senior secondary science education in Hong Kong: Teachers' perceptions and implications. *Asia–pacific Forum on Science Learning and Teaching, 13*(2), 1–34.

Chapter 23
English Language Teacher Education in Indonesia: Providers, Policies, Innovations, and Future Directions

Subhan Zein

Abstract This chapter examines Indonesia's English language teacher education, which has seen significant changes in the past few years. The chapter describes stakeholders in teacher education, covering aspects such as pre-service teacher education streams, curriculum, and management of professional development (PD). It also examines the development and implementation of teacher education policies in the past fifteen years. Further, the chapter discusses notable innovations revolving in five areas of interest: (1) the movement to employ post-methods teacher education; (2) the rise of digital technologies; and (3) the development of character building through identity, spirituality, and criticality in teacher education. The chapter also examines: (4) a shift to incorporating translanguaging and (5) pluricentric approaches to English into teacher education. The chapter argues that there is an apparent disconnect between the academic work of Indonesian scholars and the policies on teacher education which the Ministry of Education, Culture, Research, and Technology is developing. Finally, the chapter outlines directions for future research.

Keywords English language teacher education · Indonesia · Teacher education policy · Learning teaching options · Pre-service education · Professional development

Introduction

Calls to overhaul English language teacher education in Indonesia were voiced in the turning of the millennium and the early 2000s (see Bismoko, 2003; Djiwando, 1999; Luciana, 2004), and within a decade, policies on teachers and teacher education were developed as part of national education reforms (see Saukah, 2009). Research into the area went to a slow movement for the next few years before it started to find vigour in the second half of the 2010s. Along with the incredible interest in English

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language education in the country which has benefitted from a surge of scholars graduating from English-speaking countries (Zein et al., 2020), innovations in English language teacher education have proliferated in the past few years. These include new approaches to utilizing learning–teaching options (e.g. Astika, 2016, Kuswandono, 2017), the inclusion of pluricentric approaches to English (e.g. Sakhiyya et al., 2018; Zacharias, 2016; Zein, 2018a, b), and the rise of translanguaging (e.g. Cahyani et al., 2018; Zein, 2018c). Recent studies have also uncovered the emergence of new approaches which are relevant to character building such as identity, spirituality, and criticality (e.g. Larson, 2014; Mambu, 2016; Nur'aini, 2018; Sulistyowardani et al., 2020) as well as the rise of digital technologies (e.g. Alberth et al., 2018; Djiwandono, 2019; Fitriah, 2018).

Despite the promising development, studies which systematically examine English language teacher education in Indonesia are non-existent. Information is scant when it comes to teacher education stakeholders, while studies which investigate implementation of policies on teacher education are often disconnected from the background which gives rise to their emergence. Further, there is also a lack of cogent, systematic analysis of innovations in teacher education. It is necessary to examine these areas of interest in order to generate a comprehensive overview of English language teacher education in Indonesia and to identify projections for the future of the field.

This chapter responds to this major gap in the literature. It examines English language teacher education in Indonesia in terms of providers, policies, innovations, and future directions. First, the chapter outlines an overview of Indonesia's education system. Second, it describes stakeholders which play a crucial role in teacher education, covering aspects such as pre-service teacher education streams, curriculum, and management of professional development (PD). Third, the chapter moves to the next section to examine the development and implementation of teacher education policies. Fourth, the chapter discusses innovations on English language teacher education, focusing on the rise of new approaches to utilizing learning–teaching options in post-methods teacher education, the inclusion of character building-related themes, translanguaging, digital technologies, and pluricentric approaches to English. A final section concludes the chapter while signposting future directions.

Indonesia's Education System: An Overview

Indonesia has a three-tiered education system, spanning basic education, secondary education, and higher education. Although pre-schools exist, they are considered as a representation of informal education rather than formal education. Therefore, pre-schools are not included in basic education. Basic education in Indonesia includes primary school, which lasts for six years (grades 1–6), and junior high school, which lasts for three years (grades 7–9). This is followed by secondary education which consists of three years of senior high school (grades 10–12). At higher education, there are different levels. These include diploma (one to four years), undergraduate

(four years), master's (one to two years), and doctorate (three years). These are delivered by academies, polytechnics, institutes, and universities.

This education system seems to be clear cut; however, its management is much more complex. The reason is because of the complex social, religious, and cultural factors pertaining to education management where different ministries are involved (see Zein, 2020, Chap. 6, for discussion on the topic). The fact that education management in Indonesia is under different ministries means that there are three periods of education management: (1) there was a long period in Indonesia's history when education was managed by two different ministries (1945–2014). These were Ministry of Education and Culture and Ministry of Religious Affairs; (2) there was a brief period when education went into a phase of management by three ministries (2014–2021), with the addition of Ministry of Research, Technology, and Higher Education; (3) a new policy endorsed by President Joko Widodo (ruling from 2014 to present) has seen Indonesia reverting to education management by two ministries with the abolishment of Ministry of Research, Technology, and Higher Education (2021-present).

The third period started on 28 April 2021 when President Widodo enjoined Ministry of Education and Culture with Ministry of Research, Technology and Higher Education to become Ministry of Education, Culture, Research, and Technology (henceforth MECRT). The MECRT is responsible for managing secular, nationalist education institutions, encompassing primary education in *Sekolah Dasar* [Primary School] (SD) and *Sekolah Menengah Pertama* [Junior High School] (SMP). It also manages secondary education in *Sekolah Menengah Atas* [General Senior High School] (SMA) and *Sekolah Menengah Kejuruan* [Vocational Senior High School] (SMK). The ministry is also responsible for general higher education, such as Universitas Andalas [Andalas University]. On the other hand, Ministry of Religious Affairs (henceforth MoRA) manages religious educational institutions. The ministry is responsible for managing Protestant and Catholic schools as well as regulating Islamic-based education in *Madrasah Ibtidaiyah* [Primary School], *Madrasah Tsanawiyah* [Junior High School], *Madrasah 'Aliyah* [Senior High School], and *Pesantren* [Islamic boarding school]. The ministry also regulates religious-based higher education institutions, for example, Universitas Islam Negeri Syarif Hidayatullah Jakarta and Institut Agama Kristen Negeri Manado.

Although this education management has identified the job descriptions of the two ministries, there is ad hoc management of higher education. This is because some institutes are ruled by other ministries, for example, *Sekolah Tinggi Akuntansi Negara* (STAN) [State College of Accounting], which is managed by the Ministry of Finance, and *Institut Pemerintahan Dalam Negeri* (IPDN) [Institute of Domestic Governance], which is managed by Ministry of Home Affairs. Nonetheless, the preparation of all English teachers at pre-service level falls under the management of MECRT and MoRA.

Teacher Education Providers

Teacher Education Institutions

The major provider of teacher education for English teachers in Indonesia consists of teacher education institutions. These may be education-oriented universities or teaching schools. They offer pre-service teacher education courses, and many are also involved in PDs for in-service teachers.

In the past, teaching institutes and colleges were the sole providers of teacher education in the nation. They were either *Institut Keguruan dan Ilmu Pendidikan* (IKIP) [Institute of Teacher Training and Education] or *Sekolah Tinggi Keguruan dan Ilmu Pendidikan* (STKIP) [School of Teacher Training and Education]. Until the late 1990s, IKIPs and STKIPs delivered courses in education-relevant majors, for example, Bachelor's in Primary Education, Bachelor's in Sports Education, and Bachelor's in English Language Education.

Since the late 1990s, however, IKIPs in Indonesia have transformed into education-oriented universities. Nowadays, all public IKIPs have become education-oriented universities, and the same is true for some private IKIPs. Examples of public IKIPs are IKIP Padang, which has become Universitas Negeri Padang [Padang Education University], IKIP Bandung which has changed into Universitas Pendidikan Indonesia [Indonesian Education University], and IKIP Yogyakarta which has transformed into Universitas Negeri Yogyakarta [Yogyakarta Education University]. Of private IKIPs, IKIP Muhammadiyah Yogyakarta has become Universitas Ahmad Dahlan [Ahmad Dahlan University] and IKIP Sanata Dharma has turned into Universitas Sanata Dharma [Sanata Dharma University]. These education-oriented universities still offer courses in education-relevant majors, but they have also expanded in terms of course delivery by offering other majors unrelated to education.

The transformation of the IKIPs into universities was foregrounded by two factors. First, it was part of liberalization of education. In accordance with a loan agreement with the International Monetary Fund (IMF), the Indonesian government was to liberalize public-oriented sectors, including education. The Habibie government in 1999 endorsed the Government Regulation No. 61/1999 which privatized Indonesia's top five universities: Universitas Gadjah Mada [Gadjah Mada University], Institut Teknologi Bandung [Bandung Institute of Technology], Universitas Indonesia [University of Indonesia], Institut Pertanian Bogor [Bogor Agriculture Institute], and Universitas Airlangga [Airlangga University]. The privatization of these prestigious higher education institutions meant the abolishment of government subsidies, which led them to raising admission and enrolment fees. The fact that the universities were able to raise a significant funding following the privatization encouraged other universities to follow suit. In a similar vein, IKIPs wanted to be able to compete with more prestigious universities in keeping with the privatization. The idea of transforming into full-fledged universities offered them with better opportunities to gain institutional autonomy and secure more funding. The second

reason has to do with the prevalent public perception concerning higher education institutions. In society, higher education schools and institutes are not fully appreciated, unlike universities. For this reason, some segment of the society thought that IKIPs and STKIPs were second-class institutions. University-based education was (and is) perceived as more prestigious than institute- or school-based education. This prompted STKIPs to become IKIPs, and IKIPs to develop into universities (cf. Saukah, 2009). Nonetheless, some STKIPs have not changed into IKIPs, for example, STKIP Abdi Pendidikan in Payakumbuh, West Sumatra, and STKIP Enrekang in Enrekang, South Sulawesi.

Streams of Pre-service Teacher Education

As providers of pre-service education for English language teachers, education-oriented universities, IKIPs, and STKIPs offer two streams of pre-service education: the concurrent and the consecutive streams. The concurrent stream means that "students can enroll in the English Language Education Study Program if they have made the decision to be teacher candidates right from the beginning" (Saukah, 2009, p. 5). However, if students have not decided to become English teachers yet, they may attend the consecutive stream in which they

> enroll in the English Study Program (majoring in English Literature or Linguistics)… If they are interested in becoming teachers of English after they graduate from the English Study Program, they can enroll in the English Language Education Study Program and take the required courses to become teachers of English (Saukah, 2009, p. 5).

Most prospective English teachers would attend the concurrent stream, although an increasing number of teachers are those who have completed the consecutive stream. There are no empirical studies regarding the preference of prospective teachers, while opinions are divided as to whether the concurrent or the consecutive stream is a better option. Field experiences, however, show that graduates of the consecutive stream could gain employment at schools, private courses, or even universities without taking additional courses in the concurrent stream (Saukah, 2009).

Another issue lies at the fact that the pre-service teacher education does not cater for all levels of learning. From the late 1990s to the early 2010s, at a time when a large number of primary schools offered English instruction due to strong social pressure, employment prospects for primary English teachers were high. However, qualified teachers from the concurrent stream of pre-service teacher education were only prepared to teach at secondary level, not primary one. Except for a few teachers who took courses relevant to teaching English to young learners at institutions such as Universitas Negeri Malang, most had no preparation at all. To meet with the high demand for primary English teachers, schools employed a large number of teachers even though they had no proper qualifications. Employment was even made for people with limited English proficiency and a bachelor's degree in a major remotely related to English (see Zein, 2017). Nowadays, English is no longer officially taught

in primary schools, but some schools still offer it. There are rumours that English might be made compulsory in years to come, and yet it is unclear how it is going to unravel, let alone how teacher education institutions are preparing themselves for it.

Curriculum of the Concurrent Stream

In terms of the concurrent stream curriculum for English language teachers, education-oriented universities, IKIPs, and STKIPs have the autonomy to offer their courses. However, they must follow the same pattern of course delivery. They must deliver courses in three categories: general courses, specialized subject fields courses, and professional teaching courses.

General courses are compulsory courses which all higher education institutions in Indonesia must include in their curriculum. These include civic education, religion, and the Indonesian language. The second category includes specialized subject field courses. These courses are specifically designed to prepare students to master their specialized subject area in terms of knowledge and skills, for example, English language skills such as listening, speaking, reading, and writing. The third category consists of professional teaching courses which are intended to prepare students to enter the teaching profession. These include courses relevant to teaching methodologies and teaching practice. In general, the courses offered at the concurrent stream may be summarized in Table 23.1.

Teacher Education Institutions and PDs

Although teacher education institutions are mainly responsible for producing qualified prospective teachers at pre-service level, many are involved in providing teacher training for in-service teachers. In most cases, they provide PDs for primary and secondary English teachers on a regular basis. This is the case, for example, with Universitas Pendidikan Indonesia which mainly provides PDs for teachers in the Bandung region and the greater West Java Province.

Typically, teacher education institutions work in collaboration with teachers' groups. Teachers at a district level generally join an umbrella organization called the *Musyawarah Guru Mata Pelajaran* (MGMP) [Consultative Group of Academic Subject Teachers]; thus, English teachers in a certain district are usually members of an MGMP-English. To conduct a PD, MGMP-English representatives would hold meetings to identify teachers' needs. The MGMP-English would then invite a teacher education institution to develop a suitable PD. Once training content, modes of delivery, and other bureaucratic procedures are met, teachers are invited to attend the PD. School principals have the discretion to decide which teachers may attend the PD, with how much budget, etc.

Table 23.1 Typical concurrent stream curriculum for English language teachers

Course category	Sample course	Credit points
General	Personality development	16–18
	Philosophy of science and communication	
	Religion	
	Civic education	
	Indonesian language	
	Community services	
Specialized subject fields	English language skills	98–100
	English linguistics	
	English literature	
	Research methods	
Professional teaching	General pedagogy	30–32
	Teaching methodologies	
	Teaching practice	
Total		144–150 credit points

Adapted from Saukah (2009)

Government-Based Training Agencies

The *Direktorat Jenderal Guru dan Tenaga Kependidikan* [Directorate General of Teachers and Teaching Personnel] (Dirjen GTK) is the main government body which is responsible for the quality enhancement of teachers and teaching personnel in Indonesia. In its work, the Dirjen GTK is often in collaboration with government-based training agencies. This is in line with a more decentralized context of education that Indonesia is currently adopting, where the duties to provide professional development programmes and activities now lie at local policy authorities and government-based training agencies.

Government-based training agencies which are responsible for designing, developing, and managing PDs for in-service teachers are: (1) *Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan* [The Centre for Development and Empowerment of Teachers and Education Personnel] (P4TK) and *(2) Pusat Pendidikan dan Pelatihan Bahasa* [The Centre of Education and Training of Language] (PPP Bahasa). These agencies generally provide training services through programmes such as short training for teachers, distance training, training

for teachers in remote areas, training for writing research papers, assessment for language teachers, training for teachers in non-formal education, as well as seminars and workshops. These programmes are not exclusive to English teachers, but are open to teachers of other subjects (i.e. mathematics and biology) and other languages (i.e. Arabic and Chinese).

The way PDs are organized by government-based training agencies is a bit different from those organized by teacher education institutions. Rahman, Hoban, and Nielsen (2014) described that government-based training typically sent out PD invitations to schools. School principals decide which teachers to attend the PD. Rahman et al. (2014) stated, "Although, there is sometimes a guideline or a set of criteria for choosing the teachers, in most cases, the decision on which teachers to choose is at the principals' discretion" (p. 9). Selected teachers then attend the PD, which are usually held from one to fifteen days. Although specific teaching methodologies and content are delivered, there is generally little room for professional reflection and practical activities. Cascade training is implemented in that those completing the PD are expected to disseminate what they have learnt to their colleagues. This sort of PD management has resulted in criticisms. A study by Zein (2016a) demonstrates that government-based PDs for English teachers are often entangled in bureaucratic problems; for example, there is a lack of transparency in the selection of participants. In other cases, training management by government-based training agencies is inefficient and is often sporadic, leading to low participation level (Zein, 2016b). Meanwhile, a study by Cannon and Arlianti (2008) is not specific to English teachers, but the authors' statement sums up the sort of impact which government-based PDs create:

> The impact of training in transforming Indonesian educational institutions is not clearly established at all. The effects of training are arbitrary and, too often, dependent on the unplanned interactions of returning trainees, their supervisors and opportunities in their working environments. Much training leads nowhere except to unrealized potential, frustration and waste (p. 79).

Foreign Institutions

Another group of stakeholders which contributes to English language teacher education in Indonesia consists of foreign institutions. These foreign institutions are based in countries which have interest in the development of the English language in Indonesia, for example, the USA, the UK, and Australia. Their work may be seen as part of what Coleman (2017) conceptualizes as a focused language planning where the countries, which act as donors, could exert influence through development aid aimed for recipient nations such as Indonesia, or even create dependency on the donors (see Appleby et al., 2002, for the case of Laos).

The British Council is an established player in English language teacher education in Indonesia. Starting as "The Council" in the city of Bandung, West Java, in 1948, the British Council has continued to expand its wings. In the 1970s, the British

Council supported the Overseas Development Administration (ODA) programme in the country to begin teaching English directly to Indonesians, while in the 1980s it has reached a global reputation for the management of teacher training. To date, the British Council has conducted various PDs to respond to education reform in Indonesia. Specifically, it has created online teaching resources. It has also delivered customized courses and workshops designed for teachers' needs. Some of these are offered face-to-face, but an increasing number of them are offered online (British Council Indonesia, 2021a). Further, the British Council has promoted research studies among teachers and language scholars, for example, research into primary English which involves Indonesia and other ASEAN member states (British Council, 2008) and a study on English as a medium of instruction in Indonesian higher education institutions (British Council, 2021b).

The US State Department has the Regional English Language Office (RELO), which seeks to foster the US–Indonesia "Strategic Partnership by building capacity through English teaching and learning in Indonesia" (RELO, 2021). RELO has a variety of programmes, some of which are relevant to teacher education for English teachers. The most famous one is called the *English Language Fellow Program,* which not only promotes the teaching of English but also focuses on teachers' capacity building. RELO places fellows in universities, education-focused NGOs, and various education centres across the country. At universities, RELO fellows generally teach English to pre-service English teachers, and they often deliver PDs. RELO also organizes *English Language Specialist Program* which recruits academics and professionals to be involved in teacher education programmes at pre-service and in-service levels. The specialists may also contribute to curriculum and textbook development, as well as programme evaluation. Another programme of RELO is called the *Online Professional English Network (OPEN)*, which offers virtual learning opportunities for learners and teachers alike. Teaching and learning materials are freely accessible through *OPEN*. Teachers may reuse, adapt, and share them with colleagues for PD purposes (RELO, 2021).

No less influential is the role of Indonesian Australian Language Foundation (IALF). IALF is a not-for-profit organization which was established in 1989. It focuses on providing language training on English and Indonesian as well as testing and preparation for International English Language Testing System (IELTS) and Pearson Test of English (PTE) Academic. Further, IALF also provides teacher training for teachers of English and other subjects and counselling services for those wanting to study abroad. In terms of teacher training, IALF is fully equipped with qualified staff to develop ad hoc PDs for teachers in association with teachers' groups and government institutions. IALF Bali, for example, is a teacher training centre which conducts the internationally accredited Trinity College London Certificate in Teaching English to Speakers of Other Languages (TESOL), in addition to a range of IALF certificated training courses for teachers (IALF, 2021).

Policies on Teacher Education: Development and Implementation

By the year of 2000, Indonesia had been teaching English for more than half a century, and yet academic studies (e.g. Dardjowidjojo, 2000; Jazadi, 2000) demonstrate that success was beyond reach. Teachers' lack of proficiency and poor methodological skills were seen as two contributing factors. To better prepare teachers, scholars called for an overhaul of the pre-service teacher education system, with Djiwando (1999) arguing for the inclusion of major components, specified subjects, and professional subjects; Bismoko (2003) calling for a competency-based curriculum; and Luciana (2004) calling for the development of teacher education standards. The calls were necessary given that up to that point, Indonesia had no policies on teacher education, let alone national guidelines for preparing English teachers.

The arrival of Act No. 20/2003 on National System of Education brought a spirit of change. Article 43(2) of the Act stipulates that teacher must have a minimum level of qualifications and a certificate relevant to the subject and level of education in which they are assigned. This policy was further specified in Act No. 14/2005 on Teachers and Lecturers, which set a precedent for regulations on teacher professionalism. Article 9 of the Act requires that teachers must have at least a bachelor's degree or a four-year diploma. Article 10 of the Act specifies that teachers must also possess a professional education certificate to demonstrate competence in four categories: personality, social, professional, and pedagogical.

Act No. 14/2005, however, created controversies. Scholars such as Joni (2008) and Saukah (2009) were critical of the Act. Joni argued that the Act employed "ontologically flawed" competency standards given that they misconstrue professional education for consecutive stream of teacher education. Further, the use of "academic qualifications" and "competence" as separate terms only created confusion. It suggests that one who has obtained an academic qualification such as a bachelor's degree in English language education has no competence, as he/she only has "academic qualifications". Meanwhile, Saukah noted the confusion which arose due to Article 11 of the Act. The article indicates that teachers would be professionally certified after meeting the academic qualifications criterion, by obtaining a bachelor's degree or a four-year diploma, plus the teachers' competence criterion, by obtaining a certificate on professional education. However, Saukah argued that these would lead to "different interpretations in terms of the models of implementations when confronted with the existing practices: the concurrent and the consecutive models of English language teacher education" (p. 12). It is unclear whether to be an English teacher implies that one has to graduate from the concurrent or the consecutive stream of teacher education; in other words, whether someone graduates from an English Language Education Programme or English Study Programme, it makes no difference because the Act does not specify it. Further, Saukah deemed the inclusion of a four-year diploma as an academic qualification irrelevant given the true purpose of a diploma is to prepare students in vocational fields (e.g. tourism), rather than education-oriented occupations.

The government endeavoured to resolve the confusion by issuing the Minister of National Education Regulation No. 16/2007 on Standards of Teachers' Academic Qualification and Competence. The Regulation retains the spirit of previous policies in that it stipulates that teachers must possess relevant academic qualifications and teachers' competence. In terms of academic qualifications, however, the Regulation identifies that English teacher may possess a bachelor's degree from either the concurrent *or* consecutive stream. In other words, one may complete either the English Language Education Study Programme or English Study Programme to be able to meet the academic qualifications criterion.

To meet the second criterion on teaching competence, one must have four categories of competence: personality, social, professional, and pedagogical. Based on the Regulation, the personality competence consists of 5 the following items of core competence:

1. Behave in accordance with religious, legal, social, and national–cultural norms.
2. Serve as a person with integrity and good conduct, and as a role model for students and the community.
3. Perform consistently as a mature, dignified, and wise individual.
4. Show good work ethic, be a highly responsible individual and proud to be a teacher, and have self-confidence.
5. Respect the teachers' code of conduct highly.

Meanwhile, the social competence consists of the following 4 items of core competence:

1. Treat others inclusively, objectively, non-discriminately with respect to gender, religious belief, race, physical conditions, social background, as well as socioeconomic status.
2. Communicate with colleagues, students' parents, and members of the community effectively, emphatically, and politely.
3. Adaptable in the workplace in any parts of the country with all their sociocultural diversity.
4. Communicate with other teachers of English and teachers of other subjects orally, in writing, and other means of communication.

Further, the pedagogical competence consists of the following 10 items of core competence:

1. Familiar with learners' characteristics in terms of their physical, moral, social, cultural, emotional, and intellectual aspects.
2. Familiar with theories of learning and principles of effective learning.
3. Develop curriculum in his/her subject area.
4. Implement effective instructional programmes using learner-centred approach.
5. Use information and communications technology (ICT) for instructional purposes.
6. Facilitate the learners to develop themselves to meet their utmost potential.
7. Communicate with the learners effectively, empathically, and politely.

8. Conduct assessment and evaluation on learning processes and outcomes.
9. Use the result of assessment and evaluation for instructional purposes.
10. Carry out reflective actions to improve the quality of instructional programmes.

Finally, the professional competence consists of the following 5 items of core competence:

1. Master the content, structure, concept, and paradigm of the subject matter of which he/she is in charge of, in this case the English language.
2. Master the standard of competence and core competence of the subject matter (i.e. English).
3. Develop instructional materials creatively.
4. Develop professionalism continuously and reflectively.
5. Use ICT for his/her career development.

The elaboration of these areas of competence has been translated into the development of new curricula in various pre-service teacher education providers offering English Language Education Programme. It has resulted in the typical concurrent stream curriculum for English language teachers, as outlined in Table 23.1. Meanwhile, when it comes to the mastery of competence relevant to the subject matter (i.e. English), specific elaboration is required. Scholars such as Widiati and Hayati (2015) argue that practically speaking, this refers to the mastery of variety of communicative competencies, including linguistic, discourse, sociolinguistic, sociolinguistic, and strategic competence.

To assist teachers in achieving areas of competence as specified above, the government developed new policies. The policies aim to provide professional certification for teachers. Once certified, teachers would receive certification incentive, which was valued at 100% of base salary.

First, the government issued The Minister of National Education Regulation No. 18/2007 on In-Service Teachers' Certification through Portfolio Assessment. This Regulation allows teachers to submit a portfolio which may be used to assess their competence. Documentation is needed to prove teachers': (1) academic qualifications; (2) participation in training programmes; (3) teaching experience; (4) academic achievements; (5) achievements in professional careers; (6) participation in academic events; (7) experience in educational and social organizations; and 8) awards and recognitions in educational fields. The portfolio assessment also evaluates teachers' abilities to plan and implement instructional programmes. Evaluations of teachers' performance made by principals and supervisors may also be included in the portfolio.

A great number of teachers who had not been certified professionally registered for portfolio-based certification. There were 183,000 teachers who were certified in 2007 alone; the number had reached 553,000 in 2009, and more than 1.5 million by the end of 2014 (Haryanto et al., 2017; Kusumawardhani, 2017). It is widely acknowledged that the certification has been an important means for ensuring secure financial support for teachers. Further, a study by Chang et al. (2014) suggests that the certification programme was relatively successful to increase the intake of

prospective teachers wanting to enrol the English Language Education Programme, as those applying for the programme far exceeded those applying for English Study Programme.

However, criticisms of portfolio-based teacher certification have arisen. Numerous studies suggest that while it provides teachers with reasonably well financial remuneration, portfolio-based certification has created little impact on the improvement of student learning outcomes and teacher performance (e.g. Chang et al., 2014; de Ree et al, 2017; Kusumawardhani, 2017; World Bank, 2015). There might be cases where students give positive responses to some areas of teachers' competence and negative ones in other areas, as found in a public senior high school in Batanghari, Jambi (see Haryanto, et al., 2016). However, experimental and statistical studies usually provide a much broader and yet more grim picture of the situation. An experimental study with a near-representative sample of 240 primary and 120 junior secondary schools across 20 districts of Indonesia (de Ree et al., 2017) shows that the raw English score of the treatment group in secondary schools was 0.40 and the score of the control group was 0.39. With test score impact in a treated school being close to zero and the test score impact of being taught by a certified teacher who had received the pay increase also being close to zero, the impact of teacher certification was negligible. De Ree et al. conclude that the large pay increase associated with teacher certification led to "no effect on teacher effort towards upgrading their own skills, no consistent evidence of changes in self-reported teacher attendance, and no effect on the ultimate outcome of student learning" (p. 27). A separate study using a two-sample instrumental variable from two different, large data sets Kusumawardhani (2017) also shows a "compelling evidence that students do not benefit from having certified teachers and there is no strong evidence that certification affects teacher outcomes" (p. 612). Training efficacy is not the only problem because issues concerning teachers' integrity have also arisen. Saukah (2009, p. 20) reported on the submission of false documents intended for portfolio-based certification, including forged diplomas and fabricated research reports. Further, Triyanto (2012) reported on allegations of bribery involving many applicants as well as document falsifications. For example, it was found that of submitted applications, 13% of them had falsified signatures, 31% had name forgeries, and 34% others were related to other fraud.

Second, the government issued the Minister of National Education Regulation Number 40/2007 on In-Service Teachers' Certification through Training Programmes. The Regulation requires teachers to participate in a training programme especially designed for certification purposes.

The first training programme is called the *Pendidikan dan Latihan Profesi Guru* (PLPG) [Education and Training for Teacher Profession]. The legal basis for this training programme is the Minister of National Education Regulation Number 5/2012 on Teacher Certification for In-Service Teachers. The Regulation stipulates those teachers who are unable to pass the portfolio-based teacher certification may be able to undertake the PLPG. The portfolio-based teacher certification itself was expected to complete by 2015, after which the PLPG was going to replace it. The Regulation specifies that those teachers attending the PLPG must attend training programmes

focusing on theoretical input, teaching workshop, teaching practice, and competency-based tests. Spread across 10 days, the PLPG is conducted for 90 hours. Thirty hours are allocated to theoretical input, whereas 60 hours are allocated to practice-oriented activities.

The implementation of the PLPG has been subjected to research, with scholars noting its usefulness to some degree. A study conducted by Abdullah (2015) at a university in Palembang, South Sumatra, shows that the PLPG "provided substantial learning experience for teachers, which included professional/content knowledge and pedagogical knowledge and skills necessary for their professional duties" (iii). However, Abdullah also noted a few issues where teachers found it difficult to translate their PLPG learning experience into day-to-day pedagogy due to issues concerning teaching facilities, resources, as well as challenges related to incorporating learner-centred activities and dealing with students' misbehaviour. Meanwhile, Apriliyanti and Fahriany (2018) found that nearly half of the participants (44%) of a PLPG session in West Java felt the training was useful to improve their pedagogical competence and more than half (53%) stated it was helpful to improve their personal competence. However, the session was marred by an apparent lack of interaction between teacher educators and teachers as well as a number of persisting technical issues.

The second form of training for teacher certification is called *Pendidikan Profesi Guru (PPG) Prajabatan* [Teacher Professional Education for Pre-Appointed Teachers], which is based on Minister of Education and Culture Regulation Number 87/2013. This Regulation provides the legal standing for the PPG; however, the standards of its implementation are specified in the Minister of Research, Technology, and Higher Education Regulation Number 55/2017 on Teacher Education Standards. The PPG itself is an intensive two-semester programme involving workshop-based courses that run five days a week, eight hours per day. In total, those completing the PPG would have accumulated 36–40 credit points. Run by the Dirjen GTK, the training programmes in the PPG are meant to produce teachers who can plan, implement, and assess learning competently. PPG training programmes also aim to enable teachers to be able to follow up assessment results by providing necessary guidance for students and to equip teachers with knowledge and skills to conduct research and continuous PD. Accordingly, PPG training programmes need to include both the theoretical and practical works concerning teachers' career development, innovative models of teaching, classroom action research, remedial classes on certain materials related to the teachers' subject matter, academic writing, and peer teaching practices. Since 2013, the PPG is prioritized for prospective teachers in remote and least developed areas, hence the implementation of the PPG *Sarjana Mendidik di daerah Terluar*, *Terdepan dan Tertinggal* [PPG Scholars Educating in the Outermost, Foremost, and Least Developed Areas] (PPG-SM3T).

In terms of management, the Dirjen GTK bestows authority to a selected number of education-oriented universities to conduct the PPG-SM3T training programmes. Education-oriented universities such as Universitas Negeri Malang [Malang State University] and Universitas Negeri Makassar [Makassar State University] are trusted teacher education providers for the delivery of the PPG-SM3T training programmes.

Nonetheless, these universities hold no authority in the selection and assessment of participants because these two domains belong to the Dirjen GTK. Staff of the Dirjen GTK select teachers and appoint a third-party assessor at their discretion. A participant in Zein (2022) questioned such a management, highlighting the government's lack of trust in education-oriented universities which have qualified academics to deliver the programmes. He also pointed out the susceptibility of the management to malpractice given that selection of participants is entirely at the discretion of the Dirjen GTK staff and local authorities. What the participant has suggested is, however, not uncommon. Indeed, bureaucracy intrusion in PDs often means that government institutions are embroiled in controversies such as nepotism causing non-transparent process of participant selection (Zein, 2016a).

Innovations in English Language Teacher Education

While teacher education policies are underway, innovations in English language teacher education continue to emerge. These innovations appear to have developed on the grounds of academic endeavour alone, rather than stimulated by government policies. In other words, there is an apparent disconnect between academic research and the policy-driven reforms which the government is currently undertaking. An increasing number of graduates from English-speaking countries who have contributed to the advancement of English language education in Indonesia, as outlined in Zein et al. (2020), are at the forefront of pioneering innovations in teacher education for English teachers. In addition to established, senior scholars such as Astika, Lie, and Madya, emerging scholars graduating from English-speaking countries including Mambu, Sakhiyya, and Zacharias are behind the emergence of new teacher education innovations. The innovations themselves may be divided into five categories: (1) post-methods; (2) inclusion of identity, spirituality, and criticality for character building; (3) translanguaging; (4) digital technologies; and (5) pluricentric approaches to English. Space constraints mean that it is not possible for me to perfectly capture the proliferation of studies falling under these categories, but a handful of selected studies are presented in the following subsections.

Post-Methods Teacher Education

Ever since Kumaravadivelu (2006a, b) postulated his theory of post-methods pedagogy, which basically departs from adherence to certain prescribed methods of language teaching, scholars and practitioners around the world have taken up the idea with enthusiasm. The idea, however, does not immediately resound in the landscape of English language education in Indonesia. It is only in the past few years that we have seen the rise of Indonesian scholars' publications which take up the spirit of

beyond methods pedagogy as Kumaravadivelu has identified it. Rather than adherence to specific teaching methods such as Grammar Translation Methods, Communicative Language Teaching (CLT), Task-Based Language Teaching (TBLT), and Content and Language Integrated Learning (CLIL), scholars now pay more attention to new approaches to utilizing learning teaching options for teacher professional learning. These include classroom action research, reflective teaching journals, and supervision in teaching practicum. Investigation of these learning teaching options is not strictly constrained to methodological bounds; rather, it has appeared in the spirit of developing new strategies as part of post-methods teacher education.

Reflective teaching has been a prominent area of interest in post-methods teacher education in Indonesia. Scholars have identified the use of teaching journals and report texts for developing teachers' reflective skills. In his examination of 40 teachers' reflective journals, Astika (2014) suggests the need to go beyond the personal and teaching performance domains. He argues that it is necessary for teaching reflection to also include interpersonal and critical domains in order to improve prospective teachers' relationship and engagement with mentor teachers and supervisors. Meanwhile, Sari et al. (2021) suggest that reflective journals are a useful means for enhancing teachers' Technological Pedagogical Content Knowledge, as they allow teachers to articulate their teaching experiences and implement learnt practices in future teaching. Another area of interest is supervision in teaching practicum. Amirulloh et al. (2019) challenge the conventional mode of supervision, which emphasizes a hierarchical position between prospective teachers and teaching supervisors. The researchers argue that the issue may be tackled by dialogic supervision which provides greater room for independent reflection and more symmetrical relationship between prospective teachers and teaching supervisors. In a similar fashion, Kuswandono (2017) highlights the need for considering mentor teachers' voices in teaching practicum. In Kuswandono's study, mentor teachers asserted the need for prospective teachers to be less concerned with the administrative sides of teaching and to develop the emotional spectrum of teaching insofar they could foster leadership skills and teacher–student engagement. Third, interest in classroom action research is also in ascendancy. The unfamiliarity with classroom action research among prospective teachers is captured in Marlina, Ramdani, and Sri (2016). The researchers find the absence of a holistic understanding of classroom action research among participants, as well as their inabilities to comprehensively collect and analyze data. Classroom-Based Action Research (CBAR) is a new approach which Hajar (2017) employed in her study in a remote eastern Flores of the East Nusa Tenggara province. She found that despite the usefulness of CBAR, its implementation was marred by issues such as difficulty in translating reflective practice into a remote disadvantaged teaching context and tensions arising from the subject positionings of participants involved, that is, between teacher educator/trainer and teachers/researchers.

Inclusion of Identity, Spirituality, and Criticality for Character Building

Character Building is an important discourse in contemporary Indonesia. Ever since he was appointed in 2014, President Joko Widodo has highlighted the importance of moulding the character of Indonesian citizens in ways which reflect the true social, religious, and cultural values of the nation to prepare them for modernity and globalization. The discourse is well reflected in language education policy in Indonesia where the teaching of Indonesian and English is expected to sharpen the character of Indonesian students, hence education being the site of moral inculcation to promote social cohesion and tackle moral corruption (Zein, 2020, Chap. 6). In the context of English language teacher education, Character Building has also found its presence. Scholars have examined three areas of identity, spirituality, and criticality in teachers' lives. I argue that the amalgamation of identity, spirituality, and criticality serves as a three-pronged approach to teachers' lives. It is not only vital to teachers' professional learning but also an important means for the development of teachers' character to become responsible, law-abiding citizens.

Identity development is an important facet of character building, and scholars have attempted to examine issues concerning the development of English teachers' identities. One of the scholars is Nur'aini (2018) whose study found the unplanned trajectory of teachers' professional work and how it had shaped their personal identities. Going against the emerging orthodox discourse which suggests the incompatibility of English and Islamic values, teachers in Nur'aini's study developed their own unique identities in which their religious beliefs reconciled with their professional work. Identity is such a fascinating field of enquiry, especially when it involves teachers' development of identity in the light of institutional constraints. Gandana and Parr (2013) identified that teachers' autonomy and agency were often challenged by institutional constraints, including hierarchical institutional cultural and heavy curricular demands. Further, scholars have also endeavoured to incorporate spirituality into teacher education. Studies by Mambu (2016) as well as Puspita and Mambu (2020) demonstrate this. Mambu (2016) shows how pre-service teachers' willingness to engage in content relevant to interfaith dialogues could promote love and humility, two important values in the development of human character. Meanwhile, Puspita and Mambu (2020) maintained that the inclusion of spiritual values was an important element of in-service teachers' criticality; it was an invaluable process of developing their critical pedagogy. Indeed, critical pedagogy is another issue of relevance to Character Building. Drawn from the prevalent assumption of Indonesian citizens having limited critical skills, the idea of including critical components in teacher education is vital to the development of Indonesian citizens' character in the postmodern era. More than half a century ago, Alisjahbana (1966) argued for the inclusion of criticality in education in Indonesian schools, but the idea found suppression in much of Soeharto's New Order regime. Much recently, scholars such as Larson (2014) and Sulistyowardani et al. (2020) have called for the inclusion of critical pedagogy in the broader context of English language education as well as the

teacher education curriculum. Sulistyowardani et al., for example, argue that social justice issues are an important part of critical pedagogy, hence deserving inclusion in teacher education.

Translanguaging

Indonesia is a superdiverse context with numbers of languages reaching 707 by one count and 731 in another estimate. Modes of communication using linguistic features of different "languages" are common to the extent that plurilingualism is the norm. Many people would master one or two indigenous languages and Indonesian as the national language before learning English as a third, fourth, or fifth language (Zein, 2020). Given the situation, there is a tendency among scholars to move away from the structuralist linguistic perspective which endorses code-switching and code-mixing to observe the complex interaction of members of Indonesian society. Hence communication is no longer seen as the shifting and mixing of codes or separate, enumerable entities called "languages", but a process of shuttling between features of "languages" as one linguistic repertoire, allowing people to select features strategically for effective communication. This new perspective, known as translanguaging (Gárcia & Wei, 2014), has captured the attention of Indonesian scholars in the past few years.

Studies by Rasman (2018) and Rerung (2017) examine translanguaging practices among high school and university students, respectively. Other studies have brought it further to the context of English language teacher education to examine the employment of English, Indonesian, and indigenous languages in teachers' professional work. Cahyani et al. (2018) examined teachers' active translanguaging such as when they switched to Javanese when joking, how they switched to English when reproaching or giving praises to students, and how they shifted into Indonesian when reinforcing their understanding. Meanwhile, Zein's (2018c) use of multivocal ethnography was useful to examine the integration of Javanese, Indonesian, and English, with various discursive resources (e.g. photographs, board drawings, videos). Zein found that scaffolding could occur through translanguaging in that teachers could leverage learners' prior knowledge and languaging practices, access their linguistic repertoire in a gradual, systematic manner, and then bring up their understanding to a level beyond.

Digital Technologies

Today's world is technology-driven, and this fact means that teachers are no longer the sole owners of knowledge. Students may use technology to access sources of knowledge, often at a pace much faster than teachers. This situation has brought unprecedented challenges to English classrooms around the world.

Consequently, there is an urgent need to prepare teachers with knowledge and skills in using digital technologies in order to deliver lessons effectively. Indonesian scholars have captured this urgency in various studies. For example, Djiwandono (2019) investigated the perceptions of 110 pre-service teachers and found that the participants had positive views about Information and Communication Technology (ICT). Djiwandono stated that the participants thought of ICT as "an attractive source that provides learning resources, fosters communication and collaboration, and spices up teaching–learning activities" (p. 607). Fitriah (2018) argues that digital technologies help teachers in transforming teachers' creativity, particularly in the way they plan their lessons and diversify teaching materials. Alberth et al. (2018) call for creating virtual learning communities. The researchers argue that a blended form of PD which incorporates social media could help accomplish it in the way they support social interaction and collaboration between teacher educators and teachers. Silvia (2016) studied a virtual learning platform called *Coursera.* She found that *Coursera* was useful to create meaningful and vibrant PD for teachers, as it allowed for better understanding of evidence-based practice, greater use of teaching materials, and more effective lesson planning.

Pluricentric Approaches to English

The emergence of pluricentric approaches to English is apparent in the continuing rise of perspectives such as World Englishes (WE), English as an International Language (EIL), and English as a Lingua Franca (ELF). These are in opposition to the English as a Native Language (ENL) approach represented by the traditional perspectives of English as a Foreign Language (EFL) and English as a second language (ESL). Scholars working within the pluricentric approaches generally challenge the ENL approach which highlights the belief that the only norm worth teaching is the "native" English. They also challenge the belief that "native speakers" of English are the only valid language models. In this respect, there is greater recognition of indigenized English varieties such as Singapore English and Philippine English, as well as the use of English in lingua franca situations.

In the Indonesian context, pluricentric approaches have steadily risen in the past few years. Zein (2018b) argues that there is currently a shift in language attitudes where students, teachers, and teacher educators have changed their perceptions regarding English and the theoretical perspectives underpinning teaching and learning. He asserts that Indonesia appears to be transitioning from EFL to ELF. Kirkpatrick (2018) supports the view, arguing that officialization of English as the working language of the ASEAN "provides a timely moment to radically alter the way English has traditionally been taught in Indonesia, and to move from an ENL approach to the lingua franca approach" (p. 198). These assertions find evidence in Manara (2016) and Zacharias (2016). Participants in Manara (2016) suggested that they would tolerate English varieties in communicative rather than more formal education settings such as the classroom, while the majority of participants in

Zacharias (2016) expressed the need to "construct a teacher identity independent of native-speaker norms" (p. 321). Further, Sakhiyya et al. (2018) argued for "a greater emphasis on the language proficiency that matches the ELF paradigm" (p. 49). They also articulated the need for an epistemological turn in pre-service teacher education curriculum where knowledge base suiting to the context of Indonesia caters for the ELF perspective. How important it is to include an ELF perspective in teacher education is reflected in an edited volume (Zein, 2018a) which compiles research into ELF in teacher education. In the volume, an ELF perspective is in line with new approaches to teacher education such as critical pedagogy, intercultural communicative competence, and multimodal communicative competence.

Conclusion and Future Directions

English language teacher education in Indonesia has significantly progressed since the early 2000s. The past few years in particular have highlighted notable innovations revolving in five areas of interest. The movement to employ post-methods teacher education goes in a parallel fashion with calls to include digital technologies and to develop character building through identity, spirituality, and criticality in teacher education. Further, there is a shift to incorporating translanguaging and pluricentric approaches to English into teacher education. These have emerged all the while there is an apparent disconnect between the academic work of Indonesian scholars and the policy reforms on teacher education which the Ministry of Education, Culture, Research, and Technology is developing. Concerns about the attitudes of policymakers towards academic input have been raised (see Joni, 2008; Saukah, 2009), and it is unknown whether such attitudes would change overnight. It requires stronger political will from the government to endorse research-based policy in order to accommodate innovative practices in teacher education and generate fundamental changes at pre-service and in-service levels.

Meanwhile, the current state of affairs of English language teacher education also suggests that research is needed in a number of areas. First, there needs to be a clearer conceptualization of teachers' proficiency beyond the prevalent traditional concept of communicative competence, given the rise of new concepts such as translanguaging (Gárcia & Wei, 2014), teachers' classroom discourse (Walsh, 2011, 2013), and ELF (Jenkins, 2007). Research into this area is greatly encouraged. Studies which investigate teachers' use of English in conjunction with Indonesian and indigenous language(s) would help shed light on the issue. So would examination on the pluricentric approaches to English and how they may be accommodated in teacher education. Second, there needs to be more quality research taking place in higher education institutions managed by MoRA given that a great majority of studies have come from teaching contexts managed by MECRT. Such research is necessary in order to better inform teacher educators in their work to prepare English teachers in *madrasahs, pesantrens*, and other religious schools. Third, new research studies are encouraged to unravel the situation with government-based training agencies and

foreign institutions. Some studies have tackled the PLPG and PPG programmes, but little is known about the way government-based training agencies conduct PDs for various cohort of English teachers in Indonesia and the impact they create. The same can be said about PDs conducted by foreign institutions. PDs by these providers are sometimes reported in conferences, but more rigorous analytical publications are scant. Further, investigation of new approaches to PD management involving government-based training agencies in collaboration with foreign institutions is rare, and is very much needed. Finally, the use of English in ASEAN Integration requires adjustments in the way English language teachers are prepared at pre-service level and trained at in-service level. Research which examines the use of English as a lingua franca among teachers for the broader communication ASEAN context is needed, as much as studies which investigate ways to include ASEAN-related contents in teacher education.

References

Abdullah, U. (2015). *Learning through teacher professional training: English teacher certification program in Indonesia.* Ph.D. thesis submitted to The Ohio State University, USA.

Alisjahbana, S. T. (1966). *Indonesia: Social and cultural revolution.* Oxford University Press.

Mursalim, A., Siam, S., I. K., & Ino, L. (2018). Social media as a conduit for teacher professional development in the digital era: Myths, promises or realities? *TEFLIN Journal, 29*(2), 293–306.

Amirulloh, R. D. N. K. S., Lengkanawati, N. S., & Setyarini, S. (2019). Dialogic supervision: Investigating supervision practices of English pre-service teachers in a professional training program (PLP). *Indonesian Journal of Applied Linguistics, 9*(2), 434–442.

Apriliyanti, D. L., & Fahriany. (2018). *English teachers' reaction on teacher training program: A survey undertaken in West Java, Indonesia.* Proceedings of the 1st International Conference on Recent Innovations (ICRI 2018) (pp. 652–658).

Appleby, R., Copley, K., Sithirajvongsa, S., & Pennycook, A. (2002). Language in development constrained: Three contexts. *TESOL Quarterly, 36*(3), 323–346.

Astika, G. (2014). Reflective teaching as alternative assessment in teacher education: A case study of pre-service teachers. *TEFLIN Journal, 25*(1), 16–32.

Bismoko, J. (2003). Does our English teacher education need re-designing? *TEFLIN Journal, 14*(1), 58–69.

Council, B. (2008). *Primary innovations: Regional Seminar, Bangkok, March 2008*. British Council.

British Council. (2021a). *About the British Council.* Retrieved on 27 July 2021 from https://www.britishcouncil.id/en/about/history.

Council, B. (2021b). *The state of English as medium of instruction (EMI) in higher education institutions in Indonesia.* British Council.

Cannon, R., & Arlianti, R. (2008). *Review of education development models: Lessonsfrom models and strategies for increasing access to quality basic education in Indonesia.* World Bank.

Chang, M. C., Shaeffer, S., Al-Samarrai, S., Ragatz, A. B., de Ree, J., & Stevenson, R. (2014). *Teacher reform in Indonesia: The role of politics and evidence in policy making: Directions in development*. World Bank.

Coleman, H. (2017). Milestones in language planning and development aid. *Current Issues in Language Planning, 18*(4), 442–468.

Dardjowidjojo, S. (2000). English teaching in Indonesia. *English Australia Journal, 18*(1), 22–29.

de Ree, J., Muralidharan, K., Pradhan, M., & Rogers, H. (2017). *Double for nothing? Experimental evidence on an unconditional teacher salary increase in Indonesia.* Policy Research Working Paper 8264. World Bank Group. December 2017.

Djiwando, M. S. (1999). English language teacher education: Rewriting S-1 national curriculum. *TEFLIN Journal, 10*(1), 17–30.

Djiwandono, P. I. (2019). How language teachers perceive information and communication technology. *Indonesian Journal of Applied Linguistics, 8*(3), 607–615.

Fitriah. (2018). The role of technology in teachers' creativity development in English teaching practices. *TEFLIN Journal, 29*(2), 177–193.

Gandana, I., & Parr, G. (2013). Professional identity, curriculum and teaching intercultural communication: An Indonesiancase study. *Language, Culture and Curriculum, 26*(3), 229–246.

García, O., & Wei, L. (2014). *Translanguaging: Language, bilingualism, and education.* Palgrave Macmillan.

Hajar, S. (2017). *The complexities of implementing classroom-based action research in a remote school in Indonesia.* PhD thesis submitted to University of Queensland, Australia.

Haryanto, E., Mukminin, A., Murboyono, R., Muazza, M., & Ekatina, M. (2016). Teacher certification policy: Evidence from students' perception on certified English teachers at one public high school in Jambi Indonesia and policy implications. *Turkish Online Journal of Qualitative Inquiry, 7*(3), 224–244.

Indonesian Australian Language Foundation (IALF). (2021). *About us.* Retrieved on 28 July 2021 from https://www.ialf.edu/homepage/about-ialf/.

Jazadi, I. (2000). Constraints and resources for applying communicative approaches in Indonesia. *English Australia Journal, 18*(1), 31–40.

Jenkins, J. (2007). *English as a lingua franca: Attitudes and identity.* Oxford University Press.

Joni, T. R. (2008). The prospect of teacher professionalization under law number 14 of 2005 on teachers and university lecturers. *JurnalIlmu Pendidikan (JIP), 15*(1), 1–18.

Kirkpatrick, A. (2018). From EFL to ELF: The time is right. In S. Zein (Ed.), *Teacher education for English as a lingua franca: Perspectives from Indonesia* (pp. 191–203). Routledge.

Kumaravadivelu, B. (2006a). *Understanding language teaching: From method to postmethod*. Routledge.

Kumaravadivelu, B. (2006b). TESOL methods: Changing tracks, challenging trends. *TESOL Quarterly, 40*(1), 59–81.

Kusumawardhani, P. N. (2017). Does teacher certification programlead to better quality teachers? Evidence from Indonesia. *Education Economics, 25*(6), 590–618.

Kuswandono, P. (2017). Mentor teachers' voices on pre-service English teachers' professional learning. *Indonesian Journal of Applied Linguistics, 6*(2), 213–221.

Larson, K. R. (2014). Critical pedagogy(ies) for ELT in Indonesia. *TEFLIN Journal, 25*(1), 122–138.

Luciana. (2004). Developing standards for language teacher education programs in Indonesia: Professionalizing or losing in complexity? *TEFLIN Journal, 15*(1), 27–41.

Mambu, J. E. (2016). Investigating students' negotiation of religious faiths in ELT contexts: A critical spiritual pedagogy perspective. *Critical Inquiry in Language Studies, 13*(3), 157–182.

Manara, C. (2016). "No need-lah, Uncle": Teachers' perspective on English(es) communication and pedagogy. *International Journal of Culture and History, 2*(1), 9–14.

Marlina, N., Ramdani, & Sri, M. (2016). Action research: Theory and practice in English pre-service teachers. *Edulite: Journal of English Education, Literature, and Culture, 1*(2), 196–214.

Nur'aini, S. (2018). *Identity-agency and life-course agency of English teachers in Tegal City, Banyumasan area, Indonesia.* PhD thesis submitted to Massey University, New Zealand.

Puspita, A. M. H., & Mambu, J. E. (2020). Traces of critical spiritual pedagogy in Indonesian EFL teachers' Christian-based classes. *TEFLIN Journal, 31*(2), 259–276.

Rahman, A., Hoban, G., & Nielsen, W. (2014). *Transcending teacher professional development: From determinism to complexity.* The Asian Conference on Education, Official Conference Proceedings (pp. 15–30). The International Academic Forum.

Rasman. (2018). To translanguage or not to translanguage? The multilingual practice in Indonesian EFL classroom. *Indonesian Journal of Applied Linguistics, 7*(3), 687–694.
Regional English Language Office (RELO). (2021). *About Regional English Language Office.* Retrieved on 28 July 2021 from https://id.usembassy.gov/education-culture/regional-english-language-office/.
Rerung, M. K. T. (2017). Reflecting translanguaging in classroom practices: A case study. *Journal of English Language and Culture, 7*(1), 17–22.
Sakhiyya, Z., Agustien, H. I. R., & Pratama, H. (2018). The reconceptualization of knowledge base in the pre-service teacher education curriculum: Towards ELF pedagogy. *Indonesian Journal of Applied Linguistics, 8*(1), 49–56.
Saukah, A. (2009). English language teacher education in Indonesia. In Y. H. Choi & B. Spolsky (Eds.), *English language teacher education in Asia* (pp. 1–28). Asia TEFL.
Sari, Y. R., Drajati, N. A., So, H.-J., Sumardi. (2021). Enhancing EFL teachers' technological pedagogical content knowledge (TPACK) competence through reflective practice. *TEFLIN Journal, 32*(1), 117–133.
Silvia, A. (2016). Coursera online course: A platform for English teachers' meaningful and vibrant professional development. *TEFLIN Journal, 26*(2), 228–246.
Sulistyowardani, M., Mambu, J. E., & Pattiwael, A. S. (2020). Indonesian EFL teachers' cognition and practices related to social justice. *Indonesian Journal of Applied Linguistics, 10*(2), 420–433.
Triyanto. (2012). Improving teacher professionalism through certification program: An Indonesia case study. *World Academy of Science, Engineering and Technology, 6*(7), 721–725.
Walsh, S. (2011). *Exploring classroom discourse: Language in action.* Taylor & Francis.
Walsh, S. (2013). *Classroom discourse and teacher development*. Edinburgh University Press.
Widiati, U., & Hayati, N. (2015). Teacher professional education in Indonesia and ASEAN 2015: Lessons learned from English language teacher education programs. In R. Stroupe& K. Kimura (Eds.) (2015). *ASEAN Integration and the role of English language teaching* (pp. 21–148). IELTS.
World Bank. (2015). *Indonesia: Teacher certification and beyond. An empirical evaluation of the teacher certification program and education quality improvements in Indonesia.* World Bank.
Zacharias, N. T. (2016). Indonesian teacher identity construction: Insights from practicing ELF pedagogy. *Journal of Asian Pacific Communication, 26*(2), 321–339.
Zein, S. (2016a). Factors affecting the professional development of elementary English teachers. *Professional Development in Education, 42*(3), 423–440. https://doi.org/10.1080/19415257.2015.1005243
Zein, S. (2016b). Government-based training agencies and the professional development of Indonesian English for Young Learners teachers: Perspectives from complexity theory. *Journal of Education for Teaching: International Research and Pedagogy, 42*(2), 205–223. https://doi.org/10.1080/02607476.2016.1143145
Zein, S. (2017). Elementary English education in Indonesia: Policy developments, current practices, and future prospects. *English Today, 33*(1), 53–59.
Zein, S. (Ed.). (2018a). *Teacher education for English as a lingua franca: Perspectives from Indonesia.* Routledge.
Zein, S. (2018b). From EFL to ELF: Implications for teacher education. In S. Zein (Ed.), *Teacher education for English as alingua franca: Perspectives from Indonesia* (pp. 21–40). Routledge.
Zein, S. (2018c). Translanguaging as a metadiscursive practice in the EYL classroom: Preparing prospective teachers. In S. Zein & R. Stroupe (Eds.), *English language teacher preparation in Asia: Policy, research and practice* (pp. 47–62). Routledge.
Zein, S. (2020). *Language policy in superdiverse Indonesia.* Routledge.
Zein, S. (2022). *English as a subject in basic education (ESBE) in ASEAN: A comparative study.* British Council.
Zein, S., Sukyadi, D., Hamied, F. A., & Lengkanawati, N. S. (2020). English language education in Indonesia (2011–2019): A review of research. *Language Teaching, 53*(4), 491–523.

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Part III
Redesigning Teacher Education

Chapter 24
Teacher Education in Singapore: Changes for a New Landscape

Jason Loh

Abstract Teacher education in Singapore is synonymous with the National Institute of Education, as it is Singapore's sole institution of teacher education. Its history, its contribution to Singapore's achievements in international benchmark assessments (e.g. PISA, PIRLS, TIMSS), its symbiotic relationship with the Ministry of Education, and its role in the development of Singapore's knowledge-based economy have been well documented in recent years (see Loh & Hu, 2019; Loh & Hu, 2020). Instead of a diachronic perspective taken in most discussions on teacher education in Singapore, this chapter will provide an overview of the current state of teacher education. It focuses on recent important changes in its teacher education programmes, namely the structural extension and curriculum revision of the main Postgraduate Diploma in Education (PGDE) programme, the phase-out of the non-graduate Diploma in Education (General) programme, and the advent of the premier Teaching Scholars programme.

Keywords Teacher education · Singapore · Teacher quality · Student achievement

Background

There has been heightened interest in the teacher education in recent years, perhaps due to the widespread publicity over the major international benchmark assessment results, such as the Programme for International Student Assessment (PISA),[1]

[1] PISA: Organized by the Organisation for Economic Co-operation and Development (OECD) every three years since 2000–2000, 2003, 2006, 2009, 2012, 2015, and 2018.

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Progress In International Reading Literacy Study (PIRLS),[2] and Trends In International Mathematics And Science Study (TIMSS).[3] The purpose of PISA is to "monitor the outcomes of education systems in terms of student achievement on a regular basis and within a common framework that is internationally agreed upon" (OECD, 2001, p. 3); specifically, it measures "15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges" (OECD, n.d., para. 1).PIRLS specifically assesses "reading achievement at the fourth grade" (TIMSS & PIRLS International Study Center, 2019a, para. 1), while TIMSS specifically assesses mathematics and science achievement at the fourth and eighth grades (TIMSS & PIRLS International Study Center, 2019b). Due to the increasing emphasis placed on these benchmark studies, education systems around the world seeking to improve their achievements would leverage on the most significant and central resource—their teachers, especially since there have been numerous studies showing a positive relationship between student achievement and teacher quality (Aaronson et al., 2007; Akiba et al., 2007; Darling-Hammond et al., 2001; OECD, 2005, 2011; Schleicher, 2012).

In Singapore, it is no different. Even before Singapore's independence from Britain, while under internal self-governance, the founding Prime Minister, Lee Kuan Yew, told the teachers during the Education Ministry's rally in 1959 that:

> [o]utside the influence of their parents and their homes, *the most important influence is the teacher* and the school. And so it is no exaggeration to say that our 10,600 teachers in all our schools constitute the most influential group of 10,600 people anywhere in Singapore. In your care is entrusted the impressionable minds of our young people. (p. 1; emphasis added)

Twenty years later, in 1979, Lee Kuan Yew again acknowledged the central role that teachers play in enabling the students to achieve greater academic gains:

> If we are to achieve our full human potential translated it into sophisticated industrial goods we manufacture or the services we provide, we must raise the standard of education of our students, which *can only be done by raising the quality of our teaching* at every level. (Lee, 1979, p. 2; emphasis added)

The emphases on the importance of teachers and its concomitant teacher quality were thus laid. Over the years, this emphasis on the central role that teachers in Singapore play in developing the next generation has continued unabated. In 2016, when it was revealed that Singapore topped the rankings across all three subjects of Reading, Mathematics and Science, the teachers were acknowledged as a key contributor to the sterling performance:

1. OECD reported that "[t]eachers are the pillars of Singapore's education system" (p. 3);

[2] PIRLS: Jointly organized by the Lynch School of Education, Boston College, and the International Association for the Evaluation of Educational Achievement (IEA) every five years since 2001–2001, 2006, 2011, 2016, and 2021.

[3] TIMMS: Jointly organized by the Lynch School of Education, Boston College, and the International Association for the Evaluation of Educational Achievement (IEA) every four years since 1995–1995, 1999, 2003, 2007, 2011, 2015, and 2019.

2. Singapore's Ministry of Education (MOE), through its the Deputy Director General of Education commended the teachers: "For this, we have to thank … dedicated teachers, who have brought out the best in our students" (Davie, 2016, para. 12); and
3. Nanyang Technological University (NTU), which houses the National Institute of Education (NIE), Singapore's sole teacher education institute, through its then vice president, attested to the quality of teaching as a key factor in the results (Coughlan, 2016).

As a result of Singapore's achievements in the international benchmark assessments (Ang, 2021; Mullis et al., 2017; Mullis et al., 2020; OECD, 2016), there has been an increase in interest in its teacher education. In recent years, much has been written about Singapore's teacher education (see Loh & Hu, 2019, 2020; Liu, 2017; Tan et al., 2017). Instead of a diachronic perspective taken in most discussions on teacher education in Singapore, this chapter will provide an overview of the current state of teacher education, i.e., a synchronic perspective. A brief overview will be given in the next section, followed by a description of the changes made to the three teacher education programmes—the cessation of the non-graduate Diploma in Education (General) programme, the advent of the premier Teaching Scholars programme, and the extension of the Postgraduate Diploma in Education (PGDE) programme. Finally, this chapter ends by looking ahead at what the future might hold for teacher education in Singapore in the light of the increasing numbers of school mergers in the past five years (2016–2021) and in the current pandemic world.

Changing Landscapes and Milestones

There were a number of turning points for teacher education in Singapore, of which the first three were key milestones[4]: the formalisation of teacher training to meet the expanding educational needs of the nation; the passing of a parliamentary Act to raise the quality of teacher training; the universitization of teacher education.

1950 was a significant year for teacher education in Singapore. Teacher training was formally institutionalized that year when the Teachers' Training College (TTC) was established to provide formal training for teachers. Prior to that, there was no institute providing comprehensive training to either pre-service or in-service teachers; however, there was "some formalized type of training from 1906, when Raffles Institution, the first school in Singapore, trained existing teachers for the primary level, and in 1928, when Raffles College was established and started training teachers for the middle and secondary levels" (Loh & Hu, 2019, p. 4). Teachers in non-English medium schools had no such organisation providing training. Within

[4] There have been numerous "milestones" listed for teacher education in Singapore (NIE, 2009; NIE, n.d.); however, in this chapter, only the most significant ones which directly impacted the various teacher education programmes are listed as key milestones.

the next twenty years of TTC's establishment (1950–1970), Singapore won self-governance status in 1959 and gained its independence in 1965. In addition, due to the post-war baby boom, there was an urgent need to rapidly increase the number of schools and teachers in both the primary and secondary education sectors (Loh & Hu, 2020). Teacher training was largely done through a part-time in-service scheme, where "student teachers were attached to schools to teach for half a day and drew a stipend during the training" (Loh & Hu, 2020, p. 230). The focus then was on quantity rather than quality due to the exigencies of the time.

1970 marked the second key milestone for teacher education in Singapore—the Parliament passed the Institute of Education Act; the Act would convert the TTC to the IE. The Institute of Education(IE) would become a statutory board; this meant that it had "the autonomy to hire from outside the civil service and to raise the academic standing of teacher education" (Loh & Hu, 2019, p. 4). Hitherto, TTC had been administered as a government department. Due to a reconsideration of whether it was feasible to create an institute solely to confer education degrees for a small nation, the establishment of IE was delayed until 1 April 1973. Under the auspices of IE, a number of programmes were offered: Diploma in Education (a programme for graduate teachers); Teacher-in-Training Scheme where prospective teachers would be given a formal appointment in the Education Service and paid a full salary while undergoing training; Certificate in Education (a programme to train non-graduate teachers to teach at the pre-primary and lower primary levels); a one-year full-time Further Professional Certificate in Education(FPCE), which was meant to upgrade all non-graduate primary school teachers; and a one-year full-time Diploma in Educational Administration (DEA) programme to train school leaders. In addition, the College of Physical Education (CPE) was established in 1984 to train teachers specializing in physical education via the two-year Diploma in Physical Education programme.

1990 marked the third key milestone for Singapore's teacher education. A few years earlier, in America, two influential reports on teacher education (Carnegie Commission, 1986; Holmes Group, 1986) recommended the universitization of teacher education as a way to improve schools and the national economy. As a result, the then Minister of State for Education, Seet Ai-Mee,[5] advocated the same through her report (Seet, 1990) to the then Minister for education. The report recommended a restructuring and upgrading for Singapore's teacher education. Of the 14 recommendations, three were of particular importance: "the introduction of a four-year degree program for the training of primary school teachers, the merger of the IE and the CPE to form the National Institute of Education (NIE), and the incorporation of the NIE as an independent institute of the proposed Nanyang Technological University (NTU)" (Loh & Hu, 2019, p. 7). The recommendations were accepted, and on 1 July 1991, the NIE was formed through the merger of IE and CPE. NIE was established as "an independent specialized institute, with its own board of management, within NTU" (Loh & Hu, 2019, p. 7). Another key finding of Seet's report was the acknowledgement that the primary teacher's job required "adequate mastery of a wide range of

[5] Seet Ai-Mee: The family name is "Seet".

subjects (substantive content knowledge) and a rich repertoire of pedagogical knowledge and skills to successfully handle children with different abilities and interests and at different stages of development" and "the ability to transfer knowledge in such a manner that children at different cognitive levels can learn effectively" among others (Seet, 1990, p. 3). As such, the certificate and diploma programmes at IE and CPE were correspondingly upgraded to diploma and postgraduate diploma levels for non-graduates and graduates; furthermore, for the first time, graduates were trained to teach in primary schools through the one-year Postgraduate Diploma in Education (Primary) (PGDE) programme (NIE, n.d. a). And after two decades, since the original conception in the 1970 IE Act, the Bachelors programme for teaching was finally realized with the formation of NIE—the four-year Bachelor of Arts/Science with Diploma in Education, for training both primary and secondary school teachers, were offered to matriculated students of the NTU.

The turning points that followed the third milestone are not actually a specific year as was the case for the previous three; it was in fact a period where a number of landmark events occurred, and which led to the massive changes to the three main teacher education programmes.

Landmark Events and Turning Points

At the turn of the century, the first PISA survey was administered in 2000. When the results were released, a country, which hitherto had been unknown for its education, came into the limelight for its outstanding performance in the three literacy domains of reading, mathematics and science. It repeated its outstanding performance in the next two PISA surveys in 2003 and 2006, and drew worldwide attention to its educational system, its teachers and their postgraduate teacher education (Kupiainen, Hautamäki & Karjalainen, 2009).

Just prior to the PISA surveys, the OECD issued a report entitled The Knowledge-Based Economy (OECD, 1996) and declared that "the OECD economies are increasingly based on knowledge and information" (p. 3). It was an influential report; many countries started to shift to a Knowledge-Based Economy as a response, especially in the aftermath of the 1997/98 Asian financial crisis.

It was against this backdrop that Lee Hsien Loong became Singapore's third Prime Minister (PM) in 2004. In his first National Day Rally[6], PM Lee touched on the need to have a "a qualitative change, a quantum leap" in the education system so as to prepare Singapore for the future (Lee, 2004, para 103). And in order to have this change in the educational system, the government will hire more teachers: "1,000 more for the primary schools, 1400 more for the secondary schools, 550 more for the JCs (Junior Colleges) … by 2010"; essentially, this means "15% more

[6] National Day Rally: This is an annual event which the Prime Minister uses to explain to the nation the various issues which Singapore faces and how the government intends to go about to address them through enactment of new policies or adjustment of old ones (Chew, 2016).

teachers per student" (para. 110). In the MOE's Workplan Seminar[7] that year, the then Minister for Education, Tharman Shanmugaratnam, reiterated what was said by PM Lee, and added an important component—the professional development of the teachers. He highlighted that the Professional Development Continuum Model (PDCM), which "provides a structured path for teachers to obtain higher professional certification, including undergraduate and postgraduate degrees" had been developed by NIE in consultation with MOE (Shanmugaratnam, 2004, para. 49) . A year later, he highlighted and encouraged teachers to pursue a Masters qualification since Masters accreditable courses would be "included in the in-service training provisions for teachers" (Shanmugaratnam, 2005, para. 12).

In 2006, Minister Tharman revealed that the MOE will spend "$250 m over the next three years" to "attract, motivate and retain good teachers" (MOE, 2006, para. 1). Part of this investment went to encouraging and supporting teachers to pursue part-time postgraduate programmes. In addition, MOE will recruit "an additional 3,000 *quality* teachers into schools" and increase the "teaching workforce to 30,000 by 2010[8]" (para.13; emphasis added).

In 2007, the McKinsey Report (Barber & Mourshed, 2007) and the PISA 2006 survey results were released. The McKinsey Report in its study of the top performing educational systems emphasized the importance of the quality of the teachers in enabling their excellence. In addition, it highlighted Finland's requirement that all its teachers possess a Master's degree. When the PISA results were released after the Report, and Finland again outperformed most countries, it seemed to reinforce the idea of the importance of having a postgraduate teaching force.

Turning Point 1: Cessation of the Non-Graduate Diploma Programme

In 2008, when the then new Minister for Education, Ng Eg Hen, spoke to the school leaders during the annual Workplan Seminar, he cited the McKinsey report and the fact that Finland required its teachers to have a Masters qualification. Hence, he set a target of hiring only graduates as teachers from 2015 (AsiaOne, 2008), and encouraged the non-graduate teachers to pursue a degree with support from MOE. In 2009, he revealed that the target of 30,000 was reached and set a new recruitment target of 33,000 teachers by 2015, and reiterated the importance of "recruiting from the graduate pool or those who qualify for an undergraduate degree" (Ng, 2009, para 47). In 2010, he shared the MOE's vision where "almost all of our teachers will be graduates, while a fifth could have Master's and PhD qualifications, up from the current 10%" (Ng, 2010, para. 17).

[7] MOE Workplan Seminar: This is similar to the National Day Rally, where the Minister for Education addresses the entire nation's school leaders.

[8] In 2006, there were 26,804 teachers in MOE (Data.gov.sg, 2020).

As a result of this emphasis from the Minister for Education, one of the three teacher education programmes, the non-graduate Diploma in Education (General), was affected. The MOE took steps to increase hiring of teachers into the Postgraduate Diploma in Education programme (PGDE) and reduce the hiring of non-graduates. However, as there was still a shortfall of the target of 33,000 teachers, the recruitment numbers did not fall drastically, but slowly over the years. The last cohort of Diploma in Education (General) students was accepted in July 2017, numbering only three (with six the cohort before and 15 the cohort before that). Even though the Diploma in Education (General) programme is still listed on the website, it has not been offered these past few years (see NIE, n.d. b). The longest running teacher education programme (which started in 1973) had come to an end.

Although the MOE is still recruiting prospective teachers through the non-graduate Diploma in Education programme, they are trained to be teachers in the specialist subjects of Art, Music, Physical Education and Mother Tongue Languages (Chinese, Malay, Tamil Language) (see MOE, n.d.), where there is a lack in the system. The teachers in the mainstream subjects, on the other hand, are recruited from the graduate pool—approximately two-third of the pre-service teachers are in the PGDE and one-third are in the four-year undergraduate programme (Low, Goodwin & Snyder, 2017). The statistics over years have shown the increase in the graduate teaching force as a result of this policy: in 2009, 75% of the teachers are graduates (Ng, 2009, para. 48); in 2017, 89.0% (MOE, 2018, p. 12).

Turning Point 2: Advent of the Teaching Scholars Programme

In 2009, MOE hired 3,000 teachers, and met its initial target of 30,000 teachers. From 2010 to 2012, it hired between 2000 and 3000 a year to meet the next target of 33,000 teachers (Davie, 2015). The then Minister of Education, Heng SweeKeat, announced that the target was met in 2012 (Loh & Hu, 2020). As a result, MOE reduced its recruitment numbers and hired for maintenance instead. In 2013, the numbers hired dropped to 1400; in 2014, it dropped further to 1300; in 2015, it plunged to around 800 (Davie, 2015). Subsequently, the numbers have stabilized around this number, which is equivalent to the numbers of teachers who leave the system annually (see Yang, 2016), i.e. maintenance hiring.

Against this backdrop of recruitment numbers, NIE reviewed its Bachelor programmes (which started in 1991) and developed an enhanced Bachelor of Arts/Science (Education) for the NIE-NTU premier Teaching Scholars Programme (TSP). It proposed this TSP to the MOE, as a shift from quantity in previous years to quality going forward (Office of Strategic Planning & Academic Quality, 2015). The TSP would be different from the previous Bachelors programme, and it would be distinctly different from the one-year PGDE programme. Firstly, it would be made up entirely of scholars—NTU's indicative grade profile reveals that the students admitted to the BA/BSc-TSP come from the top of their cohorts (NTU, n.d.).; secondly, the programme aims to "nurture graduates that are steeped in values, with

intellectual rigour, strong leadership and global perspective so that they can make significant contributions to the future education landscape" (Tan & Liu, 2017, p. 38), through being mentored by eminent academics for their research components, being able to intern at government statutory boards and industry partners, and being able to experience different education systems via overseas student exchanges and international teaching practicum among other enriching opportunities not provided before to any other programme (NIE, n.d. c).

The proposal was endorsed and supported by the MOE, and the first cohort of TSP students started their teacher education in the July 2014 semester and graduated at the end of the January 2018 semester. To date, there have been eight cohorts, with the ninth cohort coming in the July 2022 semester, with four cohorts in the teaching service and the fifth cohort about to graduate in mid-2022. As the numbers for each cohort are very small (numbering between 35 and 75), the students have more time to interact with the tutors, and more time to reflect and discuss what they have learnt in their courses. Naturally, this has made a difference in their learning and enriched their educational experience. Whether the TSP has made a palpable difference to the system, it is still too early to say, as the bulk of the teachers come from the PGDE programme. Furthermore, with MOE's policy of promoting mid-career teachers faster than fresh graduate teachers (whether from PGDE or TSP), and with fewer school leadership positions as a result of the recent spate of school mergers, the TSP graduands' impact to the system may not be realized in the immediate future (MOE, 2007; Yong, 2021).

Turning Point 3: Extension of the PGDE Programme

Against the same backdrop, where NIE faced a recruitment of around 800-odd students yearly, in contrast to the huge numbers prior to that, it proposed the enhancement and extension of the 1-year Postgraduate Diploma in Education (PGDE) Programmes (which started in 1991). Essentially, the proposed change was extending the programme from 12 to 16 months, with addition of some content upgrading courses.

One of the key changes was the addition of another school experience through the Teaching Assistantship school stint, where the student teachers would spend four days in school and one day at NIE. This was in addition to the original final Teaching Practicum. This is aligned to the importance of the "clinical education as part of initial teacher education" as advocated by OECD (2018, p. 4). With an additional teaching stint, the PGDE student-teachers would have more opportunities with which to reflect on their learning while facing actual students in real classrooms. Furthermore, with the requirement that they return to NIE weekly after spending four days in the schools, they are guided in their reflection and application of the pedagogical principles. This strengthens the theory–practice nexus, which was traditionally weaker than the four-year Bachelors programme (with four clinical teaching practices) or even the two-year Diploma programme (with two clinical teaching practices).

Other key changes include the addition of courses which emphasize more explicitly the teacher's role and responsibility: Effective parent engagement for teachers, Teacher–student relationship and Singapore Kaleidoscope. The first two aim to equip the student–teachers with greater knowledge and skills to (1) engage and collaborate with the parents so as to build a stronger working relationship, and (2) to have a more professional understanding of the teacher–student relationship. The third, "Singapore Kaleidoscope", aims to provide "a rich, multi-faceted perspective on Singapore, acquainting pre-service teachers with our natural and cultural heritage, and deepening their appreciation of Singapore's position in the world" (MOE, 2015, para. 4). As all teachers are hired by the MOE before they start their teacher education, they have a duty to educate the next generation of Singaporeans in not just the academics, but also citizenship.

Teacher Education Model for the Twenty-First Century (TE21)

Underpinning Turning Points 2 and 3 is the "Teacher Education Model for the Twenty-First Century" (NIE, 2009). Due to the changes in the twenty-first century, NIE started a *Programme Review and Enhancement* (PRE) 2008–2009 initiative. Its aim was to ensure that the twenty-first-century teachers would have the skills and dispositions to respond to the needs of the twenty-first-century student. The steering committee, chaired by the then Director of NIE, conducted extensive literature review, surveyed existing and emerging educational trends, analysed the educational profile of Singapore and the educational policies and initiatives. Based on this extensive review, six key recommendations were made, of which two became the key pillars of the TE21 Model: the V^3SK (values, skills and knowledge) philosophy of teacher education, and the GTC (Graduand Teacher Competencies) Framework of professional standards, benchmarks and goals (see NIE, 2009). These two pervade all elements of teacher education at NIE, in terms of its philosophy, curriculum and desired outcomes.

The V^3SK Model articulates the philosophy of NIE; it guides NIE in its design and delivery of its teacher education programmes, so as to develop teachers with three essential and positive values such as learner-centred values, teacher identity and service to the profession and community, to equip them with necessary pedagogical skills, and to ensure that they have the requisite depth and breadth of knowledge to meet the challenges of the twenty-first century classroom. The GTC articulate the standards and goals which the student-teachers will graduate with as a result of completing the teacher education programmes undergirded by the V^3SK model.

Both the TSP and the extended PGDE programme were restructured with the TE21 model guiding it. Hence, both programmes are reflective of and are exemplars of NIE's TE21 model.

Looking Ahead

Due to changes in the landscapes, be it political, economic or educational, teacher education was impacted, and as a result was changed by it. In the last seven years, the MOE has announced four rounds of school closures/mergers: In 2014, plans to merge 6 primary schools were announced; in 2016, plans for merging 22 secondary schools were announced; in 2017, the merger of 28 schools (14 primary, 6 secondary and 8 junior colleges) was announced; in 2021, plans to merge 18 schools (8 primary, 10 secondary) were announced. The main reasons given by the MOE were falling birth rates, coupled with changing demographics, and, hence, shrinking school cohorts in certain areas (Lee, 2014; Yong, 2021). MOE explained that when schools have low enrolment, they would find it challenging to "offer a good range of educational programmes and co-curricular activities (CCAs) for its students… and this would impact its students' learning experiences" (MOE, 2017, para. 3). As a result, excess teachers from the merged schools were and have to be redeployed to other schools or to MOE Headquarters. In fact, quite a number of these excess teachers went through a "cross level" deployment, where they are redeployed to teach from JC to Secondary, or from Secondary to Primary levels at other schools.

MOE student population (primary, secondary and junior colleges) in 2009, when the then Minister for Education announced a target of 33,000 teachers was 521,594; ten years later, in 2019, the student population had dropped to 424,402 (Data.gov.sg, 2020); this was almost a 20% drop in student numbers. This landscape will definitely have an impact on teacher education at NIE. With a continual decline in total fertility rate (Chew, 2021), the student population in Singapore will indubitably continue to decrease, and with it, there will be further school mergers. When that happens, there will be further excess of teachers; if so, the recruitment of teachers will fall from its current numbers.

Going forward, NIE cannot solely rely on providing teacher education for Singapore schools. If numbers drop drastically in future, it must look beyond the shores of Singapore, and "consider opening its pre-service and postgraduate program to trainee teachers and graduate students from the neighboring countries" (Loh & Hu, 2019, p. 16). This move to internationalize NIE's teacher education programmes was already anticipated and echoed by Prof. Lee Sing Kong, NIE's Director from 2006 to 2014: "Singapore's concept of "Internationalisation" is through the sharing of our experiences and expertise … [and] *through increasing the enrolment of overseas students*" (Low & Lee, 2012, p. 46; emphasis added). In fact, he felt that it was "timely and important to share our expertise and experience to benefit countries around us" (p. 45). Since Singapore has done well in international benchmark assessments and NIE is in the top ten of the QS World University Rankings for Education & Training 2021 (QS, 2021), there is widespread interest in Singapore's teacher education, particularly from Asia. There could be a targeted recruitment of scholars from certain Asian countries. This would not only increase the student numbers for NIE, it would also build bridges between different countries and cultures across Asia.

Another strategic way forward would be to consider merging and converting all the teacher education programmes to a graduate one, where the length of training is extended to two years and the pre-service teachers graduate with a Masters qualification (Loh & Hu, 2019), much like Finland, Melbourne Graduate School of Education and Harvard Graduate School of Education. This would ensure that the new generation of teachers would have the necessary depth and breadth of knowledge to meet the challenges of the twenty-first-century classroom. If the duration of this new postgraduate teacher education can be extended to two years from the current 16-month one for the PGDE programme, more opportunities for teaching stints and theory–practice reflections can be embedded within the programme. In a sense, this theory–practice component would be a midway between the current four-year TSP and the 16-month PGDE programmes.

Another major change in the landscape is the COVID-19 pandemic. There is no sparing of any country in this climate. Due to this pandemic, many restrictions on face-to-face contact have been imposed. As such, teaching that used to be conducted in physical classroom environments have been pursued online via various platforms. Furthermore, collaborative learning via group work has been suspended due to the requirement of safe distancing. Current pedagogical models have not completely adjusted to these changes. NIE would need to revise some of its pedagogical approaches and principles to take this change into account. Preparing the next generation of teachers to teach in an online environment has to be essential study. Training and certifying in-service teachers to teach skilfully and thoughtfully in such an environment would be beneficial for the teachers and the entire MOE community. Teaching online is not merely using technology to replace face-to-face engagement; it requires a different skillset, which many teachers are not familiar with, since they never had that experience as learners. Hence, there is a pressing need for such training and possibly certification. This is an opportune moment for NIE to tackle this educational disruption by its horns.

The changing landscapes may create difficulties and bring about a new set of challenges. But with these challenges come opportunities. If NIE is to live up to its Vision of being *An Institute of Distinction: Leading the Future of Education*, then it must embrace these changes in the landscape and take the lead in offering alternative ways to address the current issues.

References

Aaronson, D., Barrow, L., & Sander, W. (2007). Teachers and student achievement in the Chicago public high schools. *Journal of Labor Economics, 25*(1), 95–135. https://doi.org/10.1086/508733

AsiaOne (26 Sep 2008). All graduate teacher recruitment: MOE. *AsiaOne*. Retrieved from https://www.asiaone.com/print/News/AsiaOne%2BNews/Singapore/Story/A1Story20080926-90116.html.

Akiba, M., LeTendre, G. K., & Scribner, J. P. (2007). Teacher quality, opportunity gap, and national achievement in 46 countries. *Educational Researcher, 36*(7), 369–387. https://doi.org/10.3102/0013189X07308739

Ang, J. (4 Jan 2021).Singapore produced 55 of the world's 99 perfect scorers in IB exams. *The Straits Times.* https://www.straitstimes.com/singapore/parenting-education/singapore-students-account-for-more-than-half-of-worlds-perfect.

Barber, M., & Mourshed, M. (2007). *How the world's best-performing school systems come out on top.* McKinsey and Company.

Carnegie Commission. (1986). *A nation prepared: Teachers for the twenty-first century*. New York, NY: Carnegie Forum on Education and the Economy.

Chew, H.M. (26 Feb 2021). Singapore's total fertility rate falls to historic low in 2020. *Channel NewsAsia.* Retrieved from https://www.channelnewsasia.com/news/singapore/singapore-total-fertility-rate-tfr-falls-historic-low-2020-baby-14288556.

Chew, H.M. (20 Aug 2016). From babies to casinos: 11 memorable National Day Rally speeches. *The Straits Times.* Retrieved from https://www.straitstimes.com/singapore/from-babies-to-casinos-10-memorable-national-day-rally-speeches.

Coughlan, S. (6 Dec 2016). Pisa tests: Singapore top in global education rankings. *BBC News.* https://www.bbc.com/news/education-38212070.

Darling-Hammond, L., Berry, B., & Thoreson, A. (2001). Does teacher certification matter? Evaluating the evidence. *Educational Evaluation and Policy Analysis, 23*(1), 57–77. https://doi.org/10.3102/01623737023001057

Data.gov.sg. (2020). *Students and teachers in schools.* Retrieved from https://data.gov.sg/dataset/6091ef96-f3c9-4501-88dc-30c243363ca1/download.

Davie, S. (19 Nov 2015). Singapore Education Ministry cuts back on hiring teachers. *The Straits Times.* Retrieved from https://www.straitstimes.com/singapore/education/singapore-education-ministry-cuts-back-on-hiring-teachers.

Davie, S. (6 Dec 2016). Singapore students top in maths, science and reading in Pisa international benchmarking test. *The Straits Times.* https://www.straitstimes.com/singapore/education/singapore-students-top-in-maths-science-and-reading-in-international.

Holmes Group. (1986). *Tomorrow's teachers: A report of the Holmes Group.* East Lansing, MI: Holmes Group.

Kupiainen, S., Hautamäki, J., & Karjalainen, T. (2009). *The Finnish education system and PISA*. Ministry of Education.

Lee, H. L. (2004). Our future of opportunity and promise. National day rally speech at the University Cultural Centre, NUS, on 22 August. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/2004083101.htm.

Lee, K. Y. (1959). *Responsibilities of teachers.* Speech at the Education Ministry's rally of teachers at the Happy World stadium on 8 December. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/lky19591208.pdf.

Lee, K. Y. (1979). *Increasing our talent pyramid in tertiary institutions.* Speech at the opening of Singapore polytechnic new campus at Dover Road on 7 July. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/lky19790707.pdf.

Lee, P. (2014, 27 Feb.). Six primary schools to merge into three.*The Straits Times.* Retrieved from https://www.straitstimes.com/singapore/six-primary-schools-to-merge-into-three.

Liu, W. C. (2017). The teaching professionandteachereducation. In O. S. Tan, E. L. Low, & D. Hung (Eds.), *Lee Kuan Yew's educational legacy: The challenges of success* (pp. 29–42). Springer.

Loh, J., & Hu, G. (2019). Teacher education in Singapore. In G.W. Noblit (Ed.), *Oxford Research Encyclopedia of Education*(pp. 1–22). Oxford University Press. https://doi.org/10.1093/acrefore/9780190264093.013.293

Loh, J. & Hu, G. (2020). Teacher education for a knowledge-based economy: The Singaporean case. In L. Lefty & J. W. Fraser (Eds.), *Teaching the world's teachers* (pp. 226–248). Johns Hopkins University Press.

Low, E. L., & Lee, S. K. (2012). Bringing Singapore's teacher education beyond its shores. *Educational Research for Policy and Practice, 11*(1), 43–51. https://doi.org/10.1007/s10671-011-9116-7

Low, E. L., Goodwin, A. L. & Snyder, J. (2017). *Focused on learning: Student and teacher time in a Singapore school*. Stanford Center for Opportunity Policy in Education.
Ministry of Education, Singapore. (2018). *Education statistics digest 2018*. MOE.
Ministry of Education, Singapore. (20 Apr 2017). *Impact of demographic changes on our school landscape*. [Press release]. Retrieved from https://www.moe.gov.sg/news/press-releases/20170420-impact-of-demographic-changes-on-our-school-landscape#footnote-2.
Ministry of Education, Singapore. (20 Nov 2015). *Investing in our teachers: Enhancement of Postgraduate Diploma in Education programmes.* [Press release]. Retrieved from https://www.moe.gov.sg/news/press-releases/20151120-investing-in-our-teachers-enhancement-of-postgraduate-diploma-in-education-programmes.
Ministry of Education, Singapore (2007). *Keeping the teaching profession attractive: Higher pay, faster promotion for mid-career teachers.* [Press release]. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/20071002988.pdf.
Ministry of Education, Singapore. (1 Oct 2006). *MOE unveils $250m plan to boost the teaching profession.* [Press release]. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/20060904997.pdf.
Ministry of Education, Singapore (n.d.). *Diploma in Education.* Retrieved from https://www.moe.gov.sg/careers/become-teachers/pri-sec-jc-ci/diploma-education.
Mullis, I. V. S., Martin, M. O., Foy, P., & Hooper, M. (2017). *PIRLS 2016 International Results in Reading*. Retrieved from http://timssandpirls.bc.edu/pirls2016/international-results/.
Mullis, I. V. S., Martin, M. O., Foy, P., Kelly, D. L., & Fishbein, B. (2020). *TIMSS 2019 International Results in Mathematics and Science.* Retrieved from https://timssandpirls.bc.edu/timss2019/international-results/.
National Institute of Education, Singapore. (2009). *TE21: A teacher education model for the 21st century*. National Institute of Education. Retrieved from https://www.nie.edu.sg/docs/default-source/te21_docs/te21-online-version---updated.pdf?sfvrsn=2.
National Institute of Education, Singapore. (n.d. a). *Corporate Information: History*. Retrieved from https://www.nie.edu.sg/about-us/corporate-information/.
National Institute of Education, Singapore. (n.d. b). *Diploma programmes.* Retrieved from https://nie.edu.sg/teacher-education/diploma-programmes/.
National Institute of Education, Singapore. (n.d. c). *What is TSP?* Retrieved from https://nie-microsite.webflow.io/what-is-tsp.
Ng, E.H. (17 Sep 2009). Speech by Dr. Ng Eng Hen, Minister For Education and second minister for defence, at the MOE work plan seminar on 17 September at the Ngee Ann polytechnic convention centre. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/20090924002/moe_wps_2009.pdf.
Ng, E.H. (2010, Sep. 23). Speech by Dr. Ng Eng Hen, Minister for education and second minister for defence, at the MOE work plan seminar on 23 September at the Ngee Ann polytechnic convention centre. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/20100930001/speech_by_minister_wps2010.pdf.
Nanyang Technological University, Singapore. (n.d.). *Indicative Grade Profile.* Retrieved from https://www.ntu.edu.sg/admissions/undergraduate/indicative-grade-profile.
Office of Strategic Planning and Academic Quality. (2015). *Director's Address 2015.* Retrieved from http://155.69.97.28/nienews/dec15/?q=contents/nie-directors-address-2015.
Organisation for Economic Co-Operation and Development. (1996). *The knowledge-based economy*. OECDPublications.
Organisation for Economic Co-Operation and Development. (2005). *Teachers matter: Attracting, developing and retaining effective teachers.* OECD Publications.
Organisation for Economic Co-Operation and Development. (2001). *Knowledge and Skills for Life: First Results from PISA 2000*. OECD Publications.
Organisation for Economic Co-operation and Development. (2011). *Building a high- quality teaching profession: Lessons from around the world*. OECD Publications.

Organisation for Economic Co-operation and Development. (2016). *PISA 2015 high performers: Singapore*. OECD Publications.
Organisation for Economic Co-operation and Development. (2018). *Effective teacher policies: Insights from PISA*. OECD Publications.
Organisation for Economic Co-Operation and Development (n.d.). *Programme for International Student Assessment*. Retrieved from https://www.oecd.org/pisa/.
Quacquarelli Symonds Limited. (2021). *Education and training*. Retrieved from https://www.topuniversities.com/university-rankings/university-subject-rankings/2021/education-training.
Schleicher, A. (2012). *Preparing teachers and developing school leaders for the 21st century: Lessons from around the world*. OECD Publications.
Seet, A.E. (1990). *Teacher training in the 1990s: Issues and strategies.* National Institute of Education Library.
Shanmugaratnam, T. (29 Sep 2004). Speech at the MOE Work Plan Seminar on 29 September at the Ngee Ann Polytechnic Convention Centre. Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/2004092902.htm.
Shanmugaratnam, T. (2005, Jun. 28). Speech at the NIE Teachers' Investiture Ceremony on 28 June at the Nanyang Auditorium, Nanyang Technological University. 000000000000000Retrieved from https://www.nas.gov.sg/archivesonline/data/pdfdoc/20050628989.htm.
Tan, O. S., & Liu, W. C. (2017). Championingthe teacher factor. In O. S. Tan, W. C. Liu, & E. L. Low (Eds.), *Teacher education in the 21st century: Singapore's evolution and innovation* (pp. 33–43). Springer.
Tan, O. S., Liu, W. C., & Low, E. L. (2017). *Teacher education in the 21st century: Singapore's evolution and innovation*. Springer.
TIMSS & PIRLS International Study Center. (2019a). *Progress in international reading literacy study*. Retrieved from https://timssandpirls.bc.edu/pirls-landing.html.
TIMSS & PIRLS International Study Center. (2019b). *Trends in international mathematics and science study*. Retrieved from https://timssandpirls.bc.edu/timss-landing.html.
Yang, C. (3 Oct 2016). 5000 teachers leave service over five years. *The straits times*. Retrieved from https://www.straitstimes.com/singapore/education/5000-teachers-leave-service-over-five-years.
Yong, J. (17 Apr 2021). Commentary: Grappling with the sadness and outrage triggered by school mergers. Retrieved from https://www.channelnewsasia.com/news/commentary/school-closures-merger-secondary-primary-tanglin-eunos-14627366.

Chapter 25
Reshaping Teacher Education for the Twenty-First Century: An Indian Perspective

Radha Mohan

Abstract This chapter aims to present the crucial contemporary challenges of teacher education, which are intertwined with both the teaching profession and interests of its stakeholders of the society. After a brief overview on some of the main issues in teacher education in India in the last two decades, research findings and reflections on the main challenges of the teaching profession will be discussed, highlighting innovative approaches and adaptive practices.

Keywords Teacher education · Twenty-first century · Challenges · National Education Policy · Multilingualism

Introduction

There is a growing body of research globally indicating proactive steps for reforming teacher education, it being the need of the hour. This is particularly true to facilitate the accelerated economic growth of India which needs to tap its unique strength of demographic dividend—the largest young population in the world, requiring livelihood education and thereby gainful employment. The National Education Policy (NEP) 2020 replaces the National Policy on Education (NPE) 1986. The overarching goal of NEP 2020 is that of harnessing human resources (teacher and taught) to create value propositions (life skills, digital literacy, and employment fitness), whereas the earlier NPE 1986 laid the base for training a pool of human resources for facilitating the value chain. NEP 2020 aspires to achieve multifold increase in gross enrolment ratio by 2030 by restructuring school education from pre-school to secondary level along with open schooling ensuring equity and inclusion. The implications of NEP2020 on teacher education are listed in Table 25.1. Positioning teacher education at the nexus between schools and universities will involve significant changes in the theory and practice of both pedagogy, subject content and assessment techniques.

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Table 25.1 Comparison of NEP2020 and NPE1986—Impact on Teacher Education

S. No.	Aspect	NEP2020 envisaged				NPE1986 Currently in place	Impact on Teacher Education
1	Gross enrolment ratio	50% (2035)				26.3% (2018)	More quality teachers needed
2	School curricular structure format (in years)	5	3	3	4	10 + 2	Need for multiple levels of pre-service and in-service teacher training
3	Break-up of age: in years	3–8 years	8–11, years	11–14, years	14–18 years	16–18	
4	National Curriculum Framework for Teacher Education (NCTFE 2021)	Comprehensive with more practice and enhanced skill development				Theoretical with less Practice	Pre-service and in-service to focus on imparting of skills, communication and other practical aspects
5	Curriculum	Curriculum content will be reduced to its core essentials				Extensive theoretical curriculum	
6	Inclusion in schools	Development of methodologies for more successful inclusion in schools with diverse learning environment				Limited research done	Training at both pre-service and in-service level for better implementation of inclusion
7	Assessment reforms-exams conducted	In class 3, 5, 8, 10, 12—Objective and descriptive. Twice a year				Each year up to class 12 – Descriptive. Once a year	Need to be familiar with latest techniques to be adopted in evaluation including online assessment
8	Evaluation	360° holistic report card for students including skills				Grades instead of marks, CCE, Rating Scale	
9	Qualifications for teaching	Minimum qualification for teaching—4-year integrated B.Ed. degree by 2030				Graduate with B.Ed.-either 1 year B.Ed. or 2-year integrated B.Ed	Setting up of more 4-year Integrated B.Ed. courses in colleges and Universities

(continued)

Table 25.1 (continued)

S. No.	Aspect	NEP2020 envisaged	NPE1986 Currently in place	Impact on Teacher Education
10	Three language formula	3 language – Any three languages	By state, region and choice of student	Need to have trained language teachers
11	Development of National Professional Standards for Teachers (NPST) by the National Council for Teacher Education by 2022, in consultation with NCERT, SCERTs, teachers and expert organizations from across levels and regions to ensure quality teaching	Single Professional National Testing Uniform throughout the country	By state, regional with differing standards	Training pre-service teachers with professional attitudes and skills to enhance quality teaching
12	E-content	E-content in at least 8 languages	Lack of regional language e-content	More e-content materials to be developed for use in regional languages
13	Instruction medium	Mother tongue	Mother tongue	Teaches trained to teach in mother tongue
14	Sanskrit	Emphasis on learning Sanskrit	Not given enough importance	Need for starting 4-year Integrated B.Ed. Sanskrit courses in Universities and Colleges

(continued)

Table 25.1 (continued)

S. No.	Aspect	NEP2020 envisaged	NPE1986 Currently in place	Impact on Teacher Education
15	Emphasis in promoting cultural ethos and heritage	Teaching of Indian knowledge systems at all levels of schooling	Not given enough importance	Need to train pre-service and in-service teachers to handle IKS using appropriate methodology

NEP2020 envisages not only structural changes and ambitious targets but more significantly aims to blend modern knowledge with relevant aspects of ancient knowledge. To the taught it means life skills, value education, and digital literacy, ensuring societal and employment fitness. To the in-service teacher as well as prospective teacher, it means relearn to meet the challenge of being the guiding guru of the younger generation. Only then can India realize her demographic dividend.

- India ranks very low in Happiness Index published by the World Happiness Index Report (2020). Steps are being taken to introduce Happiness Curriculum at different levels of schooling. Teachers need to be trained to comprehend these courses before transacting them.
- The COVID-19 pandemic has catapulted teachers, teacher educators, and learners into being digitally literate for enhancing teaching and learning at all levels. The NEP2020 aspires to create an India with citizens thinking globally but acting locally.
- Meaningful research from other countries has also been included in the review with Indian studies to provide a roadmap for future teacher education research in India and for adaptation keeping Indian ethos in mind.
- The M.Ed. curriculum is now a 2-year post graduate course. Mishra et al. (2020) reported that the research-based approach in the M.Ed. programme is a step in the right direction as it enhances competence, gaining of expert knowledge, besides better job opportunities for the M.Ed. students.
- With the objective of achieving excellence in teacher education, the Teachers Education University was set up in Tamil Nadu. This was the first such university established in India which affiliates training colleges in Tamil Nadu.

Pre-service Teacher Education

Britzman (1991) has stated that a pre-service teacher is "marginally situated in two worlds: that of the inchoate educator who is making meaning of what a teacher is

and does, and that of still being educated". Reflecting on pre-service education can help map future teacher education programmes to best scaffold pedagogy.

> The school internship is visualized by situating the practice of teaching in the broader context of vision and the role of teacher and sustained engagement with learners and schools. (National Curriculum Framework for Teacher Education—Towards Preparing Professional and Humane Teacher NCTE document, 2009/10 p. iv)

In India, currently teacher education courses are of the following types:

- Elementary Teacher Education is a 2-year Diploma in Teacher Education D.El.Ed. (formerly D.T.Ed.). This is conducted by the District Institutes of Educational Training (DIET). The eligibility for this course is 12 years schooling. On completion of the course, the candidates can teach in primary schools.
- Bachelor of Education (B.Ed.) which is currently of 2 years duration. Graduates and postgraduates are eligible to enrol in this course. On completion of the course, the graduate candidates are eligible to teach 6–10th grade and the postgraduate candidates 6–12th grade, respectively, in schools.
- Regional Institutes of Education conducts 4-year integrated programmes after 12 years of schooling. In these institutes, candidates get content as well as pedagogy knowledge with a B.A. B.Ed. or B.Sc. B.Ed. Students who opt for this course can either teach in schools or pursue higher education in universities. Besides there are a few private universities which have integrated programmes like Amritha Vishwa Vidhyapeetham University, Arunachal University of Studies, and Chinmaya Vishwavidhyapeeth.

The NEP2020 envisions that by 2030, the minimum degree qualification for teaching will be a 4-year integrated B.Ed. degree (Singh, 2018).

Upgradation of Curriculum-Pre-service Teacher Education

Chennat (2014) in her article *Internship in pre-service teacher education programme: A global perspective* has suggested adopting the Finnish Teacher Education model for its systematic academic structure and high overall quality, adapting it to suit India's socio-cultural and educational context. Borja et al. (2019) in their study in the Philippines recommend implementation of an intervention program for the pre-service teachers to better cope with teaching challenges faced during real-time teaching. Ortlieb's (2013) investigations indicate positive effects on enhancing and aligning curriculums with practicum to bridge the gap between theory and hands-on teacher applications in schools. Gallardo-Williams and Petrovich (2017) devised a one-year programme addressing content delivery as well as classroom management techniques for students in the graduate programme in chemistry. Increased familiarity with teaching tools besides enhanced enrolment of these students in advanced teaching programs was observed.

While comparing the 1-year B.Ed. and the 4-year integrated B.Ed. course in Maharashtra, Moruskar (2004) found better integration of content and methodology in the integrated 4-year course when compared to the 1-year B.Ed. programme. The researcher stressed the need of regular evaluation of the B.Ed. programme to keep pace with the times.

Stephen (2009) has suggested updating the B.Ed. curriculum with inclusion of relevant and recent concepts of Education for Sustainable Development in the Environment Education course content. He further suggests that the spiritual dimension of Indian traditions and values—"***Loka Samstah Sukhino Bhvanthu***" and "***Vasudhaiva Kudumbakam***" be emphasized for the conservation of the entire ecosystem. Mishra (2019) critically examined the elementary teacher education curriculum, stressing the need for refresher and orientation courses for teacher educators to enhance their knowledge about Education for Sustainable Development (ESD).

Sharma (2018) and De (2018) studied the Secondary Teacher Education curricula with specific reference to NCTE Curriculum Framework-2014. De (2018) while comparing curricula of universities highlighted some novel practices based on local culture, like understanding the child through the lens of *GijuBhai*. De (2018) also mentions replicating the course on *Enhancing Proficiency–Understanding the self*- transacted in workshop mode by Guru Gobind Singh Indraprastha University in other Universities. Nagarathna (2018) found that there is a mismatch between the intended and implemented B.Ed. secondary education curriculum in internship in Karnataka and suggests closer monitoring of the same. This concurs with the findings of Das (2011), Atula (2016), and Moruskar (2004).

Case Study—The Schram Teachers' Academy for Research and Training START, Chennai

The Schram Teachers' Academy for Research and Training START is a faculty development programme in Chennai, Tamil Nadu. Teacher Educators from the Netherlands along with local resource persons actively take part in the workshops. The objective of the programme is ensuring that the teaching faculty on all its campuses updates their teaching skills using time-tested and workable methods in real-time classroom situations.

Upskilling—Digital Innovations in Teacher Education

Delivery of curriculum online and upskilling for a quick transition to digital technology is essential. Digital skills have become one of the most important factors for employability of a person in today's age. According to Hasselbring et al. (2000), schools will be equipped with the best hardware and software in the near future, but it is unlikely that teachers and students will use them effectively, if teachers

are not trained. White (2013) argues that new age teachers have to harness new skills and attitude needed for the digital age in addition to the traditional skills of delivering learning content. While the need for the learner's digital fluency is mentioned, the need for the trainers to be digitally fluent is equally important and relevant (Sharma, 2017; Krumsvik et al., 2011). Krumsvik et al. (2011) in their study in Norway with a sample size of 17,529 students and 2524 teachers reported a strong correlation between teachers' digital skills and the learning outcomes of students. Kay (2006) reviewed 68 refereed journals on integrating technology into pre-service education and inferred that there was a critical need to reflect on structuring the curriculum besides addressing the methodological concerns to enable better guidance of pre-service teachers in using technology. Examining the technological pedagogical content knowledge (TPACK) of pre-service teachers in Singapore, Koh et al. (2010) studied the profile of 1185 Singaporean pre-service teachers in terms of their technological pedagogical content knowledge (TPACK). Analysing the TPACK survey the pre-service was administered, five factors were extracted through factor analysis. There were significant differences gender-wise though age, and teaching level was not significant. The implications of this study may prove useful for replication in the Indian context.

Sharma (2017) in her study found technology as a useful tool for both pre-service and in-service teachers can successfully integrate technology in to their teaching using TPACK. Tripathi (2014) explored the factors that influence the status and scope of educational technology in Teacher Education Curriculum. The findings revealed that the status of educational technology (ET) in the B.Ed. program is lagging behind and needs to be addressed.

In Austria Prof. Barbara Sabitzer et al. at the Linz School of Education, Johannes Kepler University, have introduced the COOL Lab which is a meeting point for teaching, learning, research, and practice aspiring to enhance teaching at all levels. This project interlaces initial teacher education, in-service training, research, and teaching practice with school practice in primary and secondary education. Somewhat on these lines is ***The Connected Learning Initiative (clix.tiss.edu)*** programme under the aegis of Tata Institute of Social Sciences (TISS) and the Massachusetts Institute of Technology (MIT) aims at enhancing access to quality education states like Telangana, Chhattisgarh, Mizoram, and Rajasthan. Research emphasizes the need for teacher education institutions and universities for pre-service teachers to cope with the changing times, as this will stand them in good stead in real-time teaching situations (Hasselbring et al., 2000; Sharma, 2017; Tripathi, 2014).

Drexhage et al. (2016) in Germany studied the impact of the connected classroom using video conferencing technology to engage teacher trainees in school–university partnerships. They found that though the teacher trainees were positive in their assessment of technology and its usefulness in spite of facing technical issues.

Patel (2019) studied the effectiveness of classroom communication skill in English language programme for pre-service teachers using Google Classroom. He observed that though in the two-year B.Ed. course there is a paper on Language across the Curriculum there is no Spoken English communication as such in the classroom. He

infers that there is a need for classroom communication skill in English language for pre-service as well as in-service teacher education.

Singh (2019) in his investigation on the impact of digital literacy, inspirational leadership, and creative intelligence on the teaching competence of prospective teachers found that pre-service teachers highly competent in their teaching exhibited a better level of digital literacy, inspirational leadership, and creative intelligence.

A significant positive relationship was found among the variables—teaching competence, digital literacy, inspirational leadership, and creative intelligence of the pre-service teachers.

Ramakrishna (2017) in his study on teacher effectiveness with digital competence and other selected variables found that teachers with superior digital competence are more effective than those with lower levels of digital competence. He suggests provision of regular training in digital competence to school teachers by concerned authorities.

Shinde (2020) in her study of blended learning in the university campus with 20 teachers from different disciplines and more than 1000 students enrolled in the courses reported that results showed that teachers' and students' use of blended teaching–learning through Moodle had a positive impact on interactions between teachers and students and also on teachers' reflective practices.

School in the cloud project was launched with two schools in the Cloud Labs in UK and five in India with Microsoft as the lead technology partner based on Mitra's (2003) concept of hybridized flexible classrooms using the Internet to facilitate learning.

Stasinakis and Kalogiannakis (2017) in Greece analysed a Moodle-Based Training Program about the Pedagogical Content Knowledge of Evolution Theory and Natural Selection based on the TPACK model. The seminar involved 16 secondary school teachers whose individual PCK scores improved giving them the confidence to teach more effectively the scientific concepts chosen to their students. Post the training, the teachers were found to gradually change their teaching style to a more constructive and learner-centred one. Koh et al. (2010) findings on TPACK reiterate the above findings. These studies could be replicated in Moodle-based environments in Indian schools and colleges and inferences drawn in the local context.

Uppal (2019) investigated the effectiveness of massive open online course (MOOC) in training higher education teachers. The results of Uppal's study show that successful knowledge building for and by higher education teachers is possible through MOOCs. The results also indicate that perception of higher education teachers about digital fluency and opinion about the MOOC are positive, whereas their perception about community building through MOOCs is not significantly positive.

Case Study-St. Christopher's College of Education, Tamil Nadu

The COVID-19 pandemic has motivated many training colleges round the country to evolve and implement innovative measures to engage teacher

trainees fruitfully. A case to point is St. Christopher College of Education in Chennai, Tamil Nadu. Drawing on theoretical insights, trainee teachers were trained to develop lesson materials and ideas and discuss them with their faculty in the training college as well as their mentor teachers in the cooperating schools. Live streaming enabled the teacher educators to supervise the classes taken by the teacher–trainees in real time. The reflections of the students are in consonance with Drexhage et al (2016). Future research should include quantitative studies to expand the scope and efficacy of student attitude survey.

In-Service Teacher Training

The objective of in-service teacher training gives a new dimension in teaching and learning because the skills and roles required from teachers exceed the limits of their undergraduate studies.

Sahoo (2019) in his study in Cuttack district of Odisha with a sample of 10 secondary schools and 30 teachers found that teachers needed to upskill as often students had more knowledge of ICT than them. Besides, he inferred that teachers needed time to understand how to integrate ICT into the curriculum.

Kaladharan (2013) investigated the impact of in-service training in constructivist pedagogy on teacher competence in Sarva Shiksha Abhiyan (SSA), a Government of India initiative to enhance quality in primary education in Kerala. One of the major findings was that the training given by SSA to teachers was of the right duration besides enhancing their ability to handle language classes effectively using the constructivist paradigm. However, the findings of Suraksha Devi (2012) who carried out a study on SSA in-service training in Himachal Pradesh point to the need for better content delivery, less of lectures and more of other modes of transaction, upskilling of teachers on use of technology, as well as duration of courses of not more than ten days.

The findings from Rout's (2017) doctoral dissertation on the impact of in-service teacher training on teacher competency and classroom transaction on various dimensions of teaching effectiveness revealed improvement in their competencies in all aspects of teaching like content, presentation, and evaluation besides interactions with parents and community.

Nayak (2016) in the study on Teacher Preparation for L2 Teaching in the Two-Year Bachelor of Education Programme with a sample from Odhisa has suggested that there is a need for restructuring of the 2-year B.Ed. curriculum besides improvement in aspects like quality of content and delivery, updating of content knowledge, evaluation and feedback and classroom management skills of teacher educators.

Cooperative learning strategy for effective teaching to pre-service teachers formed the basis of a study done by Roy (2016). The findings indicate that though the teacher

educators acknowledged the benefits of cooperative learning they were not confident in using these techniques. Deepa and Sadananthan (2012) reported similar findings. Roy (2016) studying the effectiveness of the developed intervention programme based on cooperative learning–teaching techniques found that the achievement of the experimental group of pre-service teachers did significantly better than the control group. These findings concur with that of Badhe (2010) with D.Ed. pre-service teachers.

Bam (2006) in her experimental study on teacher trainees on promotion of creativity in teaching concluded that there was an urgent need to conduct refresher courses on creativity in teaching for teacher educators and teacher trainees which may help teacher trainees to be more open and less inhibitive.

Gender Sensitivity

The NEP2020 talks about gender equality in education. Strategies for implementation need to be in place for an equitable society for both boys and girls are required so that India becomes a society where men respect women and women have access to equal opportunities. Teacher education—both pre-service and in-service—needs to keep this in mind.

Joshi (2010) in her doctoral research on gender sensitizing of B.Ed. teacher trainees found that the B.Ed. course did not significantly promote gender sensitization. Joshi (2010) has suggested that teacher educators themselves need to be first sensitized through a series of short programmes and trained in techniques to better equip the teacher trainees in their colleges.

Inclusive Education

Inclusive education refers to students, with or without disabilities, learning together in an educational setting, with suitable support from all stakeholders. Inclusion has played a major role in developing and adopting appropriate strategies in the education of children with Special Educational Needs (SEN) both in India and in abroad. The World Conference on Special Needs in Education (2019) in Salamanca has set the foundation for understanding the importance of inclusion in education in most countries. The UNESCO, 2030 Agenda for Sustainable Development reinforces the promotion of inclusive education and opportunities of lifelong education for all. The MHRD in 2018–19 launched an overarching programme—Samagra Shiksha—catering to children from pre-school to Class 12 to improve school effectiveness besides giving equal opportunities to all under the Government of India schemes such as Sarva Shiksha Abhiyan.

Krishnaswamy and Shankar (2003) suggest that the use of differentiated instruction by the teacher using varying instructional strategies may facilitate better learning

in inclusive classrooms. Singhal (2007) studied the impact of inclusive education on marginalized community children with disabilities within the Indian context. Her analysis of various relevant government documents to better elucidate the national understanding of "inclusive education" as understood in various official documents led her to infer that there is an urgent need to develop a contextual understanding of inclusive education relevant to the Indian scenario (Julka, 2004; Kaul, 2015; Malhotra, 2003).Studying the teacher education curriculum of the District Institutes of Education and Training (DIETs) from the perspective of learners with Special Educational Needs (SEN), Julka (2004) emphasized the need to incorporate inclusive education, both theory and practice in teacher education programmes. This is reinforced in the findings of Kaul (2015) and Sokal and Sharma (2017).

A quasi-design experimental study to investigate the effect of inclusive education awareness programme was carried out by Pingle and Garg (2015). Two colleges offering D.T.Ed. (Diploma in Teacher Education) Course) were chosen for the study. A sample of 77 pre-service teachers in the experimental group and 53 in the control group were selected. The researchers found that the pre-service teachers were to a moderate extent more aware of inclusive education than the control group. Enhanced enthusiasm was perceived in the pre-service teachers in the experimental group when taken on a field trip to inclusive schools. Data analysis revealed that the selected variables like gender, socio-economic status, social intelligence, emotional intelligence, and treatment did not significantly interact with each other. The need for better methodologies for teaching in inclusive schools which have diverse learning environments is emphasized (Kumari, 2019; Krishnaswamy and Shankar, 2003; Julka, 2004; Pingle & Garg, 2015).

Malinen et al. (2013) carried out a comparative study of in-service teachers from diverse countries like China, Finland, and South Africa teaching in inclusive classrooms. Their inference was that the strongest predictor of self-efficacy was experience in teaching students with disabilities in all three countries. However, there were variations in the predictive power of other variables country-wise. Waitoller and Artiles (2013) in their critical review of Professional Development Research for Inclusive Education mention that most research for inclusive education utilized a unitary approach towards difference and exclusion and recommend using an intersectional approach instead. Revathi (2015) while studying the effect of collaborative learning on learning outcomes of students with special needs in inclusive schools found that collaborative learning can significantly contribute towards the national goal of inclusive growth and development. These findings indicate the need for India to develop strategies in tune with the culture, ethos, demographic variables, and diverse nature of the country (Malinen et al., 2013; Waitoller & Artiles, 2013; Revathi, 2015).

Sokal and Sharma (2017) studied the relationship between the attitudes, efficacy, and concerns about inclusion within three groups of teachers in Canada, pre-service teachers with limited exposure to inclusive education, and two groups of in-service teachers with differing experience in inclusive settings and coursework about inclusive education. The investigators found that there were significant differences within the three groups with respect to the variables of attitudes, concerns, and efficacy

for inclusive teaching. They also inferred the importance of experiences and course work for pre-service and in-service teachers.

Devi (2019) in her study comparing the pre-service and in-service teachers' attitude towards inclusive education found significant differences between the two groups on the variables—teaching efficacy, knowledge, and attitude. The sample consisted of 250 pre-service teachers from education colleges affiliated to Panjab University and in-service teachers from government schools of Punjab. She recommends including structured exposure to teaching in inclusive classrooms in pre-service education. This concurs with the findings of Andrews (2002) in her study on preparing pre-service teachers for inclusion by adapting instruction for included limited English proficient students with disabilities. Andrews (2002) inferred that the pre-service teachers were able to make appropriate adaptations in their teaching to deal with inclusion incorporating the feedback given.

Balasundaram (2011) in his investigation on attitude, role performance, and problems faced, while teaching children with special needs in inclusive schools in Tamil Nadu has recommended that inclusive education under SSA should be enriched to suit the students needs. He has also suggested that pre-service teacher education should include field experience under internship to inclusive schools to enable the teacher trainees to get hands-on awareness of skills required for teaching in inclusive schools. Kaul (2015) studied the status of inclusion of children with special needs at the Elementary School Level by collecting data principals, teachers, and students of thirty inclusive schools of Delhi and NCR. Using qualitative and quantitative analysis, Kaul (2015) inferred that there was a low level of awareness on most aspects of inclusion in school like legal provisions, policy guidelines, methodologies and evaluation procedures.

Sreeja (2017) in Kerala developed a teacher training module to study its efficacy in enhancing teaching skills of primary school teachers in an inclusive setting. Her study pointed to the need for enhancing teaching skills of primary school teachers to cater to the diverse learners in an inclusive setting. She also suggested intervention strategies to bring about attitudinal changes in primary school teachers handling *inclusive* classrooms. This is in agreement with the findings of Eduru Jane (2015) who found that adoption of a self-instructional package on inclusive education had a significant effect on knowledge and professional competence of the pre-service teachers.

Multilingualism and the Power of Language

Considering that multilingualism, digital learning, and Education for Sustainable Development have come to stay (Mishra, 2019; Ramakrishna, 2017; Ranjan, 2017; Shinde, 2020; Singh, 2019; Stephen, 2009)), it may be suggested that focusing on action research and practical solutions of local problems may be the way ahead to deal with moving towards NEP2020 vision. The findings of Ranjan (2017) and Velmurugan (2012) reinforce these findings with social imitatives being the trigger.

Case Study—Multilingual, Digital learning, and Environmental awareness-Proactive

> More important than the curriculum is the question of the methods of teaching and the spirit in which the teaching is given.
>
> **Bertrand Russell**

Ranjitsinh Disale has been awarded the Global Teacher Prize 2019 for his outstanding work with tribal girls in Maharashtra. He began his career in Paritewadi, Maharashtra, in 2009, an area with low school attendance. Finding that the curriculum was in Marathi, while the tribal girls' spoke Kannada, he learnt Kannada and translated the textbooks from Marathi to Kannada to enable the girls to learn. Besides he introduced digital learning tools and individualized programmes for each girl to facilitate learning. The system he devised of using QR coded textbooks is in use across India. Disale was instrumental in starting environmental projects in the drought-prone area. His project "Let's Cross the Borders" was a unique initiative connecting youth from India and Pakistan and other countries for promoting global harmony.

Sanskrit

Sanskrit is treated as a cultural language among the languages approved by Government of India. The NEP2020 envisages encouraging study of Sanskrit at all levels of schooling, including offering it as an option in the three language formula. This translates to the necessity to train Sanskrit teachers with sufficient knowledge of pedagogy and psychology, phonetics, and pronunciation. At present, there are two parallel systems of learning Sanskrit which are the traditional way of learning Sanskrit wherein students learn Sanskrit through Pathshalas and Sanskrit universities and the formal system of learning Sanskrit in schools, colleges, and universities as an optional language. Sanskrit is being taught from 1st std. to 12th std. as one of the optional languages in various states at different levels.

As part of the three language formula, most states offer Sanskrit as an optional subject for students from 6 to 10th standards. In the 11th and 12th standard, it is offered as a second optional language. In certain states, Sanskrit can be studied along with the mother tongue.

Kamalakar (2001) critically examined the problems of teaching Sanskrit in the secondary schools in Western Maharashtra. Among the several findings, the researcher lists lack of suitable textbooks with poorly framed syllabus, not enough importance being given to Sanskrit in the school timetable besides lack of trained teachers in Sanskrit methodology.

Case Study: Sardar Patel Vidyalaya, New Delhi

Sardar Patel Vidyalaya, a reputed school in New Delhi, is inspired by the ideals of Sardar Patel. The children in the primary sections are taught in Hindi with the simultaneous use of English terms. This helps the students to attain proficiency in English and Hindi. From 6th standard the medium of instruction is English. Every student must necessarily learn Hindi and Sanskrit till the 8th Standard. In the 9th standard, the student chooses either Hindi or Sanskrit. The students further have to opt for a fourth language from Tamil, Gujarati, Urdu or Bengali. Music plays an integral part of the teaching learning as the students learn to sing songs in different languages. Every student leaving the portals of this school is multilingual.

Ramakanti (2018) research points to the need for the development of competencies in the field of linguistic and cultural communication in pre-service education, including the use of effective methods and strategies promoting the acquisition of language, literacy, and content knowledge. Ramakanti(2018) further states that teacher trainees need to have an awareness of India's diverse society, the differences existing in terms of food, culture, customs, and beliefs.

A diagnostic study of the difficulties of secondary school pupils in learning ten major areas of grammar of Sanskrit was carried out by Sreemathi (2003) at the Sree Sankaracharya University of Sanskrit, Kalady. A stratified sample of 1050 pupils representing different zones, gender, localities, and managements was used for testing. The findings point to pupils not performing to the expected level in grammatical items. The researcher found that the content chosen, teaching learning process as well as the demographic background of the pupils were significant contributors to the poor performance of the pupils. However, Macwan (2014) tested investigator-developed learning task packages in Sanskrit for students of the sixth and seventh standards in Kheda district in Gujarat. The findings of the study though limited in demographic variables revealed an enhancement of curiosity and motivation in the students towards the learning of Sanskrit. There is a need to develop appropriate methodology for teaching Sanskrit keeping demographic variables in mind, besides choosing interesting content.

Quantitative and qualitative analysis of the data collected by Valand (2014) from a study for developing communicative competence in Sanskrit for pre-service teachers at secondary level indicated that the functional course was effective. The pre-service teachers of Sanskrit could achieve a reasonable level of performance in relation to the minimum level of performance expected for each competence.

To study the effectiveness of activity-based Sanskrit teaching for the students of standard VIII, Mehta (2019) designed a set of activities to improve Sanskrit communication and make it a more interesting experience for the students. Her findings indicate that group activities enhanced communication skills in Sanskrit and recitation of Sanskrit slokas and singing Sanskrit songs enhanced memorizing and retention

skills. Mehta's (2019) study is in agreement with Macwan (2014) on the need for activity-based Sanskrit teaching in preference to traditional modes of teaching.

The Sanskrit Club of the IIT Roorkee has approached teaching Sanskrit using a unique pedagogy with a scientific temperament. They have excellent general resources which teachers can use while teaching Sanskrit. The introduction of a 4-year integrated Sanskrit teacher education programme will be a welcome addition.

Happiness Curriculum

The quest for happiness is universal. The growing number of suicides and unrest among today's youth due to rapid and often disorienting socio-economic transformations indicates that India is sitting on a happiness crisis. India also has the highest rate of major depression in the world which reflects poorly on the mental health condition of its people. In the 2020 edition of the World Happiness Index Report released by the Sustainable Development Solutions Network, Finland has again been ranked the world's happiest country, extending its lead over Denmark and Switzerland. India is at 144th place out of the 153 countries examined. Those polled for the report pinpointed their impressions towards a variety of demographic factors affecting their social environments for happiness (Helliwell et al., 2020). The Nordic models of teacher education focus on methodologies for systematically building competency and enhancing human strengths of children from an early age.

Badri et al. (2018) report significant differences in happiness-related scores according to gender, age, nationality, type of school, as well as school location. The number of student suicides in India has risen drastically with the four states of Uttar Pradesh, Maharashtra, Tamil Nadu, and Madhya Pradesh accounting for 44% of the student suicide count in 2019. This indicates a systemic inability to equip youth with the tools necessary to cruise through life's challenges, both successes and failures.

Indian Perspectives of Happiness

The Vedas, the Upanishads, and the Bhagwad Gita provide insights on attaining happiness which is culturally relevant to Indians (Banavathy & Choudry, 2014; Bhawuk, 2011; Srivastava & Misra, 2011). The interdependent ideal of happiness becomes more evident in the following prayer:

Sarvebhavantusukhinaha,
Sarvesantuniramaya
Sarvebhadranipasyantu,
ma kaschiddukhabhagabhavet.
(May all be happy, may all be free from disease,

May all perceive good and may not suffer from sorrow).
(https://www.happinessstrategyfoundation.org/about)

Sustainable happiness, which has been emphasized in the United Nations resolution (2011), is defined as "happiness that contributes to individual, community and/or global well-being without exploiting other people, the environment or future generations" (O'Brien, 2010). By expressing gratitude or practicing kindness one can enhance one's happiness (Lyubomirsky & Layous, 2013; Pluskota, 2014;). Well-being has overlaps with several concepts like resilience, happiness (Diener, 1984; Peterson, 2007), emotional well-being (Peterson, 2007) quality of life and life satisfaction (Diener, 1984). Agarwal (2013) emphasizes the concept of conquering oneself which was propounded by Mahatma Gandhi by following the tenets of the Bhagvad Gita in the Dhyana Yoga which translates to (*To conquer oneself is to become one's own friend; but when one fails to do so, one becomes, as it were, one's own enemy*). This research points to the need for identifying the correlates of happiness, such as well-being and life satisfaction, concurring with the findings of Peterson (2007) and Diener (1984). The results of the study by Badri et al. (2018) on happiness of school children in Abu Dhabi using a structural equation model on data collected indicate that school-related variables along with family-oriented variables are significant predictors of happiness. There is a paucity of empirical studies in the field of happiness in the Indian education sector. The SCERT (2019) in Delhi began a study on the most favourable conditions to increase happiness and the positive activities which could enhance the correlates of happiness.

Happiness and Teacher Education

The NEP2020 conceptualizes twenty-first century schooling to empower students to be future global citizens who act locally. Studies carried out by Desai (2018), Cain and Carnellor (2008), and Palmer point to the need for holistic development of today's students—physically, socially, morally, intellectually as well as culturally. Research studies point to positive teacher attitudes and qualities like kindness, resilience as significant predictors of a happy school (Holder et al., 2012; Lee & Lee, 2014; Kim & Kim, 2014; Van Hal et al. 2017). Smitha (2015) examined certain psycho-social and academic correlates of happiness among teacher trainees at secondary level. Her findings indicate that personal resilience, time management, social competence, and academic motivation are significant predictors of personal happiness of pre-service teachers. The implications of these findings are the need for developing strategies for building resilience in the teacher education curriculum to train pre-service teachers and consequently the students they will be teaching to be resilient and consequently happier. Pre-service and to a certain extent in-service training need to keep this in mind during admission of teacher candidates and recruitment of teachers in schools. The concepts of positive psychology for inculcating happiness in students would require teachers to devise programmes emphasizing cooperative

rather than competitive learning with the to meet individual student goals (Noble & McGrath, 2015).

Case study-Happiness curriculum-Delhi Government

The Happiness Curriculum was launched by the Delhi government in 2018 along with inputs from Dream a Dream. Over 1000 government schools with children from kindergarten to standard 8 were involved in the Happiness Curriculum project. The objective of the Happiness Curriculum was the holistic development of all learners by helping them imbibe necessary skills enhancing their learning as well as life outcomes (SCERT Delhi, 2019). As all government schools in Delhi are using this curriculum, the question of control group and experimental group does not arise. Initial results point to the feasibility of developing a measure of happiness factors in the context of the Happiness Curriculum. This points to include a Happiness Curriculum in the teacher education programmes to train the pre-service teachers in creating stimulating environments for learners to imbibe the correlates of happiness leading to holistic development of the learner.

Lucknow University is set to start an "Education for Happiness" course as an optional for M.Ed. students, interdisciplinary in nature and open to all post-graduate students from academic year 2021. The course is to be based on Indian concepts of happiness. The Happiness Curriculum developed or to be designed by different universities and schools will be a work in progress. Self-evaluation and reflection by teachers and learners will help keep the curriculum relevant and will undoubtedly help in realizing a happy school for both teacher and taught. Teacher education can step in and help in developing curriculum suited to the needs of the schools. Emerging research in this field will reduce the stress students undergo in today's fast moving world.

Outlook: Cultural Awareness for the Next Generation—Indian Knowledge Systems

Indian Knowledge Systems (IKS) refers to all indigenous sources of knowledge developed within Indian societies, independent of, and prior to the advent of the modern scientific knowledge system such as Ayurveda. The differing methodologies and viewpoints between IKS and contemporary knowledge systems will require teacher trainees to integrate the two in their teaching in tune with the local cultures, experiences, practices, and ways of life. Drucker's (1994) concept of living simultaneously in global and local worlds requires clarity in addressing this educational paradox.

The Indian Institutes of Technology have set up centres for the study of IKS and culture. Moving laterally away from Western models of teaching–learning, and focusing inward, to local systems which have been prevalent from ancient times, the teacher trainees develop an awareness of the multi-dimensional nature of IKS and their importance in adapting them to contemporary society.

Studies from Australia and Africa indicate that indigenous studies teaching courses had positive implications for primary school teacher education programmes (Craven, 2005; McKnight, 2016; Tatira, 2000).

Ramakanti (2018) emphasized the need to prepare pre-service teachers with a global perspective interlocked with reflections on one's own culture and its place in one's daily life, enabling the development of multicultural competencies. Menon (2018) investigated teaching methodology of Vedantic teachers based on holistic learning to promote individualized differentiated instruction in students. Ramavtar (2018) investigated indigenous and Western content with cultural views at secondary level.

Table 25.2 summarises the findings in research in teacher education in the Indian context along with the current activities going on, not necessarily empirical research.

Conclusion

There is a paucity of Indian studies in teacher education, both pre-service and in-service in the teaching of IKS in schools and colleges and its evaluation. The emphasis on Indian Knowledge Systems in NEP2020 portends to the introduction of appropriate content, methodology, and evaluation in teacher education in the near future. Balancing the occidental legacy of education with the local cultural values is a challenge to providing quality education. The pandemic has emphasized the need for a digital edge in teacher education. This implies both pre-service and in-service education will be through learning from multiple platforms in the future. There is a need for upgrading and upskilling not only in digital technology but also in use of techniques such as cooperation and collaboration in the classrooms. Pedagogy is going through a transition, and teacher education should ensure that Indian teachers can meet the global challenges while being still rooted in Indian culture.

Table 25.2 Summary of relevant studies and steps taken towards attaining quality education

Parameter	Researcher	Key findings/recommendations	Action research/projects Ongoing
Teacher Education Curriculum			
	• Chennat (2014) • Barbara Sabitzer et al.(2019) at the Linz School of Education, Austria • Sharma (2018) • De (2018) • Stephen (2009)-Moruskar (2004) • Nayak (2016) • Atula (2016)	• Adoption of Finnish Teacher Education Model • COOL Lab Teaching based on local culture • Introduction of new courses like Education for Sustainable Development • Frequent evaluation of curriculum needed	• The Connected Learning Initiative of TISS clix.tiss.ed • Eklavya teaching based on local culture-Hoshangabad Science Teaching Programme • Introduction of 4-year B.Ed. Integrated courses-Chinmaya Vishwavishyapeeth, Kerala • NEP2020 will chart out course to be followed 2021
Upskilling in Teacher Education			
Pre-service	• Tripathi (2014) • Patel (2019) • Sharma (2017) • Uppal (2019) • Singh (2019)	• Digital competence enhances student–teacher competencies	• St. Christopher's College of Education, Chennai • The Schram Teachers' Academy for Research and Training START, Chennai • Clix.tiss.edu, an imitative of Tata Institute of Social Sciences
In-service	• Mishra (2019) • Ramakrishna (2017) • Sahoo (2019)	• Better digital competence enhances teacher effectiveness	• Orientation and refresher courses conducted across the country for digital competence due to COVID-19 pandemic through MOOC
Inclusion			

(continued)

Table 25.2 (continued)

Parameter	Researcher	Key findings/recommendations	Action research/projects Ongoing
	Julka (2004) Kaul (2015) Sokal and Sharma (2017) Kumari Usha (2019) Pingle and Garg (2015) Sreeja(2017)	• Need to incorporate theory and practical aspects of inclusion in pre-service education • Better teaching methodologies needed • Attitudinal change using intervention strategies for primary school teaches	• Has been introduced in a few universities as an elective/optional subject
Sanskrit			
	• Kamalakar (2001) • Macwan (2014) • Mehta (2019)	• Lack of trained Sanskrit teachers to suit the school environment • Sanskrit is not given enough importance in the timetable • Need to develop appropriate methodology for teaching Sanskrit	• Introduction of 4-year integrated B.A. B.Ed. Sanskrit courses • IIT Roorkee, IIT Gandhinagar, IIT Mumbai have made great strides in developing Sanskrit programmes • Vyoma Labs from Bengaluru has many short-term courses to teach basic and a https://www.sanskritfromhome.in/dvancedSakskrit Sanskrit Bharati is doing a worldwide campaign of Sanskrit propagation • IIT Roorkee hosts Sanskrit Club at https://www.iitr.ac.in/sanskritclub/subhashitam.html
Happiness			

(continued)

References

Agrawal, I. (2013). *What makes people happy: A spiritual perspective*. Doctoral thesis. University of Allahabad. Shodhganga. http://hdl.handle.net/10603/124603

Andrews, L. (2002). Preparing general education pre-service teachers for inclusion: Web-enhanced case-based instruction. *Journal of Special Education Technology, 17*(3), 27–35.

Atula, J. (2016). *Teacher education programmes in Himachal Pradesh An evaluation study*. Doctoral thesis. Himachal Pradesh University. Shodhganga. http://hdl.handle.net/10603/202005

Badhe, S. R. (2010, April). Teaching 'image formation' through cooperative learning method. *Edutracks*, *9(8)*, 33–35.

Table 25.2 (continued)

Parameter	Researcher	Key findings/recommendations	Action research/projects Ongoing
	• Helliwell et al. (2020) • SCERT (2019)	• India is at 144th rank of 153 countries examined • Need for trained teachers to empower students to face the future	• Happiness Curriculum followed in all Delhi Government schools • University of Lucknow to start an "Education for Happiness" course as an optional for M.Ed. students • Projects like Dream-a-dream- https://dreamadream.org/ which works with students, trains teachers and encourages volunteering
Indian Knowledge Systems			
Indian Knowledge Systems	• Ramakanti (2018) • Menon (2018) • Ramavtar (2018)	• Need to prepare pre-service teachers with a multicultural outlook • Paucity of research on teaching methodology	• IIT Kanpur maintains this site for information on IKS. https://www.gitasupersite.iitk.ac.in/. This has many Sanskrit texts of IKS with commentaries and translations in English and Hindi • Sringeri Math has its homepage named advaitasharada.sringeri.net

Badri, M., Al Nuaimi, A., Gudang, Y., et al. (2018). The effects of home and school on children's happiness: A structural equation model. *ICEP, 12*, 17 (2018). https://doi.org/10.1186/s40723-018-0056-z

Balasundaram, A. (2011). *Attitude, role performance and problems faced by teachers teaching children with special needs in inclusive schools*. Doctoral thesis. Periyar University. Shodhganga. http://hdl.handle.net/10603/17432

Bam, R.Y. (2006). *An experimental study of student teachers from University of Pune for improving their creativity in teaching*. Doctoral thesis. University of Pune. Shodhganga. http://hdl.handle.net/10603/9087

Banavathy, V. K., & Choudry, A. (2014). Understanding happiness: A Vedantic perspective. *Psychological Studies*. https://doi.org/10.1007/s12646-013-0230-x

Bhawuk, D. P. S. (2011) *Spirituality and Indian psychology-lessons from the Bhagavat Gita*. International and Cultural Psychology. Springer. https://doi.org/10.1007/978-1-4419-8110-3; ISBN: 978-1-4419-8109-7.

Borja, M. B., Ompoc, A. B., Temblor, K. S. & Torello, N. C. (2019). The challenges among pre-service elementary teachers. *SMCC Higher Education Research Journal (Teacher Education Journal), 1*(1). Retrieved from http://ejournals.ph/form/cite.php?id=14387

Britzman, D. (1991). *Practice makes perfect: A critical study of learning to teach*. State University Press.

Cain, G., & Carnellor, Y. (2008). "Roots of Empathy": A research study on its impact on teachers in Western Australia. *The Journal of Student Wellbeing*. https://doi.org/10.21913/JSW.v2i1.168

Chennat, S. (2014). Internship in pre-service teacher education programme: A global perspective. *International Journal of Research in Applied Natural and Social Sciences, 2*(11), 79–94.

Craven, R. (2005). Turning points in indigenous education: New findings that can really make a difference and implications for the next generation of indigenous education research. *Australian Association for Research in Education 2005 Conference Papers.*

Das, S. C. (2011). *An investigation into the pre service training programme conducted by the District institutes of education and training of Orissa.* Doctoral thesis. Utkal University. Shodhganga. http://hdl.handle.net/10603/281590

De, K. (2018). *Relevance of the teachers training curriculum in present scenario.* Doctoral thesis. Jharkhnad Rai University. Shodhganga. http://hdl.handle.net/10603/298542

Desai, M. (2018). Module 7 psychosocial theories of child development. In: *Introduction to rights-based direct practice with children* (pp. 183–214). Springer, Singapore.

Deepa, R. P., &. Sadananthan. M. (2012, May). Attitude of Secondary School Teachers Towards Cooperative Learning. *Edu Tracks, 11*(9), 34–36.

Devi, S. (2012). *Impact of inservice teacher training programme under SSA on curriculum transaction in Himachal Pradesh.* Doctoral thesis. Himachal Pradesh University. Shodhganga. http://hdl.handle.net/10603/127916

Diener, Ed. (1984). Subjective well-being. *Psychological Bulletin, 95*(*3*), 542–575.

Devi, P. (2019). *Teaching efficacy knowledge and attitude of pre service and in service teachers towards inclusive education.* Doctoral thesis. Panjab University. Shodhganga. http://hdl.handle.net/10603/293509

Drexhage, J., Leiss, D., Schmidt, T., & Ehmke, T. (2016). The connected classroom—Using video conferencing technology to enhance teacher training. *Reflecting Education, 10*(1), 70–88.

Drucker, P. (1994, November). The age of social transformation. *The Atlantic Monthly* (pp. 53–80).

Eduru, J. S. P. (2015). *Effectiveness of professional competency building Self instructional package in learning inclusive education concepts by the B Ed teacher trainees.* Doctoral thesis. Alagappa University. Shodhganga. http://hdl.handle.net/10603/149612

Gallardo-Williams, M., & Petrovich, L. (2017). An integrated approach to training graduate teaching assistants. *Journal of College Science Teaching, 47*(1), 43–47. Retrieved December 14, 2020, from http://www.jstor.org/stable/44580873

Government of India. *NPE2020.*Final National Education Policy 2020 (PDF) (Report). Ministry of Human Resource Development.

Government of India. *NEP1986*. National Education Policy Ministry of Human Resource Development.

Hasselbring, T. S., Glaser, L., Barron, C. W., Risko, L., Snyder, V. J., Rakestraw, J., & Campbell, M. (2000). *Literature review: Technology to support teacher development*. National Partnership for Excellence and Accountability in Teaching, Washington, DC. Retrieved from http://eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/16/b7/58.pdf

Holder, M. D., Coleman, B., & Singh, K. (2012). Temperament and happiness in children in India. *Journal of Happiness Studies, 13*, 261–274.

Joshi, V. (2010). *Study of the effectiveness of B_Ed_Course in sensitization of B_Ed students about the Gender Discrimination during the course of B_Ed.* Doctoral thesis. University of Mumbai. Shodhganga. http://hdl.handle.net/10603/260119

Julka, A. (2004). *Strengthening teacher education curriculum from the perspective of children with special educational needs. Unpublished Report*. NCERT.

Kaladharan, T. P. (2013). *Impact of teacher training in constructivist pedagogy on teacher competence and learners proficiency in Malayalam under Sarva Shiksha Abhiyan.* Doctoral thesis. University of Madras. Shodhganga. http://hdl.handle.net/10603/200123

Kamalakar, K. H. (2001). *A critical study of the problems of teaching of Sanskrit in the secondary schools in Western Maharashtra.* Doctoral thesis. Savitribai Phule Pune University. Shodhganga. http://hdl.handle.net/10603/145738

Kantharaj, H. M. (2010). Development and validation of competency based teaching programme in enhancing teaching competencies of secondary student teachers in the context of globalization. Doctoral thesis. Kuvempu University. Shodhganga. http://hdl.handle.net/10603/84270

Kaul, P. (2015). *A study of status of inclusion of children with special needs at the elementary school level.* Doctoral thesis. Amity Institute of Education. Shodhganga. http://hdl.handle.net/10603/188404

Kay, R. H. (2006). Evaluating strategies used to incorporate technology into pre-service education: A review of the literature. *Journal of Research on Technology in Education and Information Technologies, 38*(4), 383–408.

Kim, J., & Kim, H. (2014). Effects of teacher perceived student-teacher relationship and changes in student perceived student-teacher relationships on academic achievement mediated by school happiness and classroom engagement. *Korean Journal of Youth Studies*, *21*, 285–315.

Koh, J. H. L., Chai, C. S., & Tsai, C. C. (2010). Examining the technological pedagogical content knowledge of Singapore pre-service teachers with a large-scale survey. 7 September 2010. https://doi.org/10.1111/j.1365-2729.2010.00372.x

Krishnaswamy & Shankar. (2003). *Integration & inclusion—How are they different?* Paper presented in the National Seminar on Inclusive Education Practices in Schools, NCERT.

Krumsvik, R. J. (2011). Digital competence in Norwegian teacher education and schools. *Högreutbildning, 1*(1), 39–51.

Kumari, U. (2019). *The challenges faced by the stakeholders in implementing inclusion in teacher education.* Doctoral thesis. Institute of Advanced Studies in Education. Shodhganga. http://hdl.handle.net/10603/290688

Lee, H., & Lee, J. (2014). Effects of teacher's attachment perceived children to school happiness of children: The mediated effects of learning flow and peer competence. *Youth Facility and Environment*, *12*, 81–91.

Lyubomirsky, S., & Layous, K. (2013). How do simple positive activities increase well-being? *Current Directions in Psychological Science*, *22*(1), 57–62. http://cdps.sagepub.com; https://doi.org/10.1177/0963721412469809

Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology, 9*(2), 111–131.

Macwan, P. P. (2014). *Preparation and try out of the learning task packages in Sanskrit for students of the sixth and seventh standards.* Doctoral thesis. Sardar Patel University. Shodhganga. http://hdl.handle.net/10603/43331

Malhotra, S. (2003). *Management of Attitudinal Barriers at different levels of inclusive education implementation.* Paper presented in the National Seminar on Innovative Approaches to Education and Empowerment of the Disabled. NCERT.

Malinen, O. -P., Savolainen, H., Engelbrecht, P., Xu, J., Nel, M., Nel N., & Tlale D. (2013). Exploring teacher self-efficacy for inclusive practices in three diverse countries. *Teaching and Teacher Education*, *33*(July), 34–44 G.

McKnight, A. (2016). Preservice teachers' learning with Yuin Country: Becoming respectful teachers in Aboriginal education. *Asia-Pacific Journal of Teacher Education*, *44*(2), 110–124.

Mehta, A. C. (2019). *A study of effectiveness of activity based Sanskrit teaching for the students of standard VIII.* Doctoral thesis. Sardar Patel University. Shodhganga. http://hdl.handle.net/10603/251194

Menon, K. M. (2018). *Technique of inculcating Vedantic methodology in current system of education.* Doctoral thesis. SreeSankaracharya University of Sanskrit. Shodhganga. http://hdl.handle.net/10603/291670

Mishra, J. (2019). *A study of elementary teacher education curriculum in the light of education for sustainable development*. Doctoral thesis. Mohan Lal Sukhadia University. Shodhganga. http://hdl.handle.net/10603/306360

Mishra, L., Gupta, T., & Shree, A. (2020). Research-based teacher education from stake holders point: A case study. *Universal Journal of Educational Research*, *8*(9), 3895–3901. https://doi.org/10.13189/ujer.2020.080913

Mitra, S. (2003). Minimally invasive education: A progress report on the 'Hole-in-the-wall' experiments. *The British Journal of Educational Technology, 34*(3), 367–371.

Moruskar, D. S. (2004). *A comparative study of the teachers trained through four-year integrated course and one year course in secondary teacher education in respect of teacher competency and teaching effectiveness.* Doctoral thesis. Shivaji University. Shodhganga. http://hdl.handle.net/10603/140149

Nagarathna, S. (2018). *A study of the intended and implemented curriculum of internship at secondary teacher education in Karnataka.* Doctoral thesis. University of Mysore. Shodhganga. http://hdl.handle.net/10603/250076

Nayak, G. C. (2016). *Teacher preparation for L2 teaching in the two year bachelor of education programme.* Doctoral thesis. The English and Foreign Languages University, Hyderabad. Shodhganga. http://hdl.handle.net/10603/219820

NCTE (National Council of Teacher Education). (2014). *Curriculum framework: Two-Year B.Ed. Programme*. New Delhi.

NCTE (National Council of Teacher Education). (2009). *National curriculum framework for teacher education towards preparing professional and humane teacher*. New Delhi.

NCTE (National Council of Teacher Education). (2002). *ICT initiatives of the NCTE* Discussion Document. National Council for Teacher Education.

Noble, T., & McGrath, H. (2015). PROSPER: A new framework for positive education. *Psych Well-Being, 5*(2). https://doi.org/10.1186/s13612-015-0030-2

O'Brien, C. (2010). Sustainability, happiness and education. *Journal of Sustainability Education.* Retrieved from: www.jsedimensions.org/wordpress/content/2010/04/

O'Brien, C. (2013). Happiness and sustainability together at last! sustainable happiness. *Canadian Journal of Education*, *36*(4), 228–256. https://eric.ed.gov/?id=EJ1057939

Ortlieb, E. (2013). Enrich practicum to cultivate effective teachers. *International Journal of Education, 5*(1). https://doi.org/10.5296/ije.v5i1.2361

Patel, K. V. (2019). *Effectiveness of classroom communication skill in English language programme for pre service teacher through Google class.* Doctoral thesis. Veer Narmad South Gujarat University. Shodhganga. http://hdl.handle.net/10603/272365

Peterson, C., Ruch, W., Beermann, U., Park, N., & Seligman, M. E. P. (2007). Strengths of character, orientations to happiness, and life satisfaction. *The Journal of Positive Psychology., 2*(3), 149–156. https://doi.org/10.1080/17439760701228938

Pingle, S., & Garg, I. (2015). *Development of inclusive education programme and its effect on awareness of and attitude towards inclusive education among student-teachers at D.Ed. level.* Presented at Conference: "Education, Power and Empowerment: Changing and Challenging Communities" at Brighton UK.

Pluskota, A. (2014). The application of positive psychology in the practice of education. *SpringerPlus, 3*(1), 147. https://doi.org/10.1186/2193-1801-3-147

Ramakanti. (2018). *Preparing teachers with global perspective a study in Indian context*. Doctoral thesis. University of Lucknow. Shodhganga. http://hdl.handle.net/10603/245355

Ramakrishna. (2017). *Teacher effectiveness in relation to self- esteem, job satisfaction and digital competence.* Doctoral thesis. Panjab University. Shodhganga. http://hdl.handle.net/10603/217571

Ramavtar. (2018). *A study of indigenous and western content with cultural views at secondary level.* Doctoral thesis. Institute of Advanced Studies in Education (IASE). Shodhganga. http://hdl.handle.net/10603/290669

Ranjan, R. (2017). *Self-initiated teacher innovations in government rural elementary schools: Evolution, impact, and Sustainability*. Thesis submitted for Fellow Programme of IIM, Ahmedabad.

Revathi, D. (2015). *Effect of collaborative learning on learning outcomes of students with special needs in inclusive school*. Doctoral thesis. Avinashilingam Deemed University For Women. Shodganga. http://hdl.handle.net/10603/127287

Røkenes, F. M., & Krumsvik, R. J. (2014). Development of student teachers' digital competence in teacher education: A literature review. *Nordic Journal of Digital Literacy*, *9*(4)-2014 s, 250–280 ISSN Online: 1891-943X

Rout, J. (2017). *Impact of teacher training on teacher competency and classroom transaction.* Doctoral thesis. Sambalpur University. Shodganga. http://hdl.handle.net/10603/284194

Roy, S. S. (2016). *Cooperative learning strategy for effective teaching to pre service teachers.* Doctoral thesis. SavitribaiPhule Pune University. Shodhganga. http://hdl.handle.net/10603/203953

Sabitzer, B., Demarle-Meusel, H., & Painer, C. (2019). A COOL lab for teacher education. In M. Kowalczuk-Walêdziak, A. Korzeniecka-Bondar, W. Danilewicz, & G. Lauwers (Eds.), *Rethinking teacher education for the 21st century: Trends, challenges and new directions* (pp. 319–328). Verlag Barbara Budrich. https://doi.org/10.2307/j.ctvpb3xhh

Sahoo, R. K. (2019). Exploring the changes in teaching strategies enabled by information and communication technology. October 2019. *International Journal of Theory and Application in Elementary and Secondary School Education, 1*(2), 66–80. https://doi.org/10.31098/ijtaese.v1i2.34

Sharma, L. (2017). *Effectiveness of an ICT programme on technological pedagogical and content knowledge TPACK teacher self-efficacy and teaching effectiveness among preservice teacher educators*. Doctoral thesis. Maharshi Dayanand University. Shodganga. http://hdl.handle.net/10603/207048

Sharma, S. (2018). *A critical appraisal of secondary teacher Education curricula with specific reference to NCTE curriculum frame work 2014*. Doctoral thesis. Maharshi Dayanand University. Shodhganga. http://hdl.handle.net/10603/298542

Shinde, J. (2020). Faculty experiences of delivering blended learning courses. In S. Mishra & S. Panda (Eds.), *Technology enabled learning: Policy, pedagogy, and practice* (pp. 71–84). The Commonwealth of Learning.

Singh, A. (2018). *A comparative study of secondary teacher education programmes.* Doctoral thesis. Maharaja Sayajirao University of Baroda. Shodhganga. http://hdl.handle.net/10603/223482

Singh, M. (2019). *Teaching competence of prospective teachers in relation to their digital literacy inspirational leadership and creative intelligence.* Doctoral thesis. Panjab University. Shodhganga. http://hdl.handle.net/10603/304098

Singhal, N. (2007). Mapping the field of inclusive education: A review of the Indian literature. *International Journal of Inclusive Education, 9*(4), 331–350. https://doi.org/10.1080/13603110500138277

Smitha, P. S. (2015). *A study of certain psycho social and academic correlates of happiness among teacher educands at secondary level*. Doctoral thesis. Mahatma Gandhi University. Shodhganga. http://hdl.handle.net/10603/212959

Sokal, L., & Sharma, U. (2017). Do I really need a course to learn to teach students with disabilities? I've been doing it for years. *Canadian Journal of Education, 40*, 739–760.

Sreeja, S. (2017). *Efficacy of a teacher training module in enhancing teaching skills of primary school teachers in an inclusive setting*. Doctoral thesis. Mahatma Gandhi University. Shodhganga. http://hdl.handle.net/10603/229967

Sreemathi, K. T. (2003). *A diagnostic study of the difficulties of secondary school pupils in learning Sanskrit*. Doctoral thesis. Sree Sankaracharya University of Sanskrit. Shodhganga. http://hdl.handle.net/10603/135908

Srivastava, A. K., & Misra, G. (2011). Cultural perspectives on nature and experience of happiness. In A. K. Dalal, & G. Misra (Eds.), *New directions in health psychology*. SAGE Publications India Pvt Ltd.

Stasinakis, P., & Kalogiannakis, M. (2017). Analysis of a moodle-based training program about the pedagogical content knowledge of evolution theory and natural selection. *World Journal of Education, 7*(1), 14–32. https://doi.org/10.5430/wje.v7n1p14

SCERT. (2019). *Happiness curriculum.* State Council of Educational Research and Training, New Delhi. Ghaziabad: Educational Stores. ISBN: 978-93-85943-72-0 © SCERT, Delhi.

Stephen, T. A. (2009). *A study of the concepts on sustainable development in the curriculum of teacher education at the secondary school level in Kerala.* Doctoral thesis. University of Calicut. Shodhganga. http://hdl.handle.net/10603/218983

Tripathi, A. P. (2014). *Status and scope of educational Technology in teacher education Curriculum an exploratory stud*y. Doctoral thesis. Jamia Milia Islamia University. Shodhganga. http://hdl.handle.net/10603/287405

UNESCO. (2002). *Information and communication technologies in teacher education: A planning guide.* UNESCO.

UNESCO 2019. World conference on special needs in education. Discussion paper. https://en.unesco.org/sites/default/files/2019-forum-inclusion-discussion-paper-en.pdf

UNESCO 2030 Agenda for sustainable development https://en.unesco.org/sustainabledevelopmentgoals

Uppal, R. (2019). *Effectiveness of massive open online course in training higher education teachers.* Doctoral thesis. SNDT Women's University. Shodhganga. http://hdl.handle.net/10603/259957

Valand, R. S. (2014). *A functional course for developing communicative competence in Sanskrit for pre service teachers at secondary level.* Doctoral thesis. Sardar Patel University. Shodhganga. http://hdl.handle.net/10603/34785

Van Hal, G., Bruggeman, B., & Bruggeman, H. (2017). Happy teachers and happy school children: Going hand in hand. *European Journal of Public Health*, *27*, (supplement 3).

Velmurugan, P. (2012). Influence of multiple intelligence and creativity on teaching competency of bed trainees. Bharathidasan University. Shodhganga. http://hdl.handle.net/10603/210755

Waitoller, F., & Artiles, A. (2013). A decade of professional development research for inclusive education: A critical review and notes for a research program. *Review of Educational Research, 83*(3), 319–356. Retrieved December 11, 2020, from http://www.jstor.org/stable/24434162

White, G. K. (2013). *Digital fluency skills necessary for learning in the digital age.* https://research.acer.edu.au/digital_learning/6

World Happiness Report 2020. Helliwell, J. et al. *Sustainable development solutions network Finland*. https://happinessreport.s3.amazonaws.com/2020/WHR20.pdf. Retrieved online on January 4, 2021.

Chapter 26
Government Primary School Teachers' Remote Teaching Experience in Bangladesh: Challenges and Opportunities

Manjuma Akhtar Mousumi

Abstract This paper describes government primary school teachers experience with regard to transition from face-to-face teaching to remote teaching. In doing so, nine teachers from eight schools in Bangladesh participated in this study. Semi-structured interviews were used to collect data. The study found that shifting to remote teaching had been a daunting task for the teachers as they did not have necessary technical and pedagogical skills. However, the results also indicate the pandemic pushed the teachers to explore available learning resources and increased engagement with children and parents through bottom-up initiatives. The implication of this study for preparing teachers for remote teaching is discussed.

Keywords Remote teaching–learning · Teacher readiness · COVID-19 · School closure · Bangladesh

Introduction

Worldwide there are at the present time more than 1.5 billion children affected by school shutdown due to the COVID-19 pandemic, and this has caused interruption of education systems globally (UNESCO, 2020b). In Bangladesh, with the virus spreading, the government has posed lockdown restrictions which resulted in closing down all the schools and educational institutions from 17 March 2020 and remains closed for an uncertain period (at the time of writing, closure of educational institutions extended till 22 May 2021). As a result of school closures, alternative ways of teaching and learning needed to be considered overnight. An estimated 63 million primary and secondary teachers were affected by school shutdown. In many countries, teachers were not prepared to arrange, deliver, and assess distance learning. They were without digital skills and readiness for employing distance learning pedagogies (UNESCO, 2020a). The sudden, unforeseen and "forced" transition from face to face to remote teaching has prompted a number of challenges and impediments but

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also opportunities (Carrillo & Flores, 2020). Against these background, the present study reports about the government primary schools' teachers' adaptations to online teaching, their readiness, experience to the new mode of delivery, challenges, and opportunities associated to it.

Bangladesh has made remarkable accomplishments in terms of access to all levels of education, gender gap has been eliminated in primary and secondary education, despite these notable achievements and commitments, progress in quality and equity has endured (Mousumi & Kusakabe, 2020). Providing quality education is one of the most pivotal setback for children in primary schools—leading to low-learning outcomes and eventually, dropouts (UNICEF, 2018). "Under qualified teachers, inadequate infrastructure, poor nutrition and food security all affect learning. Many schools are overcrowded, and over 80 per cent run double shifts. Teacher supervision, monitoring and accountability lack strength" (UNICEF, 2018, para 3) in the schools. The widespread impact of COVID-19 now not only has amplified the existing issues but an added challenge such as remote teaching–learning has emerged.

"A major obstacle to achieving quality with equity in the education system is the professional and personal capabilities and attributes of teachers" Global Partnership for Education [GPE] (2020, p. 14). Teachers in the primary and secondary schools usually adopt traditional teaching–learning method where the teachers control the classroom and there is little room for innovative practices. Thornton (2006) notes teachers own experience of school education is as recipient of transmission mode of teaching which stresses the learning of facts rather than engaging in cognitive thinking. With these accounts of teachers' background in Bangladesh, it is not hard to imagine how teachers might have stumbled with the sudden "forced" remote teaching and the shift in delivery of lessons which requires to use an array of technological tools and bring changes to the pedagogical practices.

Traditional learning has always been challenged and criticized. However, COVID-19 has also prompted new examples of educational innovation using digital interventions (Cutri et al., 2020; Darling-Hammond & Hyler, 2020; Leacock & Warrican, 2020; Zhao, 2020). Cutri et al. (2020) findings show the concept of online readiness has collapsed into "forced readiness". (Leacock & Warrican, 2020) wrotes "readiness can be promoted through the sharing of information, listening to the implementer of the change, providing training, and giving the assurance of support and guidance" (p. 579). They further note "many of the teachers seem to have bought into the notion that students are super-competent with technology and they are reluctant to appear to be less competent than their charges. The crisis has forced teachers to face their fears and accept, even if not eagerly embrace, the use of technology as a tool for teaching and learning" (p. 583).

Based on the descriptions above, this study mainly focuses on investigating how teachers transitioned to remote teaching; their readiness; experience with online teaching and highlight the challenges they currently face during the COVID-19 crisis in Bangladesh. Furthermore, this study will also highlight teachers' own initiatives taken for creating learning spaces and continue learning support for students during the ongoing emergency period.

The School Education System

Differences in socio-economic status, power structure, and political dynamics have resulted in the development and coexistence of three parallel education streams such as the general education (uses Bangla as a medium of instruction), the English-medium schools and madrasa. These schools cater to the lower-middle class, middle class to affluent class, and the lower-income households, respectively (Ahmed, 2016). The school education system in Bangladesh consists of three phases; primary schools, secondary and higher secondary. Primary education consists of Grades 1–5 for children aged 6–10 years. Secondary education consists of Grades 6–12 and covers children aged 11–17 years. The sub-stages of secondary education are divided as 3 + 2 + 2 format, beginning with junior secondary from grades 6–8, secondary stage from grades 9–10 and higher secondary stage or colleges that consist of grades 11–12.

The primary education system in Bangladesh is large. Government is the main provider of primary education in Bangladesh. Government primary schools are state financed and managed by local School Management Committee (SMC). There are 25 types of primary schools including government schools, registered non-government primary schools (RNGPS) [these schools were brought under government management in 2013], *ebtidayee* madrasa, NGO operated non-formal schools, etc. Secondary education is not compulsory in Bangladesh. The share of government schools is scanty at the secondary level. Majority (92.54%) of the secondary schools are privately managed and 7.46% are government managed (BANBEIS, 2016).

The Ministry of Education (*MoE*) and Ministry of Primary and Mass Education (MoPME) are responsible for administration of education system. The Directorate of Primary Education (DPE) oversees primary education. MoPME has the responsibility of pre-primary to grade five education, while MoE manages education for grades 6–12.

Teacher Training Programme in Bangladesh

In Bangladesh, pre-service teacher education program is unavailable and not mandatory. Anyone with a bachelor's or a master's degree (until 2018 a female candidate with Higher Secondary Certificate [HSC] could apply for the post) can apply for a teaching post for government primary schools. Teachers receive in-service trainings—Diploma in Primary Education (DPEd), Subject-based, Sub-Cluster, ICT, need-based training (Marking Scheme,[1] Inclusive Education), etc. The DPEd training is an 18 months long training programme which focuses on both theoretical (12

[1] In the primary level, upon completion of grade 5, students appear for the Primary Examination Completion Education (PECE) which is more commonly called as Primary School Certificate (PSC) *or Prathomic Samapani Parrikhsha.* Teachers who have more than 5 years of teaching experience are provided with training on assessment for the PSC scripts.

courses) and teaching practicum (two school placement courses) organized by the Primary Teachers Training Institutes (PTI). Upazila Resource Centre (URC) facilitates trainings such as subject-based, foundation training, etc. The Sub-Cluster Training is a bimonthly, one day or six days of in-service training a year to all the teachers and headteachers. A regular meeting with teachers from a cluster of neighbouring schools on a specific theme is considered important for improving school and student performance. The sub-cluster training is arranged by Upazila Education Office (UEO). In addition to these, DPE organizes a 12 days ICT training at PTIs. The ICT training mainly includes how content can be delivered through using a PowerPoint, opening of email accounts, how to use Google Drive, uploading and downloading materials from teachers' portal. Teachers below 40 years are eligible for getting an ICT training; however, teachers above 40+ also receive this training.

The Educational Response to COVID-19 in Bangladesh

As opposed to many developed countries, most children in Bangladesh do not have access to the Internet. As a result, the initial education response focused on delivering classes on TV, as households have access to television sets mainly (UNICEF, 2020). However, below 40% of students were able to access the educational television channel—a key means of distant education delivery in Bangladesh (Fitzpatrick et al., 2020). Both synchronous and asynchronous modes of instruction have been adopted for delivering lessons. Synchronous online teaching involves real-time live classes which were usually conducted through Facebook live. On the other hand, asynchronous teaching involves storing the class materials, PowerPoint slides, web links and other resources as per the subject matters to their social media platforms where the students have access to them.

For continuity of learning, Bangladesh government's TV-based (*Sangshad TV*) learning program for primary education is "*Ghore Boshe Shikhi*" (Learning at home) and for secondary education "*Amar Ghore Amar School" (My school at my home).* These programmes started broadcasting pre-recorded lessons for both the levels. *Ghore boshe shikhi* started broadcasting lessons from 5 April 2020 on various subjects for 20 min on each lesson every day. However, as only about 56% of households in Bangladesh have access to a TV, this keeps out almost half of learners. To bridge this gap and reach the disadvantaged 44% who do not have access to a TV, UNESCO is helping the government introduce a nationwide radio-based remote learning programme for primary level. This program was launched in August 2020 (UNESCO, 2020c). In addition to this, the recorded lessons of the TV programmes are also uploaded on the YouTube channel. A separate portal has also been created for the *Ghore boshe shikhi* program. Despite these efforts, a recent study conducted on 5000 students from urban slums and rural areas across Bangladesh by BRAC Institute of Governance and Development's (BIGD) shows only 16 per cent of students watched these educational programmes on Television. Majority of the students did

not find the TV programmes easy to follow. Unsurprisingly, only 1 per cent of students watched educational programmes on the Internet (BIGD, 2020).

Literature Review

A study conducted in 149 ministries by UNESCO, UNICEF, and World Bank shows an array of distant learning modalities including online, TV/radio, take-home materials were considered as immediate education response to COIVD-19 (UNESCO, 2020b). "The rapid move to online modes of delivery in order to keep students engaged in learning – from early childhood through to the tertiary sector – has led to intensified workloads for staff as they work to not only move teaching content and materials into the online space, but also become sufficiently adept in navigating the requisite software" (Allen et al., 2020, p. 233). Cutri et al. (2020) assert three factors add up to crisis in online teaching: "(1) a need to rapidly, with little to no preparation, transition instruction online; (2) execute the transition online and subsequent online instruction under traumatic conditions of a pandemic; and (3) pursue extended online teaching with little to no information regarding if this transition to online teaching will be temporary or more permanent" (p. 524). The abrupt change of teaching has steered teachers to use different web tools and platforms that they were not ready to use nor trained on. So, the teachers did not have the knowledge on the use technology and were unable to interact with students in a carefully designed way (Khlaif et al., 2020; König et al., 2020)**.** Moreover, the obscurity resulted in limited evidence of good practice available to guide the alteration (Howard et al., 2020). In many instances, teachers do not have good understanding about online pedagogies or how to underpin learning online because it is not included in many teacher training programmes (Howard et al., 2020).

Student engagement in an online environment was the greatest weakness of the teachers as they had limited skills for online classes and insufficient preparation (Leacock & Warrican, 2020; van der Spoel et al., 2020). Teachers' digital competence and influence of self-efficacy of teachers' technology use in classroom are significant for facilitating online learning (Ertmer & Ottenbreit-Leftwich, 2010; König et al., 2020; Starkey, 2020). Khlaif et al. (2020) notes about teachers' unreadiness and teachers' responses with difficult experiences with online teaching–learning, unplanned lessons, searching for appropriate materials, and supporting themselves and students. Starkey (2020) asserts "professional digital competence is the ability of the teacher to work in the context of a digitised school and education system. This includes mastering a range of teacher competencies such as being able to teach in a digitally infused context, manage digital learning environments and carry out the broader professional work of being a teacher" (pp. 15–16).

Burns (2020) asserts "any previously held notion that online learning is *ipso facto* more innovative than face-to-face instruction has been dispelled by the reality of emergency online education. Online education has proved to be highly didactic and passive and has resulted in an impoverished learning experience for many students"

(para 9). A study conducted on digital pedagogy adoption as a response to COVID-19 in the USA and UK shows teachers in the USA were in tension with devices, routines and rules and in the UK, teachers had limited skills and experience for remote instruction (Greenhow et al., 2020). van der Spoel et al. (2020) notes in the Netherlands, most educational institutes were not prepared with digital learning environments, as a result teachers had to take heavy burden. Research from Hong Kong shows teachers encountered significant challenges in adapting to online teaching and experienced difficulties in maintaining communication with students and supporting their learning and development (König et al., 2020). In a study conducted in Afghanistan, Libya and Palestine show teachers faced two main challenges such as digital infrastructure and their own technical knowledge and digital competency (Khlaif et al., 2020). In India, teachers who did not find technology beneficial were unable to embrace it (Sangeeta & Tandon, 2020). Therefore, "teachers need to increase their capacity for dealing with change because if they don't, they are going to continue to be victimized by the relentless intrusion of external change forces" (Fullan, 2007, p. 138).

Regarding the online classes in Bangladesh, Chowdhury (2020) reports from UNICEF's research, online learning is deficit of required academic guidance, assessment, and interactive sessions. Poor Internet connectivity, data expiry, and electrical failure often trouble the online classes. An interim report of *Education Watch* 2020–2021 finds some students did not find online classes "interesting" and disregarded them (Alamgir, 2020). Wal (2020) writes a significant "number of students in Bangladesh are generally reluctant to attend online classes as this process needs high-speed internet at a high cost, low speed in remote areas, and in some cases, not having access to digital devices" (para 3). A study conducted by Farhana et al. (2020) show secondary school teachers faced a number of challenges while conducting the online classes, for instance low-speed and high-cost Internet and frequent power failure, unavailability of gadgets, low digital literacy, classroom management and home environment (not suitable for online classes and often chaotic). In Bangladesh, teachers are grappling to cope with remote teaching methods and limited opportunities for school teachers in using the online methods has become an added challenge (Ahmed, 2019; Eusuf & Rabi, 2020).

This paper will contribute in understanding remote teaching–learning, digital infrastructure, and digital divide in the country. This study should help inform policymakers of the skills, knowledge, and digital competence that are required by the teachers for virtual classrooms and what can be done in under-resourced learning environments, especially with regard to prioritizing learning of the most vulnerable children.

Methodology

Context and Procedure

The study was conducted in Bangladesh. Data collection began in February and concluded in March 2021. The researcher used a qualitative approach for data collection and semi-structured interviews were used for data collection. Semi-structured interview is popularly used in qualitative studies where a schedule is prepared that is sufficiently open ended which enables the contents to be rearranged, digressions, and developments made, new direction can be included, and further probing can be taken on (Cohen et al., 2007). In order to understand government primary school teachers' experience, readiness and transitioning to online teaching, semi-structured interviews contributed to understand their experiences and the tool also helped to enrich the data. Brief notes were taken in interview protocol in the one-on-one interviews.

Because all educational institutions were closed, the data were collected through digital platforms. Often the participants requested for their convenient digital platforms, and the requests were considered by the researcher. These participants were recruited via a purposive sampling technique. Snowball method was also employed; for example, I asked the teachers to provide the names and contact information of other teachers eligible for inclusion. This sampling method gradually allowed to recruit participants from different parts of Bangladesh.

The criteria to choose the participants were: the teachers were involved in online teaching, both synchronous and asynchronous; they were teaching in the primary sections in government schools; the participants were either asked by school authority to take online classes or have taken initiatives to use technology for students' learning.

Participants

The participants of this study were 09 assistant teachers from 08 government primary schools in different districts of Bangladesh. Only those who agreed to participate in the study were interviewed, and the participants were fully aware about the nature of the research. Interviews were scheduled with the participants, informed them about the study and its objectives, and obtained consent for participation. Anonymity was guaranteed for all of them. All the participants are teaching in the primary sections—2nd–5th grade. All the teachers had master's degree. Among the teachers, six were female and three were male. The participants' teaching experience varied from 5 to 10 years.

Data Collection

The researcher collected semi-structured interviews with the participants. Each interview lasted about 40–50 min. The interviews were conducted mainly through Google Meet; however, at the request of the participants, occasionally data were collected through mobile phone. Consent forms were sent to the participants through email, and subsequently, contacts were made for the interview timing. On receipt of consent, interviews were conducted. Interview timings were set by the participants. Except one, all participants agreed to audiotape the interviews. Individual interviews with the participants helped to get an in-depth understanding of online teaching and how they navigated the situation for both online teaching and learning in such an emergency situation. Multiple one-on-one interviews were conducted with the participants to get responses that seemed important to the study. As I interviewed teachers, I probed for further information and received clarification on responses.

The first part of the interview guide included questions on the participants' demographic information, such as age, gender, educational qualifications, and years of teaching. The second part contained questions concerning the platforms used for conducting online classes, the experience, if any adjustments were made with regard to content/pedagogy in online teaching, prior experience in using the platforms (used for online class delivery), (if there is any) frustrations and challenges in using technology/for online classes, classroom interaction, support received for conducting online classes and support/resources required for a smooth online class delivery.

Data Analysis

Data analysis included thematic analysis. It is a method for identifying, analysing, and delineating patterns within data. It minimally arranges and reports data set in rich detail (Braun & Clarke, 2006). Audio files of semi-structured interviews were transcribed verbatim. Summary of the data was provided to the participants to verify statements, add further information, and edit any changes if required. However, the participants did not alter any data. Based on their confirmation, the researcher gave a thorough reading to the scripts to get a general sense of the data. Data were sorted and organized and themes and sub-themes were constructed through analysing the data. Themes were constructed as deemed appropriate to the research questions.

Findings

Transition to Online Teaching

On 16 March 2020, the government decided that all educational institutions would be shut down to stem the coronavirus. Subsequently, the government in phases extended the closure till 22 May 2021 (until the writing of this paper). Schools were instructed by the Upazila (sub-district) education office to conduct online classes. Not all the schools started conducting online classes at the same time. Participants informed that they started online class delivery from the month April to August and for most it lasted for 3–4 months. Distance learning solutions were mainly pre-recorded classes which had to be uploaded to the Upazila's web page and on the respective school's Facebook page. All the participants reported mostly using mobile phones for keeping children's learning going. However, the calls made were mainly for encouraging them to continue with their studies. Some teachers also took the initiatives to conduct classes through Zoom and uploaded materials on YouTube. One participant stated the following:

> During the initial days of lockdown, it wasn't possible to get the children to Zoom or Google Meet. Forget about buying smartphones, having internet facilities, the situation was so bad (in terms of economic condition) that many of the families did not have the means to afford food. Then we decided to record classes (can be of any topics) for 15-20 minutes and upload it to a Facebook page (deleted the name for ethical reason). This page was created by the TO (Thana officer) sir and we started uploading pre-recorded classes. In this way, children who do not have access to a smartphone and internet can reach out to people who have access to devices and internet connection and watch those contents at self-pace.

Findings suggest that all teachers went through similar experiences in terms of reaching students for online classes. During the lockdown period, schools' headmaster instructed the teachers to conduct online classes; however, they did not receive any support such as digital resources or Internet data for taking such initiatives. Teachers were equally concerned about students' access to digital learning resources and the effectiveness of such remote education initiatives that the government had taken. The following excerpt also points out the digital divide that exists between the public and private schools. One participant made the following observation:

> We contact the children through a mobile phone (most parents usually have feature phones) and the (phone) conversation is usually very short (the call is with both parents and children). I wish we could provide children with devices and internet facilities. My mother-in-law is a teacher at a private school (deleted the name for ethical purposes) and the school is conducting full-fledged classes and even school assembly through Zoom. Since they have purchased Zoom for the school, they do not worry about the 40 minutes time duration (free Zoom is accessible for 40 minutes). So, who are left out? (asks questions and soon responds) 'Our children' (children attending government schools). They don't have smartphones, internet facilities. Do you know many families do not even have a TV? How will they watch *Sangshad* TV (televised program initiated by the government)? We don't know what to do for the children who do not have access to such facilities. Most of the teachers and children live in the same neighbourhood where the school is located so sometimes, we make home visits or

> even the parents visit schools sometimes to see if the schools have any plans to reopen. In those moments, I ask the children to read a story or a para from a book to check on their reading skill.

The participants informed that only the teachers with knowledge on Information and Communication Technology (ICT) were involved in taking online classes. Most of the teachers were not confident to take virtual classes as they did not have necessary skills and expertise to do so. Teachers mainly made phone calls and made occasional home visits to support learning.

> There are seven teachers in my school and not all of them are engaged with online teaching, especially the female teachers are hesitant and are not comfortable about conducting online classes. Some teachers are facing problem due to weak internet connectivity so they make home visits only. We made 5-6 times home visits in every month during corona (when it started and during country wide shut down). We only visited the homes which are not more than 10 minutes distance. Actually, there is no such instruction from the ministry (Ministry of Primary and Mass Education [MoPME]). We were asked to create question papers for the students and distribute it. We asked some students to distribute these for us. Only a few students' parents who are serious about their children's learning returned the answer scripts.

Teachers tried a number of ways to stay connected to the children and used various digital tools to ensure their learning. Each teacher was provided with a list with children's contact address, and they had to make regular 2–3 phone calls to each student in a month. Participants made the following observations:

> Zoom is very popular in the city whereas Facebook, Facebook messenger seemed convenient for the children and us (the school is located in a rural area). Other than keeping in touch through Facebook messenger, we also made calls to the children and were instructed to ask whether the children were watching "*Sangshad*" Tv, if not they needed to be encouraged. We all had a list with children's contact address and made regular phone calls. I used to make 2-3 phone calls to each student in a month.
>
> I created a Zoom link and kept the ID and Passcode fixed. I circulated these to students and a class time was also fixed. These were informed to the students via mobile phone. I also added them to Facebook messenger group and used this platform for assignments and feedback. Although I couldn't reach a large number of students as there are a number of challenges living in rural areas. However, I tried to keep the learning going for at least a few students.
>
> We have a messenger group which was used for assignment instructions and submission. Sometime the students used other digital platforms such as IMO (a free audio/video calling and instant messaging software service) for submitting assignments.

The above vignettes reflect teachers' effort in connecting the students for their learning. Despite multiple challenges, teachers did connect with the issues that the children were facing, especially those with lack of digital devices and internet connection. Teachers maintained regular contact with students for their learning and worked on how lessons could be delivered to the students.

Teachers' Readiness

Although the teachers took initiatives to navigate digital tools for lesson delivery and showed concerned regarding children's education, however, due to unfamiliarity with the online modality, they were hesitant for remote teaching. This was the very first time they were encountering with such experiences. All of the participants suggested that they require feedback and training for online classes and need to be equipped with necessary pedagogical approaches. Participants shared their experiences:

> I was afraid to conduct online classes as I did not know what to do and how to do. However, I gained courage and started taking preparation for creating contents. I had to work hard and pay attention to the content I was creating as not only the students would be watching but anyone can access the pre-recorded classes. I was quite lost as I had never taken such initiatives. My biggest worry was to think about the one-sided classes (in pre-recorded classes there is lack of students' presence and no teacher-student interaction). I had to pretend that students are present while I was recording the classes. I was very direction less as I received no feedback on the contents I created. It was all about acting and the experience isn't very encouraging.
>
> When I faced camera (for recording a class) for the very first time, I felt like being in dark as I did not know the next step. And acting is so tough, there is no students, I could not talk, first ten classes of mine did not go well, I couldn't articulate what I wanted to teach. I could not maintain sequence of the lecture, always forgot the lesson or the topic that I needed to talk about. I was anxious about what I was saying, whether they are listening (whether the students would watch the pre-recorded class). Gradually I am learning but I still get anxious (about online class).

For the non-interactive teaching, teachers expressed stress and anxiety of online sessions. The situation was difficult for the teachers as they had to take the sessions within a 20 min period. Unlike the 40 min traditional class where 2–3 learning outcomes were required to address, lack of innovative pedagogies gave a way towards transposition of traditional pedagogies with persisting challenges. Teachers struggled with the decision to whether cover the breadth or the depth of the curriculum. The participants stated that what they mostly needed was feedback of the online sessions that they had (and have been) engaged with. Participants' observations:

> It is difficult to make the students understand a topic through online classes. At least in the face-to-face classes we could address the problems but we are not being able to do it in online classes. We have been asked to conduct online classes so we are conducting. Many things need to be considered before going for an online class. For instance, how much to cover in 20 minutes, in the face-to-face classes we used to take 2-3 learning outcomes and had an aim in achieving those but now we only take one learning outcome. There is a need for training, follow-up, nothing has happened. The order came from authority so we started taking (the classes).
>
> Actually, technology is very useful. The training (ICT) that we receive is only for name's sake. The trainer themselves are not skilled and they do not know on what to train us. We receive trainings like children (not in an efficient way), we aren't provided with any modern equipment. Digital training is not about turning on the camera and taking classes, how do I take online classes if I don't know what and how I should be delivering lessons? Most students don't join (either some are not able to afford or unable to connect for patchy internet connection or some are reluctant). I need feedback for my class but I don't get it.

> "I try to bring innovative ideas to my online classes but I am not sure whether those ideas are working well. I need training and I wish to know how to conduct an effective online class. This type of training should be provided to all the teachers. This situation is so new to us, many of us are not comfortable with the current circumstance (online class). Training is required, classes should be observed and monitored and we need feedback.
>
> Those who are living in the city are very used to video calls but the school that I teach is in a rural area and parents did not appreciate taking classes through online platforms. They considered it to be a wastage of money as to do the online classes they have to purchase proper devices and internet connection. However, parents who are literate took the initiative positively. There are 50 students in my class but when I started taking classes through Facebook, only 10-12 students used to attend. I used to take classes for 10-15 minutes. In a face-to-face class it took me 2-3 days to make the students memorize a poem but it took 10-15 days to memorize the poem through the online classes.

Through the narrative above, a participant shares a fact that how some parents considered buying digital tools for online learning a waste. In the Bangladeshi context, this is true for many parents, given the disadvantaged demographic profile of the households. Only one teacher shared that online teaching had been a positive experience for her has the topic could be covered within the designated time and without any interruptions she was able to explain it in details.

> I have a very different sort of experience here. Earlier (in face-to-face class) I could not complete the lessons in class as I had to manage the class (generally government primary schools have large class size). However, since now I don't have to manage the class, I am able to complete it and explain the topic in details.

Some participants shared concern regarding assessment and how this critical component requires attention. The participants informed of the difficulties and lack of knowledge on assessment and how this will have negative impact later. Although teachers distributed questions on different subject topics to students, but the rate of return of the scripts have been very low. One participant made the following comment:

> I am worrying mostly about assessment. I don't know how to assess and what to assess; the children are missing out so much, how will they get support (for education)? (Many) parents are also not literate nor they have the economic means to support a home tutor, so the children are only playing around and doing nothing (not studying).

Teacher Motivation

The emergency not only intensified existing problem but also brought innovations and pushed the teachers to explore approaches that they were unfamiliar with. Despite insufficient digital resources and training, many of the teachers interviewed showed enthusiasm for being able to support students' learning during the crisis. The teachers adopted digital tools that they were completely unaware of. Participants said:

> I did not know how to use Zoom and nor its function like screen sharing. I watched tutorials from '*Muktopaath*[2]', YouTube and learnt to operate Zoom and StreamYard. Moreover, I also

[2] An e-learning platform for education, skills and professional development.

called one of my colleagues to help me with these platforms. He helped to operate these. I maintained a notebook where I noted all the instructions. These are all new to me. I never heard about such platforms which were in use for teaching-learning and when I learnt about these, I got motivated to use them. So far I have taken 51 classes through Zoom and recorded more than 150 classes (until the interview was conducted).

I am not a popular teacher. To be very honest, if the children do not study, I get really mad, I scold them. I am working so hard to make them learn something and I want some kind of feedback from them. However, online classes have made me a popular teacher as I am using multimedia and the children (those who are able to attend) are enjoying this and the parents are providing positive feedback for using such medium.

Teachers informed that the ICT training they received in their in-service time never included sessions on distance learning tools nor focused on online pedagogy. A number of participants showed dissatisfaction towards the training and how ill-prepared they are for operating digital tools. Many of the participants stated that the trainings they received did not focus on basic computer operations and directly went on to teaching preparing PowerPoints.

We are provided with a 12 days basic training on ICT. For some teachers, it (training) was easy as they had basic knowledge on computer operation. However, a large number of teachers cannot even switch on and off the computer. The training mainly covers preparing PowerPoint presentation. Now the teachers who don't know about MS Word, neither can switch on and off (a computer), how can they even learn this (PowerPoint making)?

We (government primary school teachers) receive 12 days ICT training where we are taught to create contents, make PowerPoint presentation, upload materials in 'Teachers' Portal[3]', and copy paste. We were never provided training for taking online class or how to use these platforms. Corona (COIVD-19) has taught us these. We have learnt many things because of the pandemic.

Although the teachers showed care for students' learning and tried taking initiatives, but gradually, they were getting demotivated. They informed that none of them received any financial support for conducting online classes. Although the sub-district offices encouraged the teachers to go for remote teaching but due to unavailability of resources and lack of support from schools many teachers were losing interest. Participants said:

In order to take an online class, a teacher needs to spend a lot of money as s/he needs a classroom set up at home. We need to prepare teaching-learning materials. After recording a class, we need to upload it to the page (schools' Facebook page or YouTube) and for this we need to be connected with internet which is expensive. Many teachers are demotivated to take online classes for the expenses such as in order to conduct online classes one need to have proper digital equipment and thus, they did not conduct any classes. Moreover, online classes are not mandatory therefore, the teachers did not show any interest.

I requested some teachers to provide me with students as I really wanted to take classes. These teachers did not inspire me and started humiliating me. I consoled myself and decided to not pay any heed to negative comments. I started thinking positively and made some students join my (online) class using Zoom from the second week of August. I made requests to teachers from my Upazila and asked them to provide me 2-3 students from each of their school. In this way I started taking classes through Zoom. Students were experiencing issues

[3] It is a platform for teachers where they can find necessary digital contents for lessons.

> with internet connection. Then I thought of taking classes through alternative ways. I started creating contents in Stream Yard (a live streaming studio in browser) and used it for screen sharing. So far this is how I am trying so that the students are benefitted and this is my duty as a teacher.

Findings suggest due to inadequate digital resources, teachers were unable to continue online instruction and support in children's learning. The teachers at these schools were struggling with not only online pedagogy but appropriate digital tools. Such enforcements of online class lead its way to interrupted learning and to some extent demotivated the teachers for not having seamless access to digital resources and Internet connection. In some instances, teachers also faced criticisms from their fellow teachers; however, only one participant reported of such an incident. A teacher made the following observation:

> Upazila office told us that the quality of the video in terms of lighting, sound and background is not good. We (the teachers) told "Sir, how can we improve the background? We recorded/took the online class in front of the white board. How are we going to fix the lighting issue?" Sir again asked us to use a better-quality camera, how can the authority ask us to do this without providing any support? Are we going to rent a shooting camera (camera used for filmmaking) for recording the classes? We could have recorded the class at our homes but the materials required for primary school children are not available at home. Schools have adequate materials moreover, there is no whiteboard at home.

The above vignettes help us to understand how teacher-led initiatives can have a positive impact on education system, but it also questions long-held assumption regarding teachers' lack of motivation for teaching. The findings suggest the participants during the crisis took attempts in continuing children's learning despite inadequacies of resources and non-cooperation from the schools. It is also to be noted many teachers were permitted to record classes in school premises during the lock down.

Impact of COVID-19 on Education

Given the ongoing shutdown of schools, teachers reported of an increased number of students being transferred to Madrasa (Islamic schools). Due to the fear of learning loss, some parents have withdrawn their children from the government schools. Three participants informed about the case of children being admitted to Madrasas. They observed that mostly the parents from the lower quintile income group sent their children to the Madrasas. The vignettes below show that teachers regularly need to visit the schools for administrative works. They reported that since the family homes are located close to the schools, children also visit schools to play in the playground and the parents also pay a visit for school reopening queries.

> Some parents have admitted their children to Madrasas. I could not stop the parents from doing so. I have requested the parents to not admit their children to madrasas but they say they will reenroll them to the school (the government school that the children attended) once it reopens. We are trying to make regular communications, 2-3 times in a month with each

> child through phone so that they don't forget the school (and perhaps learning). We go to school regularly and since the children live nearby so they too come to play in the school (in many government primary schools, there is no restrictions in entering the school premises). Even the parents come to school to ask us when will classes resume.

Participants also reported of declining school enrolment. This is likely to revert what Bangladesh has achieved—access and gender equality. Many teachers shared their concern for a push towards madrasa, and the skills required may get inhibited for such schooling.

> 130 students have dropped out from my school. In most of the cases, parents have enrolled them in a residential madrasa. Parents don't understand that we can only reopen (the school) if the government permits. We are discouraging them from admitting their children to the madrasas but mostly the low-income parents are sending their children there. This time a very few students have enrolled in our school.

School closures have disrupted learning and also has slowed the progress that Bangladesh was likely developing. A survey conducted by Campaign for Popular Education (CAMPE) set forth pressing concerns about the risk of reversal of the development made in current years in education and hinder the efforts on the quality, equity, and inclusion intents. The findings threw light on deficits in the education system which have been intensified now by the pandemic (Ahmed, 2020). The existing issues in the education system have escalated and are affecting learning, especially of those of the vulnerable communities.

Discussion and a Closing Thought

The paper discusses teachers' remote teaching–learning experiences and how the teachers reconfigured with limited resources to keep children's learning going. Despite the teachers experiencing setbacks with regard to digital resources and Internet access, they have attempted to offer online classes although the experience was not seamless. Results indicate children experienced with setbacks in learning as most had technological challenges such as inadequacies in digital resources and Internet connection. The findings also suggest that it is not just the students who do not have digital tools and Internet access, but the teachers faced with similar constraints. The fragile situation also exposed the inefficient ICT training that they are provided with and the type of capacity required for virtual learning environments. The results put spotlight on teachers' digital competence and necessary skills required for remote instructions.

In recent years, tools and platforms used for online education to a degree have high level of acceptance. However, schools are slow in embracing technology (Howard et al., 2020) and the use of it in the schools of global south is significantly low. A study by Global Partnership for Education (GPE) found no proof that "online learning, screen or mobile phone-based technologies played a positive role in supporting at home learning during Ebola" (Hallgarten, 2020, para 10); however, to ensure

continuity of learning, the pandemic forced every country to adopt such modality for remote learning. Findings suggest, because of a lack of funding, digital infrastructures, and preparedness, many teachers stumbled with online teaching and the responses also reflect students' experiences with online learning and how their socio-economic profile did not encourage and support distance learning.

Results indicate a supportive environment for online teaching–learning could not be created due to low resourced schools and because of the disadvantaged profile of the community. Teachers frequently reported access and equity issues with regard to remote teaching. Not surprisingly, it is not just the students who faced with limited digital resources but the teachers faced with limited access to technology as well. The transition was challenging because the teachers and students did not have strong technological infrastructures and a supportive condition for such an overnight change to education was not in place.

With regard to remote/online teaching, participants did not have instructional know-how. They had low confidence in remote teaching as the training they received never oriented them with using technological tools or online pedagogy. Furthermore, the vignettes reflect how the trainers themselves are unequipped in providing ICT training to the teachers. Many of the participants shared concerns and questioned trainers' ICT skills. The participants assert that the trainers themselves are inadequately prepared to upskill teachers' digital competence. Although the participants did not appear prepared for remote teaching, they adapted to it and took many initiatives to ensure continuity of learning. The findings resonated to those of what Cutri et al. (2020) find in their study "forced readiness actually brought about optimistic sentiments from the participants regarding their rapid transition to online teaching. Participants' willingness to revise their teaching for online delivery and their sense of hope that their efforts would result in good online teaching are examples of such optimistic sentiments" (p. 537). In spite of the fact that online teaching had low level of teacher–student interaction but the pandemic increased teachers' interaction with parents and personal care. The teachers kept regular contact with the children and parents through phone calls, and this reflected their act of affirmation.

With regard to what the authorities can do to support learning, one participant suggested:

> Bangladesh needs to increase facilities for taking online classes. Children should have access to internet connectivity. Internet is very expensive here (in Bangladesh). The government should take some initiatives to reach the hard-to-reach areas. Schools should not be completely closed instead rotation system can be introduced so that at least the children are able to come to the school even for a day in a week. Earlier there used to be complaints about no studies taking place in the schools and now everyone is complaining that the children are not studying because the schools are not opened. Even if the classes are conducted through online, for assessment purpose children should visit the schools on a rotation basis.

In order to remediate learning loss and now more than ever, teachers need to be? equipped with necessary skills for engaging with students for their learning and care. The narratives display numerous challenges with technology, online pedagogy, and assessment. Attention is required not just on teachers and students who are directly involved in teaching–learning, but arrangement needs to be made for

teacher trainers also. Trainers should also be trained to go beyond focusing on basic computer operations and PowerPoint preparations. Training needs to be reconceptualized (Leacock & Warrican, 2020) and redesigned to facilitate learning in times of crisis and beyond. The pandemic has exposed challenges such as access to devices and Internet connectivity; the curriculum not favourably inclined for remote learning; inadequate teaching–learning resources and low-quality digital tools; lack of cooperation among the teachers (in a few cases only); and lack of monitoring, supervision and feedback mechanisms for the online classes. The participants also informed most of the online classes were discontinued due to a frail digital infrastructure, technological snags, financial burden (teachers did not receive any financial support for conducting online classes) and a weak leadership of school authorities.

Fullan (2007) asserts "society has failed its teachers in two senses: It gives teachers failing grades for not producing better results; at the same time, it does not help improve the conditions that would make success possible" (pp. 267–268). This study highlights the conditions that can be created for the teacher to prepare and remediate learning loss of students. In order to have an inclusive education during crisis, there is a need for technology. However, the ecosystem of Bangladesh's education is yet not prepared to offer efficient digital solutions during any emergency crisis, especially to the disadvantaged groups. Thus, professional development training of teachers should focus on a multimodal approach. For instance, training should be considerate of the under-resourced learning environments and thus prepare teachers for creating alternative learning options, for example paper-based take home learning packages (see OECD, 2021; UNESCO, 2020b) instead of relying on technology only. Since most of the family homes have access to feature phones, training should include lessons on "tele-communication model" (See Ahmad et al., 2020) to preempt learning loss. Training on tele-communication modality should focus on how teachers can facilitate students to have personalized study plans and of course help increase emotional engagement with students and parents. Live broadcasts are already in place; therefore, "broadcast pedagogy" is another important area the trainings should focus on.

Darling-Hammond and Hyler (2020) stresses that in order for students to learn better policymakers should take into account "new knowledge about social, emotional, and cognitive development; culturally responsive pedagogies; and trauma-informed practices" (p. 458). Since the traditional model of schooling is changing, teachers will need to be prepared in the abovementioned areas and key priority areas should also be on both students' and teachers' well-being and responsive use of online learning tools. Professional development trainings should include topics on mental health and pay heed and create awareness for safe use of digital devices.

In a recent report (OECD, 2021) asserts:

> To mobilise support for innovation, resilience and change, particularly in the uncertainty created by the pandemic, education systems need to become better at communicating the need and building support for change. Investing in capacity development and change-management skills will be critical; and it is vital that teachers become active agents for change, not just in implementing technological and social innovations, but in designing them too. (pp. 5–6)

It is also critical that teachers and teacher trainers are provided with curated education resources that can help accelerate learning and so they can keep abreast of the rapidly evolving challenges and the educational and social responses that are needed (Reimers & Schleicher, 2020). Since crisis like COVID seems recurrent, for continuity of education, trainings should create opportunities for collaboration and learning and pay attention to teachers' resilience, agency, and adaptability. Regular trainings should be arranged to facilitate their work not just in times of uncertainty but beyond. Teaching–learning needs to be re-envisioned and redesigned, and more than ever, it has become imperative to find creative ways to facilitate learning.

A cohesive plan is required to buffer against crisis like COVID. Increased drop-out and withdrawal from government primary schools and transfer to Madrasas and disengagement are also major concerns. Future in-depth qualitative study is required to understand the reasons for such transfers. Innovation in terms of remote teaching is required, and measures should be taken to increase involvement with children and parents for experiencing a supportive learning environment. Government needs to assess the effectiveness of various remote learning modes and identify what works best in low-resourced settings. The crisis has provided with opportunity to ideate and build pathways to enhance teaching–learning. The pandemic has highlighted that teachers are essential to students' learning and play a pivotal role thus to ensure quality education, conditions need to be created to strengthen their skills. Equally important are the teacher trainers who require training to bolster teachers' skills otherwise teachers will be relegated to insignificant roles. Although the study has included a small sample, but the in-depth discussion sheds light on the remote learning constraints. Results from this research can be used to inform policymakers and educators of the skills and expertise required for transitioning to remote teaching–learning during any sudden exigency.

References

Ahmad, J., Mariam, E., Sadaf, H. B., Sarwar, S. S., Siddiqui, S. N., & Zaman, S. S. (2020). *Mental health and learning: BRAC's response in Bangladesh during COVID-19*. Bernard Van Leer Foundation. https://earlychildhoodmatters.online/2020/mental-health-and-learning-bracs-response-in-bangladesh-during-covid-19/

Ahmed, M. (2016). The Education System. In A. Riaz & M. S. Rahman (Eds.), *Routledge handbook of contemporary Bangladesh* (pp. 340–351). Routledge.

Ahmed, M. (2019). Education response to Covid-19 in Bangladesh—A missing opportunity? *Bangladesh Education Journal*, *18*(1). https://www.bafed.net/pdf/ejune2019/2_Education_Response_to_Covid_19.PDF

Ahmed, M. (2020, June 9). *Post-Corona "new normal" in schools*. UKFIET. https://www.ukfiet.org/2020/post-corona-new-normal-in-schools/

Alamgir, M. (2020, January 20). Education during pandemic: Digital divide wreaks damage. *The Daily Star*. https://www.thedailystar.net/frontpage/news/education-during-pandemic-digital-divide-wreaks-damage-2030637

Allen, J., Rowan, L., & Singh, P. (2020). Teaching and teacher education in the time of COVID-19. In *Asia-Pacific Journal of Teacher Education 48*(3) (pp. 233–236). https://doi.org/10.1080/1359866X.2020.1752051

BANBEIS. (2016). *Bangladesh education statistics 2015*. http://banbeis.gov.bd/data/index.php

BIGD. (2020, June 25). *Covid-19, schooling and learning*. BRAC Institute of Governance and Development. https://bigd.bracu.ac.bd/publications/webinar-deck-covid-19-schooling-and-learning/

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Burns, M. (2020, June 10). *Online education's COVID-19 struggles*. UKFIET. https://www.ukfiet.org/2020/online-educations-covid-19-struggles/

Carrillo, C., & Flores, M. A. (2020). COVID-19 and teacher education: A literature review of online teaching and learning practices. *European Journal of Teacher Education, 43*(4), 466–487. https://doi.org/10.1080/02619768.2020.1821184

Chowdhury, I. A. (2020, December 8). *Bangladeshi children share experiences of remote learning and the challenges they face*. UNICEF. https://www.unicef.org/bangladesh/en/stories/bangladeshi-children-share-experiences-remote-learning-and-challenges-they-face

Cohen, L., Manion, L., & Morrison, K. (2007). *Research method in education*. Routledge.

Cutri, R. M., Mena, J., & Whiting, E. F. (2020). Faculty readiness for online crisis teaching: Transitioning to online teaching during the COVID-19 pandemic. *European Journal of Teacher Education, 43*(4), 523–541. https://doi.org/10.1080/02619768.2020.1815702

Darling-Hammond, L., & Hyler, M. E. (2020). Preparing educators for the time of COVID … and beyond. *European Journal of Teacher Education, 43*(4), 457–465. https://doi.org/10.1080/02619768.2020.1816961

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255–284. https://doi.org/10.1080/15391523.2010.10782551

Eusuf, A. M., & Rabi, Md. R. I. (2020, September 23). Cushioning the educational fallout of Covid-19 in Bangladesh. *The Daily Star*. https://www.thedailystar.net/opinion/news/cushioning-the-educational-fallout-covid-19-bangladesh-1965789

Farhana, Z., Tanni, S. A., Shabnam, S., & Chowdhury, S. A. (2020). Secondary education during lockdown situation due to Covid-19 pandemic in Bangladesh: Teachers' response on online classes. *Journal of Education and Practice*. https://doi.org/10.7176/jep/11-20-11

Fitzpatrick, R., Riggall, A., & Korin, A. (2020, December 14). *School reopening and education system recovery: Insights from the latest international evidence*. UKFIET. https://www.ukfiet.org/2020/school-reopening-and-education-system-recovery-insights-from-the-latest-international-evidence/

Fullan, M. (2007). *The new meaning of educational change* (4th ed.). Teachers College Press.

Global Partnership for Education (GPE). (2020). *Education sector analysis for Bangladesh* (Issue October). https://www.globalpartnership.org/sites/default/files/document/file/2020-10-Bangladesh%02ESA.pdf

Greenhow, C., Lewin, C., & Staudt Willet, K. B. (2020). The educational response to Covid-19 across two countries: A critical examination of initial digital pedagogy adoption. *Technology, Pedagogy and Education*. https://doi.org/10.1080/1475939X.2020.1866654

Hallgarten, J. (2020, April 20). *Four lessons from evaluations of the education response to Ebola*. Global Partnership on Education. https://www.globalpartnership.org/blog/4-lessons-evaluations-education-response-ebola

Howard, S. K., Tondeur, J., Siddiq, F., & Scherer, R. (2020). Ready, set, go! Profiling teachers' readiness for online teaching in secondary education. *Technology, Pedagogy and Education*. https://doi.org/10.1080/1475939X.2020.1839543

Khlaif, Z. N., Salha, S., Affouneh, S., Rashed, H., & ElKimishy, L. A. (2020). The Covid-19 epidemic: Teachers' responses to school closure in developing countries. *Technology, Pedagogy and Education*. https://doi.org/10.1080/1475939X.2020.1851752

König, J., Jäger-Biela, D. J., & Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: Teacher education and teacher competence effects among early career teachers in Germany. *European Journal of Teacher Education, 43*(4), 608–622. https://doi.org/10.1080/02619768.2020.1809650

Leacock, C. J., & Warrican, S. J. (2020). Helping teachers to respond to COVID-19 in the Eastern Caribbean: Issues of readiness, equity and care. *Journal of EDucation for Teaching, 46*(4), 576–585. https://doi.org/10.1080/02607476.2020.1803733

Mousumi, M. A., & Kusakabe, T. (2020). School education system in Bangladesh. In P. M. Sarangapani & R. Pappu (Eds.), *Global education systems: Handbook of education systems in South Asia* (pp. 1–36). Springer. https://doi.org/10.1007/978-981-13-3309-5_11-1

OECD. (2021). *The state of school education: One year into the COVID pandemic*. https://www.oecd-ilibrary.org/education/the-state-of-school-education_201dde84-en

Reimers, F. M., & Schleicher, A. (2020). *A framework to guide an education response to the COVID-19 pandemic of 2020*. https://globaled.gse.harvard.edu/files/geii/files/framework_guide_v1_002.pdf

Sangeeta, & Tandon, U. (2020). Factors influencing adoption of online teaching by school teachers: A study during COVID-19 pandemic. *Journal of Public Affairs*. https://doi.org/10.1002/pa.2503

Starkey, L. (2020). A review of research exploring teacher preparation for the digital age. *Cambridge Journal of Education, 50*(1), 37–56. https://doi.org/10.1080/0305764X.2019.1625867

Thornton, H. (2006). Teachers talking: The role of collaboration in secondary schools in Bangladesh. *Compare: A Journal of Comparative and International Education*, *36*(2), 181–196. https://doi.org/10.1080/03057920600741180

UNESCO. (2020a). *Empowering teachers and protecting their status*. UNESCO. https://globaleducationcoalition.unesco.org/home/flagships/teachers

UNESCO. (2020b). *Global education coalition*. http://www.unesco.org/open-access/terms-use-ccbysa-en

UNESCO. (2020c, October 27). *Bangladesh brings education to the airwaves*. UNESCO. https://en.unesco.org/news/bangladesh-brings-education-airwaves

UNICEF. (2018, August 18). *Quality, continuity for primary education: Creating accountability so that children learn*. UNICEF. https://www.unicef.org/bangladesh/en/more-opportunities-early-learning/quality-continuity-primary-education

UNICEF. (2020, May 6). *Students in Bangladesh adjust to remote learning via national TV during COVID-19 lockdown*. UNICEF. https://www.unicef.org/bangladesh/en/stories/students-bangladesh-adjust-remote-learning-national-tv-during-covid-19-lockdown

van der Spoel, I., Noroozi, O., Schuurink, E., & van Ginkel, S. (2020). Teachers' online teaching expectations and experiences during the Covid19-pandemic in the Netherlands. *European Journal of Teacher Education, 43*(4), 623–638. https://doi.org/10.1080/02619768.2020.1821185

Wal, M. (2020, October 9). Online education: A concoction of learning and creativity. *Prothomalo*. https://en.prothomalo.com/opinion/online-education-a-concoction-of-learning-and-creativity

Zhao, Y. (2020). COVID-19 as a catalyst for educational change. *Prospects, 49*(1–2), 29–33. https://doi.org/10.1007/s11125-020-09477-y

Chapter 27
Multiculturalism in Current and Future Mathematics Teacher Education in South Korea

Ji-Yeong I, Ji-Won Son, and Hyewon Chang

Abstract The recent increase of culturally and linguistically diverse student population in South Korea requires a fundamental change in the teacher education and curriculum. This chapter first describes why multiculturalism education became important and necessary in teacher education in South Korea that was once known as a monolithic society, and how the teacher education research has evolved with respect to multiculturalism education. We then synthesize research studies conducted to promote pre-service and in-service teachers' knowledge and skills related to teaching multicultural students and emergent bilingual students. We explore and analyse relevant research studies in teacher education that suggested theoretical models for multicultural education for pre-service or in-service teachers and that investigated teacher beliefs on culturally and linguistically diverse students. In doing so, we first synthesize research studies on general teacher education and then further explore research studies on mathematics teacher education with the lenses of liberal and critical multicultural education. Lastly, we suggest future directions of multicultural education within Korean teacher education.

Keywords Multiculturalism · Mathematics teachers · Bilingual students · Monolithic society · South Korea

Introduction

South Korea has been known to achieve excellence in teacher quality and considerable equity in students' learning opportunities through international assessments and research studies (e.g. Akiba et al., 2007). However, the recent increase of culturally

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and linguistically diverse students in South Korea requires a fundamental change in teacher education and school curriculum. In South Korea, multicultural students are inclusively defined as the students enrolled in public schools who are from families of foreign workers, international marriage, Korean diaspora, and North Korean defectors (Song et al., 2011). In 2015, the population of multicultural students exceeded 1% of all students in Korean history (Kim et al., 2015). Moreover, the gap of academic performance between racial and ethnic majority and minority students in South Korea has received attention recently (Park & Cho, 2020). Despite the small number of multicultural students before 2015, the international assessment revealed the academic challenge the non-native Korean-speaking students encounter in Korean schools; TIMSS 2003 reported that 99% of students always use Korean at home, 1% use it sometimes, but TIMSS 2007 result showed 95% and 5%, respectively. The student group who always used Korean scored 600 on average in the mathematics assessment while the other group scored 549 (Mullis et al., 2008).

Although the number of students with multicultural backgrounds is rapidly increasing in South Korea and struggling in academic learning, the teachers are not adequately prepared to teach culturally and linguistically diverse students (Kim et al., 2011; Lee et al., 2018; OECD, 2019). For example, TALIS 2018 results (OECD, 2019) found the number of teachers who teach or have taught students from diverse cultural, racial, linguistic, or national backgrounds is less than 25% of all teachers. Similarly, in the comparison study between South Korea and the US teacher preparation programs for secondary teachers, Kim et al. (2011) found only one South Korean program stated equity in their aims, which reflects extreme homogeneity of the Korean society and indifference to multicultural education in South Korea. Accordingly, the Korean government bodies promptly responded to the recent changes and have provided various policies and guidelines to support teachers of culturally and linguistically diverse students. For example, the newly released standards emphasize multicultural education in all subject areas and include a guideline of Korean language programs (Ministry of Education, 2015).

With the increasing number of multicultural students, multicultural education is becoming important and necessary in teacher education in South Korea that was once known as a monolithic country. Although there have been many efforts to develop multicultural teacher education in both in-service teacher (IST) and pre-service teacher (PST) training in Korea, multicultural education courses are not required in teacher preparation programs (I et al., 2019). In fact, most Korean teachers receive little multicultural training during their teacher preparation programs (Hong, 2010; Mo, 2009), and even when they do, it is more focusing on immigrant students' assimilation and adjustment into Korean culture rather than increasing their awareness of racial and cultural inequality (Kang, 2010). This chapter is about the current research of multicultural education within teacher education in South Korea, especially in mathematics education. We aim to deeply look at how the teacher education programs have equipped teacher candidates to effectively teach mathematics for multilingual/multicultural students.

Scope and Context

We reviewed research articles on multiculturalism in Korean teacher education and multicultural education for both ISTs and PSTs at elementary, middle, and high school levels. We do not include articles in early childhood because preschool and kindergarten are not mandatory education in South Korea. We include research in general education but have a specific focus on mathematics teacher education because our goal is to examine how mathematics teacher education programs counter the pervasive and historically long-standing misbelief that mathematics is culture-free and language-free and to prepare culturally and linguistically responsive mathematics teachers in all levels.

We included only the research journal articles published after 2006 in our review. Our rationale behind this decision is the historical fact that the Korean government proclaimed multiculturalism as the major political and education agenda and released the first Multicultural Family Children Education Support Measures in 2006. According to the dissertation review of Jun (2011), 93.2% of all dissertations published between 1994 and February 2010 came out after 2006, impacted by the governmental move. Since then, teacher education institutions have incorporated multicultural programs into teacher education for both PSTs and ISTs (Mo & Lim, 2013).

Although we do not include books, book chapters, theses, or dissertations, we considered journal articles that reviewed dissertations. We intended to include journal articles written in both Korean and English. For Korean written articles, we used Research Information Sharing Service (riss.or.kr) search engine by Korea Education and Research Information Service with several keywords. The combination of "multicultural" and "teacher education" showed 424 cases but the combination of "multicultural", "teacher education", and "mathematics" gave only 10 articles (see Table 27.1; searched on 13 June 2021). The results in Table 27.1 shows the research studies about multicultural education for mathematics teachers are significantly infrequent in South Korea. We used the Korean keywords when searching the articles.

To search English written articles, we used Google Scholar to search with several keywords: Korean teacher, multicultural education, and mathematics education. The initial search gave approximately 18,000 results, but we found only four relevant articles in the first 10 pages, which are not overlapped with our Korean article search. Two of the four articles we found are written by the same authors and about the international field experience to enhance social studies PSTs' awareness of multicultural education. Another article is a comparison study on teacher beliefs between South Korea and the USA. Only one article (I & Chang, 2014) was specifically related to mathematics teachers.

Table 27.1 Keywords phrase and search results on riss.co.kr (on 13 June 13)

Keyword	Search term	Search term in Korean	Results
teacher education	"Teacher"	"교사"	20,839
	"Teacher education"	"교사교육"	7672
math teacher education	"Teacher" AND "mathematics"	"교사" AND "수학"	667
	"Teacher education" AND "mathematics"	"교사교육" AND "수학"	288
multicultural teacher education	"Teacher" AND "multicultural"	"교사" AND "다문화"	602
	"Teacher education" AND "multicultural"	"교사교육" AND "다문화"	424
multicultural education for math teacher	"Teacher" AND "multicultural" AND "mathematics"	"교사" AND "다문화" AND "수학"	10
	"Teacher education" AND "multicultural" AND "mathematics"	"교사교육" AND "다문화" AND "수학"	10

Theoretical Backgrounds

Well-designed multicultural education courses help increase teachers' awareness of diversity and the quality of their culturally responsive instruction (Banks & Banks, 2010). To better prepare teachers for teaching in diverse classrooms, prior research has found multicultural education courses for teachers are a useful and viable approach (Choi & Lee, 2020; Irvine, 2003; Mollie, 2013). Those multicultural programs in teacher education generally focus on teachers' self-efficacy, defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3), because teachers with high self-efficacy in multicultural classrooms are able to support students in critical consciousness on sociopolitical issues and to question the existing social inequality and injustice by connecting their home and school culture (Banks, 2001; Gay, 2002; Ladson-Billings, 1995).

Parkhouse et al. (2019) also argued that professional development in multicultural education serves to "contribute to teachers' self-efficacy and success in working with culturally diverse students" (p. 416), when incorporating culturally relevant pedagogy (CRP, Ladson-Billings, 1995), culturally responsive teaching (CRT, Gay, 2002), and culturally sustaining pedagogy (CSP; Paris, 2012) into their multicultural programs for teachers (Choi & Lee, 2020). Grounded in Bandura's (1997) social cognitive theory, Siwatu (2007) also argued that teachers should be equipped with culturally responsive/relevant self-efficacy, which indicates teachers' beliefs in their ability to adopt CRP and CRT in their teaching (p. 1087).

Choi and Lee (2020) emphasized the benefits of professional development in multicultural education: (1) helping teachers abandon deficit thinking and challenge social injustice and inequality (Brown & Crippen, 2016; Schniedewind, 2001), (2) increasing teacher awareness of the forms of discrimination based on social group membership and encouraging students to discuss issues of discrimination and stereotyping (Schniedewind, 2001), and (3) helping teachers adapt their teaching to the cultural diversity of students (Bishop et al., 2009; Brown & Crippen, 2016; Lee et al., 2007).

Kim and Choi (2020) describe that multicultural education for teachers generally has two approaches, liberal multicultural education and critical approach. Liberal multicultural education focuses on maintaining cultural differences and identities so advocates a society where members of racially and ethnically marginalized groups can maintain their distinctive cultural identities (Howard, 2006; May & Sleeter, 2010). Generally, liberal multicultural education approach aims to get "along better, primarily via a greater recognition of, and respect for, ethnic, cultural, and/or linguistic differences" (May & Sleeter, 2010, p. 4). Aligned with this approach, when teachers first learn about multicultural education, they primarily conceptualize it as the contents related to racial, ethnic, and cultural groups. However, Banks and Banks (2010) warned that conceptualizing multicultural education exclusively as content related to only culturally marginalized groups is problematic because content teachers, especially secondary mathematics and science teachers, may not be able to relate their disciplines to cultural issues in the exclusive view. Moreover, this view has a critical limit that overlooks sociopolitical influences that apply to all lives in the society.

In response to this limit of liberal multicultural education, multicultural scholars and educators have sought a critical approach. When applying a critical multiculturalism perspective, the approach of simply tolerating cultural pluralism in liberal multicultural education has led to de-racialized and colour-blind discourse, which may silence voices raising issues of racial inequality and systemic injustice (Howard, 2006; May & Sleeter, 2010). Conceptualized with critical race theory (Delgado & Stefansic, 2017; Ladson-Billings & Tate, 1995), critical multicultural education prioritizes awareness and deconstruction of sociopolitical power relationships and the role of institutionalized inequities. Kim and Choi (2020) contend that educational and structural inequities and the critical consciousness of the larger sociopolitical context was not sufficiently addressed in multicultural teacher education courses while they are generally designed to prepare teachers with cultural sensitivity, cultural pluralism, and tolerance (p. 3).

Based on these theoretical backgrounds, we synthesize research studies conducted to promote PSTs and ISTs' knowledge and skills related to teaching multicultural students and emergent bilingual students. We first synthesize research studies on general teacher education and then further explore research studies on mathematics teacher education. Within each category, we analyse relevant research studies in teacher education that suggested theoretical models for multicultural education for teachers followed by research studies on teacher beliefs on teaching multicultural students and research studies on classroom implementations.

Multicultural Education in General Teacher Education

The articles found from our search are categorized into three thematic groups: theoretical model, teacher beliefs, and teaching practices. A majority of research studies were categorized into teacher beliefs, followed by theoretical model and teaching practices. In this section, we describe and synthesize the trends of research studies on these three categories related to multicultural education within general subjects in both professional development and teacher preparation programs.

Theoretical Models of Multicultural Teacher Education

The five research articles about theoretical models of multicultural education in general teacher education are categorized into two groups: (1) review studies that classify the types of multicultural teacher education through meta-analysis (Kim, 2014; Na, 2011; Um & Won, 2012) and (2) studies about composition and application of multicultural teacher curricula (Chang, 2008; Jang, 2009).

Regarding the former, Na (2011) applied meta-analysis to review 10 papers focusing on the curriculum for multicultural teacher education from 2007 to 2010. He did not find any articles that conceptualize multicultural education from the perspective of conservative multiculturalism, which are not recommended by multicultural education scholars because it emphasizes cultural assimilation. There was only one paper that was based on critical multiculturalism. The conceptualization of the other papers was placed between the two. Similarly, Um and Won (2012) conducted meta-analysis by reviewing 62 studies from 2003 to 2012 and grouped them into four categories: basic research to present the direction of multicultural teacher education, the multicultural teacher education model, the status of multicultural teacher education, and the verification of the effectiveness of multicultural teacher education. Among the 62 studies, only 12 were related to multicultural teacher education models. Based on the analysis results, Um and Won suggested more qualitative research in the field of multicultural teacher education. In the same vein, Kim (2014) conducted the content analysis of 212 articles from 2003 to 2013 and reported that although there were a sufficient body of studies ($n = 34$) related to teacher education curriculum and training in general multicultural education, these studies were mainly adopted literature reviews as the research method than qualitative or empirical approaches.

The other line of theoretical models of multicultural teacher education research studies is centred on composition and application of multicultural teacher curricula. In the studies of multicultural teacher curricula, several scholars suggest a curricular model of multicultural education for teachers (e.g. what contents and pedagogy needs to be included in multicultural teacher education programs) (e.g. Chang, 2008; Jang, 2009). Jang (2009), for example, discussed the importance of developing a curriculum suitable for teachers in the Korean context by including both basic and advanced courses in teacher education programs. The basic course aims to increase teacher

awareness of multiculturalism, and the advanced course focuses on instructional differentiation for diverse students. Both sets of courses include content knowledge, education pedagogy, and field experience. The content domain is for understanding the reality of multicultural people in South Korea, such as the life and culture of immigrants. The pedagogy domain consists of a course of understanding multicultural education, a course of composition and practice of multicultural education, a course of multicultural teaching and learning methods, and a course of assessment of multicultural education. Finally, the field experience domain consists of a variety of training courses to cultivate the ability to do so. Similar to Jang (2009), Chang (2008) explored a curricular model of multicultural teacher education that is suitable for the Korean situation. The suggested six-stage model of teacher curriculum for multicultural education consists of knowledge acquisition of race, ethnic, culture, and gender; awareness of global situation and dynamics; identifying self-identity and ethnic-identity; forming attitude of combating prejudice and discrimination; cultivating multicultural competences for curriculum reform; and building social action skills for social justice. While Jang (2009)'s suggestion is mainly made in the liberal multicultural education approach, Chang (2008) includes several aspects of critical approach such as identifying identities, opposing discriminations, and action for social justice. Although two approaches of multicultural education for teachers—liberal multicultural education and critical approach—have been emphasized in the literature as theoretical models of multicultural teacher education, it is not clear whether educational and structural inequities and the critical consciousness of the larger sociopolitical context was sufficiently addressed in multicultural teacher education courses to prepare teachers with cultural sensitivity, cultural pluralism, and tolerance (I et al., 2019).

Teacher Beliefs in Multicultural Education

A large body of literature in multicultural teacher education in South Korea focused on teacher perspectives about multicultural students and multicultural education or how their perspective shifts through multicultural teacher education. The review of Kim (2014) found that most of these studies used quantitative approaches to measure teachers' awareness, knowledge, or perspectives towards multicultural students or to examine the changes in their views by taking a course or PD of multicultural education. For example, Ahn (2010) examined PSTs' attitudes and perspectives about multicultural education through a large-scale quantitative survey. The survey results indicate that PSTs have a generally positive perception towards multicultural education, but their expectation about the adequacy of the curriculum in teacher preparation was relatively low.

We found that multiple studies in this category investigated teachers' multicultural efficacy, which evolved from self-efficacy and defined within multicultural education. Hence, a teacher's multicultural efficacy means a teacher's self-efficacy about

teaching multicultural students. Choi and Mo (2007) found that teachers' multicultural efficacy was low, especially related to developing and implementing culturally relevant lessons. Moreover, Mo and Hwang (2007)'s study revealed that most social studies and language art teachers had low expectations of students with multicultural backgrounds. Other studies found that multicultural efficacy is related to teachers' age (Mo & Hwang, 2007), gender, and multicultural teacher education experience (Park et al., 2008). As for teacher preparation programs, Jang (2010) measured secondary PSTs' multicultural efficacy, using the revised Multicultural Efficacy Scale developed by Guyton and Wesche (2005). More specifically, he included sub-scale of efficacy including general efficacy, efficacy in instructional competence, efficacy in caring perspectives, and efficacy in helping minority families and children. The results show that the PSTs' efficacy in instructional competence was lower than in other areas while their efficacy is high in general. These studies are grounded in the belief of previous research (e.g. Siwatu, 2007) that teachers' culturally responsive or relevant self-efficacy is an important indicator for their ability to implement teaching practices in multicultural classrooms.

The other group of the multicultural teacher education studies measured teachers' improvement or change in awareness or perspectives of multicultural students and education through multicultural courses or PD while measuring the effectiveness of the programs/courses. Most research studies in this category used quantitative surveys, but some studies included interviews, open-ended surveys, written reflection, or observation. For instance, using the Teaching and Learning International Survey 2018, Choi and Lee (2020, p. 3) examined whether the teachers' experience in professional development in multicultural education improves their self-efficacy in multicultural classrooms, as well as whether teacher self-efficacy in multicultural classrooms mediates the relationship between professional development in multicultural education and teachers' perceptions of school climate in secondary schools in the USA and South Korea. They found that professional development in multicultural education is significantly positively related to teacher self-efficacy in multicultural classrooms, and teacher self-efficacy in multicultural classrooms positively mediated the relationship between professional development in multicultural education and the perception of school climate in both Korea and the USA.

Similar to Choi and Lee (2020), most research shows that the PDs and courses of multicultural education have a positive impact on teachers' attitudes, multicultural efficacy, or multicultural competencies while several limitations and challenges remain. Mo (2009) examined the effects of a short-term teacher training program about multicultural education and the teachers' multicultural efficacy and attitudes towards diversity after completing the program. The survey results of 115 elementary teachers and interviews with three teachers who participated in the one-week program show that the program was effective to increase positivity in both the teachers' multicultural efficacy and their attitudes with respect to racial diversity. Park and Sung (2011)'s study has a more critical and specific view. Their study included only the teachers in multicultural education schools that have a high population of multicultural students and provide specially designed multicultural programs for the students and teachers. Based on a Likert-scale survey, they found that the teachers

with multicultural education experiences had more positive attitudes towards multicultural education, higher multicultural efficacy, and higher self-confidence than teachers who had not experienced multicultural education. However, the teachers in this study were relatively negative on the implementation of multicultural education and generally possessed assimilation views. They did not think a goal of multicultural education is to foster critical thinking capacity to solve social inequalities and believe that multicultural students' cultural contexts—such as food, clothes, or family life—or social discrimination and injustice are not appropriate as multicultural education contents.

A large body of research studies also investigated the effectiveness of multicultural education or programs for PSTs in various formats including multiculturalism courses (Koo, 2010), international field experience in a diverse country (Kim & Choi, 2020), and multicultural films and books (Kim et al., 2015). Koo (2010) developed a multicultural education course in a 4-year university teacher education program and found the PSTs shifted their assimilated view and attitude towards more positive ones while their views on multicultural families were relatively negative. In contrast, Kim et al. (2015)'s study illustrated how the PSTs who read/watched and discussed books/films about multicultural families showed positive shifts in their perspectives towards immigrant families and students. Through their qualitative studies, Kim and Choi (2020) and Park and Kim (2012) investigated PSTs' change in their attitudes and perspectives towards multicultural students and education. Similar to the results of the quantitative research mentioned above, Park and Kim (2012) found the PSTs increased their multicultural competence after taking a multicultural education course. The study of Kim and Choi (2020, p. 5), guided by critical multicultural teacher education framework, examined how social studies PSTs changed their perspectives on multiculturalism through the international practicum, consisting of (1) teaching practicum, (2) lectures and seminars, and (3) socio-cultural activities throughout 10 days. Although there was more grasping the reality of multiculturalism, the participants showed a more liberal multicultural approach to multiculturalism in the USA and reproducing American cultural superiority and unchallenged racial privilege and institutional racism in South Korea.

Our findings about multicultural teacher education were aligned with Lee et al. (2018) where they stated the multicultural education courses are not sufficient or adequate to address the deficit views and assimilationist approach to multicultural students.

Class Implementation of Multicultural Education

There is only one research article (Cho et al., 2010) that investigated general teaching practices in multicultural classrooms (Although there are several government documents on multicultural education, we did not include them in synthesizing classroom implementation of multicultural education). Cho et al., (2010, p. 155) investigated teaching practices of multicultural education in elementary and secondary schools

with respect to goals, content, target populations, and structure and organization. Cho et al. carried out qualitative comparative case study mainly using content analysis methods on the school multicultural education programs and in-depth interviews on teachers. They found that the multicultural education programs for schools were "cultural education" and "language education". While in the majority cases multicultural education programs were provided for students, especially students of multicultural families, many schools ran multicultural education programs in the irregular curriculum as like after school programs. Cho et al. reported that many teachers perceived the goal and characteristics of multicultural education as the education of foreign culture or education for adaptation to Korean society and transformed bilingual education into foreign language education. Multicultural teachers expressed difficulties resulting from scarcity of teachers' professionalism, budget limits, criticism on the reverse discrimination and distinctions. Cho et al. provided suggestions to improve the current situation of multicultural education in elementary and secondary schools. Despite a large body of research on multicultural education, we found a lack of research that examines how ISTs and PSTs implement multicultural education in diverse classrooms. It is essential to explore how teachers provide learning opportunities to multicultural students and what factors promote or prohibit in providing equitable learning opportunities to them.

Multicultural Education in Mathematics Teacher Education

In this section, we particularly discuss how multicultural education has been studied with mathematics teachers. Following the previous section, we examine the prior studies in three angles, theoretical models, teacher beliefs, and classroom implementation. Although relatively a small number of research studies paid attention to multicultural mathematics teacher education, a similar tendency appears in research on multicultural education in mathematics teacher education with that in general multicultural education. A majority of research studies were categorized into teacher beliefs, followed by theoretical models and teaching practices.

Theoretical Models for Multicultural Teacher Education

There are three research studies on theoretical model exploration related to multicultural education in mathematics teacher education (Song et al, 2010; Song & Ju, 2014a, 2021). While Song et al. (2010) explored principles and methods of multicultural mathematics teacher education with recognition that the systematic implementation of the multicultural mathematics teacher education process is insufficient. Song and Ju () suggested effective multicultural teacher education program for mathematics teachers after analysing participating mathematics teachers' multicultural

competency and pedagogical design capacity for multicultural mathematics education (i.e. the ability to appropriately identify and mobilize curricular and personal resources—for constructing multicultural curricula for their students).

Song et al. (2010) set up three sub-objectives of multicultural mathematics teacher education: teacher competency for multicultural mathematics education, content elements of the curriculum, and practical method knowledge as the teaching principle. In the teacher competency for multicultural mathematics education, three domains were extracted: affective (belief system and attitude towards diversity and difference), cognitive (knowledge required for cultural diversity reflection class), behavioural domain (affective and cognitive competencies are implemented in actual class). For the content elements of the curriculum, mathematical culturality, diversity, equality, and self-identity were extracted, and implementation details and methods for each were suggested. For example, for the content element "diversity", "presenting culturally relevant examples of teaching methods", and for its methods, "showing mathematics classes taught within a cultural context" and "learning, applying, and demonstrating a variety of teaching methods for students from various backgrounds" were suggested. Song et al. (2010) argued the necessity of preparing a curriculum that satisfies the characteristics of the current multicultural society and the educational demands.

Song and Ju (2014a), based on the analysis of the contents of two previous domestic studies conducted in 2009, pointed out that research studies on multicultural teacher education in Korea have been conducted at the theoretical level and therefore have a tendency to introduce a cross-curricular and content-free theory of multicultural education in terms of content, which is inadequate in developing the practical capacity of multicultural education that reflects the unique characteristics of individual subjects. To address such limitations, Song and Ju investigated the multicultural competence of Korean mathematics teachers and the demand for multicultural education. As a result, they developed 6 steps of the multicultural mathematics teacher education model (Practice analysis-demand/need analysis-principal extraction-goal setting-contents and methods selection-evaluation). They further presented a 16 week-teacher education program aligned with six steps of the multicultural mathematics teacher education model. Although this study has an implication to the field, Song and Ju did not apply or test out the validity and educational effect of the developed model.

They further investigated the teachers' pedagogical design capacity for multicultural mathematics education by collecting lesson plans created by ISTs in a multicultural mathematics teacher education course (Song & Ju, 2021). The results revealed a few limitations such as difficulty in adapting the levels of multicultural mathematics education coherently, returning to teacher-centred approach, and placing mathematical contents and social issues separately. Based on the results, they suggest implications for the future development of multicultural mathematics teacher education.

Mathematics Teacher Beliefs in Multicultural Education

We found a quite few research articles that address the perceptions of mathematics teachers towards multicultural education, including language learners. Two articles examined PSTs' perception of multicultural education and five articles addressed understandings, recognition, beliefs in practices, and multicultural competence of ISTs. The results of these studies are mixed with the counterpart research findings in general teacher education.

Oh (2013) conducted a large-scale survey to examine mathematics PSTs' perception of multicultural education in four categories: experience of multiculturalism, multicultural efficacy, understanding of multiculturalism, and multicultural sensitivity. Similar to the prior studies in general teacher education, the survey results show that the mathematics PSTs had low confidence in developing and implementing a multicultural curriculum although they generally have positive perception on multicultural education. Moreover, their perception of the multicultural population was widely negative with the belief that Korean culture is superior to the cultures of multicultural people. A vital difference from the previous studies is that the result of this study had statistically significant differences between female PSTs and male PSTs. The female PSTs had much higher results in multicultural efficacy, multicultural understanding, and multicultural sensitivity than the male PSTs who participated in this study.

While Oh (2013)'s study analysed the current perceptions of PSTs about multicultural education and population, the qualitative study of Moon and Ju (2010) investigated how their developed multicultural course influenced mathematics PSTs. The multicultural curriculum was designed as discussion-based and included three themes: multicultural education literature in mathematics, understanding cultural aspects of mathematics, and culturally responsive/relevant mathematics teaching. The authors found that the participating PSTs generally had positive changes in being legitimate cultural agents in mathematics classrooms, but they also encountered difficulty in connecting theories and practices at a more than superficial level.

The teacher survey results of I and Chang (2014) were not different from those of PSTs. I and Chang asked elementary teachers to analyse a mathematics lesson based on the Sheltered Instruction Observation Protocol (SIOP) Model. They found the ISTs were able to identify the strategies designed to support Korean language learners (both non-Korean and returning Korean students) and generally agreed with the benefits of the lesson for teaching multilingual students. However, they had little recognition of the necessity to provide rigorous mathematics to multicultural students. While I and Chang (2014) specifically focused on instructional strategies for multilingual students, Song et al. (2011, 2013) widely investigated multicultural competence of mathematics ISTs through a survey (2011, 2013) and classroom observation (2011). These studies revealed a significant difference between mathematics teachers and teachers in general subjects. The mathematics teachers had a low score in mathematics-related questions in the survey. For instance, they did not recognize the

importance of integrating cultural and linguistic experiences in mathematics instruction and believed mathematics has less influence from language. Most importantly, the authors found the negative attitude of the teachers towards multicultural students was transferred to other students and resulted in an inequitable learning environment by limiting multicultural students' participation in the mathematics lesson. The result suggests the necessity of content-specific professional development in multicultural education for mathematics teachers. Responding to this need, Song (2017) investigated how the multicultural competence of mathematics teachers changed through a semester-long multicultural course specifically designed for mathematics teachers. The course curriculum included the benefits of ethnomathematics, culturally responsive teaching, implementation of multicultural education into school sites, and multicultural education lesson presentations. The mathematics teachers who completed the course showed an increase in their multicultural competence and knowledge.

Among the mathematics education research articles that addressed multicultural education, probably the qualitative study of Song and Ju (2014b) has the most critical approach. Their in-depth interviews with two mathematics teachers taught in middle and high schools revealed the colour-blindness of the teachers and their liberal view on multicultural education as they believed multicultural education means merely adding ethnic contexts to mathematics curriculum. They first questioned why mathematics curricula need to include multicultural aspects and believed it is unnecessary to differentiate their mathematics instruction for multicultural students. They also shared the common resistance against multicultural people, such as attributing low performance to individual inability or lack of efforts rather than racial discrimination, being considerate of educational discrimination against non-multicultural students by focusing on equality rather than equity, and lack of knowledge about structural injustice and inequality in school.

Classroom Implementation of Multicultural Education in Mathematics

We found only one research article (Song et al., 2011) that investigated the ISTs' classroom implementation of multicultural mathematics education. Song et al. (2011) investigated elementary and middle school teachers' multicultural mathematics teaching practices using qualitative and quantitative methods. Each participating teacher first completed the survey that measures teacher multicultural competence of mathematics. They were then observed and interviewed after their first lesson implementation of a unit in their mathematics curriculum. Based on the five guidelines/standards for multicultural education suggested by the Center for Research on Education, Diversity, Excellence, authors reconceptualized four categories as an analytical framework for multicultural mathematics classrooms. The four categories include (1) contextualizing curriculum to real-life context (making contexts of learning to students' lives), (2) designing curriculum based on student language

development and ability (connecting informal language to academic language), (3) teaching through mathematical talking/instructional conversation (facilitating classroom conversation aiming at critical thinking and higher-level thinking), and (4) positive expectation (holding high expectations for all). 10 classroom instructions in seven elementary and three middle multicultural classrooms were analysed with respect to the four categories.

Overall, it was found that all categories were not suitable for achieving the goals of multicultural mathematics education in both elementary and middle school mathematics instructions. Song et al. (2011) reported that there are different tendencies of multicultural mathematics education between elementary teachers and middle school teachers. In the categories of "student life and contextualization" and "the composition of class contents considering language and literacy skills" were observed only in elementary school. For example, three types of integrating the students' lives and context into class instructions were observed: (1) present the situation of the problem using real-life materials, (2) use real-life materials when explaining mathematical concepts, and (3) make it easy for students to encounter in their lives. In contrast, in the case of middle school, no contextualization of students was observed. All three classes in elementary relied on procedures such as explanation of concepts through whole lecture-style classes, demonstration of problem solving, provision of activity time for problem solving, and confirmation of problem solving. When life-related activities were presented in the textbooks, middle school teachers tend to ignore them by reading and passing. Interview results revealed teachers' preference towards the traditional view of learning and teaching that demonstration-type explanatory classes were the most effective at the middle school level learning abstract mathematics.

Similarly, the situation in which such language and literacy skills were considered did not appear in the observation of the middle school mathematics class. For abstract content, unfamiliar mathematics terms and symbols, the teacher's explanation through everyday terms and examples, considering the student's language and literacy skills, will be effective in helping students, especially students from non-Korean backgrounds, understand unfamiliar mathematics terms and symbols. Yet, Song et al. (2011) reported that mathematics teachers were unaware of the linguistic abilities of mathematics learners from various backgrounds, and it could act as an important variable in mathematics learning. The teachers tended to think that it was not necessary to take into account the student's language and literacy skills in teaching mathematics because mathematics learns through numbers.

The "mathematical dialogue" category was observed in both elementary and middle school classes. However, both elementary and middle school teachers were unable to ask guided questions to expand students' mathematical thinking and guide them to a higher level. While both elementary and middle school teachers believed that class conversations should expand students' mathematical thinking, some teachers did not develop the competence sufficiently to design students' cultural resources or cognitive competencies into practice. Other teachers possessed the traditional view on learning and teaching.

In the category of "positive expectations of teachers", Song et al. reported that teachers' unequal beliefs and attitudes towards multicultural students. Elementary teachers tended to have a relatively positive belief in multicultural students, which allowed them to ask questions to multicultural students or give/empower multicultural students the right to speak. However, Song et al. also reported that elementary teacher's negative attitudes and expectations towards multicultural students were transferred to fellow students, creating an unequal power structure invisible in the math classroom. Interestingly, the unequal power structure observed in the elementary school mathematics classroom did not appear in the multicultural middle school mathematics classroom. The authors suggested the importance of future research studies that more closely investigate, analyse, and reform the unequal power structure resulting from teachers' unfair expectations towards multicultural students, and an educational plan that allows all students to participate in classes equally.

In general, there is a lack of research studies that examine both ISTs and PSTs' implementation of multicultural mathematics education. There is a book written by the three authors (i.e. I et al., 2019) that reports on elementary teachers' implementation of multicultural mathematics education by specifically focusing on how teachers provided mathematics learning opportunities for Korean language learners. Yet, we only focused on research articles in this book chapter. In addition, we could not find any research article that explored PSTs' classroom implementation of multicultural mathematics education or lesson planning in relation to multicultural mathematics education. Furthermore, despite the importance of assessment, there is no study on what assessment techniques are used and need to be used for multicultural students in mathematics instruction.

Based on Song et al.'s study, we can synthesize four major findings regarding implementation of multicultural mathematics education in South Korea: First, teachers' lack of understanding about multicultural education and multicultural students lead to unequal learning opportunities to students. Second, teachers' traditional beliefs of mathematics (e.g. math language is universal), mathematics teaching (i.e. content coverage and show–tell approach) and mathematics learning (product vs process) causes a failure of implementation of multicultural mathematics education. Third, teachers' lack of knowledge, skills, and attitude (competence) for multicultural mathematics education led to unequal learning to multicultural students. In particular, there are some common beliefs about the positive beliefs and attitudes towards multicultural students, teachers' lack of knowledge and skills leading to higher-level thinking could cause low quality learning to all students. Lastly, different teacher education opportunities need to be provided depending on teacher needs. These findings suggest the directions for future research.

Guiding Research Questions on Multicultural Education for Korean Math Teachers

Our analysis on the studies of multicultural education for Korean mathematics teachers help us identify several main themes.

- Most research studies and teacher education programs mostly focus on liberal multicultural education rather than critical multicultural education.
- With the small number of relevant studies, the foci and framework of research are not various and not deep enough while the studies about teacher beliefs were most pervasive.
- Most studies used quantitative approach, but qualitative research studies better revealed teachers' unawareness of multicultural population and education.

Based on these results, we suggest future directions of research about multicultural education within Korean teacher education in this last section.

Directions for Research About Theoretical Models

Our review on multicultural education literature in Korean teacher education found that there is a recognition of the necessity of the Korean teacher education model, and some studies (e.g. Chang, 2008; Jang, 2009) have been conducted on this topic. However, many studies on the multicultural teacher curriculum models were based on foreign literature or prior research rather than based on empirical studies in South Korea. Since education must be based on the convergence of theory and practice, it is necessary to prepare a curriculum in a bottom-up approach that reflects the educational field in South Korea. The teacher education curriculum should be prepared with high applicability based on empirical research results.

In a similar vein, several studies emphasized multicultural teacher education should be implemented in a way of reflecting the specificity of the Korean situation. Particularly, the diversity among multicultural students in South Korea should be recognized, such as immigrant students based on foreign labour, biracial/binational students from international marriage families, North Korean refugee students, returning students, and Korean language learners (I & Chang, 2014). The configuration of multicultural students in South Korea is different from that of other diverse countries, and the uniqueness of each subgroup multicultural students should be addressed in teacher education.

Based on our review in this chapter, we would like to propose a variety of concrete theoretical frameworks to be applied in the multicultural mathematics teacher curriculum. For example, teacher education researchers and curriculum developers can consider the four approaches to multicultural curriculum reform (Contributions Approach, Additive Approach, Transformation Approach, Social Action Approach) proposed by Banks (1997). Banks and Banks (2010) also suggest five dimensions

of multicultural education: (1) Content integration, (2) Knowledge construction, (3) Equity pedagogy, (4) Prejudice reduction, and (5) Empowering school culture. We found the prior research in South Korea paid little attention to the three domains of equity pedagogy, prejudice reduction, and empowering school culture, which are essential for critical approach in multicultural education. Other examples of concrete framework include the Sheltered Instruction Observation Protocol (SIOP) Model, used in Choi and Chang (2019) and Cummins' Quadrant Model employed in I and Chang (2014).

Directions for Teacher Beliefs

While the amount of multicultural education research related to teacher beliefs has been increasing, various research foci, designs, and framework should be implemented, especially more qualitative research and research in critical approach. Most prior studies about teachers' beliefs in multicultural education used quantitative surveys focusing on multicultural efficacy and competence. We suggest future research studies employ various frameworks and theories that have recently been highlighted in research of culturally and linguistically diverse student populations and their teachers, such as Positioning Theory (Harré & van Langenhove, 1999), Critical Race Theory, or Community Cultural Wealth (Yosso, 2005).

Next, more rigorous application of culturally relevant/responsive/sustaining pedagogy in mathematics education should be encouraged. These culturally related pedagogies have been centred in multicultural education, but we found Korean literature in multicultural education rarely used these culturally related pedagogies as a main framework although some articles mentioned about them as a prior study. How to implement culturally relevant/responsive/sustaining pedagogy into mathematics instruction should be deeply discussed in the mathematics education research field.

To increase research studies of the critical approach in multicultural education, decent understanding and discussion of Critical Race Theory will be necessary to do the research focusing on critical approach. We found a positive start of this approach in the discussion of Song and Ju (2014b) where they applied the concept of Whiteness into Korean teacher education. They contend that Whiteness does not just mean skin colour but refers to the mainstream culture of the ruling class whose cultural background belongs to the safe ruling class. The authors designate the ruling class in education as a group that has succeeded in school education, belongs to the mainstream in terms of race, ethnic background, and socioeconomic status. From this point of view, Korean teachers may also implicitly continue the existing power structure without recognizing the various unjust factors that are acting on students due to the cultural background they have as successful learners in Korean schools. Therefore, Song and Ju argue that a process of self-reflection and critical deliberation is required in multicultural education for teachers.

Lastly, we suggest conducting research that explicitly defines the relationship and examine the influences among teacher belief, knowledge, and skills in the context of multicultural education and students. To do this rigorously, interdisciplinary research combining with psychology, sociology, or history may be helpful to deeply look at the sociopolitical influences, identity development, and historical/systemic discrimination in teaching mathematics to multicultural students.

Directions for Research on Class Implementation

A little attention is given on class implementations of multicultural mathematics education as we identified only one research article for ISTs' class implementations of multicultural mathematics education, and no research on PST classroom implementation. Without knowing what challenges PSTs and ISTs experience and what strategies PSTs and ISTs use in their multicultural mathematics classrooms, we do not know the benefits of professional development and/or teacher education program in multicultural mathematics education and what and how to help teachers adapt their mathematics teaching to the culturally diverse students. More research needs to be done focusing on PSTs and ISTs' implementations of multicultural mathematics education. Specifically, given that a majority of the Korean research studies employed quantitative research methods (e.g. surveys), we suggest the importance of using qualitative research methods (e.g. classroom observations and interviews).

In addition, it is important to rethink about and expand the framework that could capture the principles of multicultural mathematics education. Although Song et al. (2011) revealed valuable information on how Korean teachers implemented multicultural mathematics education, they failed to consider assessment components in exploring classroom implementation of multicultural mathematics education. Research on what assessment techniques teachers use in their multicultural mathematics instruction and how they use such assessment techniques is needed.

Furthermore, reconsideration on the framework for multicultural mathematics classroom implementation needs to pay attention to including unique features of multicultural mathematics education. By comparing elementary and secondary teachers' multicultural competencies that emphasize not only knowledge and skills but also teacher attitudes and beliefs, Song et al. (2011) revealed the complexity of teachers' competencies in teaching mathematics for all. However, the findings from Song et al. (2011) were not new given that their findings were not much different from those without multicultural education. Future research needs to pay attention to reveal the complexity of teachers' multicultural competencies in implementing multicultural mathematics instruction, which can be distinguished from the complexity of teachers' competencies in implementing mathematics instructions for all.

References

Ahn, B. (2010). A study on the preservice teacher education in the multicultural society. *The Journal of Vocational Education Research, 29*(3), 1–21.

Akiba, M., LeTendre, G. K., & Scribner, J. P. (2007). Teacher quality, opportunity gap, and national achievement in 46 countries. *Educational Researcher, 36*(7), 369–387.

Bandura, A. (1997). Self-efficacy: The exercise of control. Freeman.

Banks, J. A. (1997). Multicultural education: Characteristics and goals. In Banks, J. A. & Banks, C. A. M., (Eds.). *Multicultural Education: Issues and Perspectives,* (3rd ed), 3–31. Boston: Allyn and Bacon.

Banks, J. A. (2001). Citizenship education and diversity: Implications for teacher education. *Journal of Teacher Education, 52*(1), 5–16.

Banks, J. A., & Banks, C. A. M. (Eds.). (2010). *Multicultural education: Issues and perspectives* (7th ed.). Wiley.

Bishop, R., Berryman, M., Cavanagh, T., & Teddy, L. (2009). TeKotahitanga: Addressing educational disparities facing Maori students in New Zealand. *Teaching and Teacher Education, 25*(5), 734–742.

Brown, J. C., & Crippen, K. J. (2016). Designing for culturally responsive science education through professional development. *International Journal of Science Education, 38*(3), 470–492.

Chang, I. (2008). Exploring and developing model of teacher curriculum for multicultural education. *The Journal of Elementary Education, 21*(2), 281–305.

Cho, Y., Park, Y., Sung, K., Lee, S., & Park, H. (2010). The actual conditions of the multicultural education in elementary and secondary schools. *The Korean Association for the Social Studies Education, 42*(1), 151–184.

Choi, C., & Mo, K. (2007). Investigating multicultural efficacy of teachers in Gyeonggi Province. *Theory and Research in Citizenship Education, 39*(4), 163–182.

Choi, H., & Chang, H. (2019). A study on teaching methods of mathematics using SIOP model for KLLs. *Journal of Elementary Mathematics Education in Korea, 23*(3), 305–321.

Choi, S., & Lee, S. (2020). Enhancing teacher self-efficacy in multicultural classrooms and school climate: The role of professional development in multicultural education in the United States and South Korea. *AERA Open, 6*(4), 233285842097357. https://doi.org/10.1177/2332858420973574

Delgado, R., & Stefancic, J. (2017). *Critical race theory: An introduction* (3rd ed.). New York University Press.

Gay, G. (2002). Preparing for culturally responsive teaching. *Journal of Teacher Education, 53*(2), 106–116.

Guyton, E. M., & Wesche, M. V. (2005). The multicultural efficacy scale: Development, item selection, and reliability. *Multicultural Perspectives, 7*(4), 21–29.

Harré, R., & van Langenhove, L. (Eds.). (1999). *Positioning theory: Moral contexts of intentional action.* Blackwell.

Hong, W. P. (2010). Multicultural education in Korea: It's development, remaining issues, and global implications. *Asia Pacific Education Review, 11*(3), 387–395. https://doi.org/10.1007/S12564-010-9089-x

Howard, G. R. (2006). *We can't teach what we don't know: White teachers, multiracial schools* (2nd ed.). Teacher College Press.

I, J., & Chang, H. (2014). Teaching mathematics for Korean language learners based on ELL education models. *ZDM*, *46*(6), 939–951.https://doi.org/10.1007/s11858-014-0631-x

I, J., Chang, H., & Son, J. (2019). *Rethinking the teaching mathematics for emergent bilinguals: Korean teacher perspectives and practices in culture, language, and mathematics.* Springer.https://doi.org/10.1007/978-981-15-0966-7

Irvine, J. J. (2003). *Educating teachers for diversity: Seeing with a cultural eye* (Vol. 15). Teachers College Press.

Jang, B. (2010). Assessing secondary preservice teachers' multicultural efficacy and its implication for teacher education curriculum. *The Journal of Korean Teacher Education., 27*(3), 349–372.

Jang, W. (2009). A study on the curriculum for multicultural teacher education suitable to Korean society. *Social Studies Education, 48*(1), 57–79.
Jun, H. (2011). Development of preservice programs to prepare culturally responsive teachers. *Research in Social Studies Education, 18*(4), 121–135.
Kang, S. (2010). Multicultural education and the rights to education of migrant children in South Korea. *Educational Review, 62*(3), 287–300. https://doi.org/10.1080/00131911.2010.503599
Kim, J. (2014). Exploring trends and future directions of teacher-related research in multicultural education. *Multicultural Education Studies, 7*(4), 81–100.
Kim, Y., & Choi, M. (2020). Towards critical multicultural teacher education in the midst of ethno-nationalism: Korean pre-service teachers' international learning experiences. *Teaching and Teacher Education, 96*, 103155. https://doi.org/10.1016/j.tate.2020.103155
Kim, R., Ham, S., & Paine, L. (2011). Knowledge expectations in mathematics teacher preparation programs in South Korea and the United States: Towards international dialogue. *Journal of Teacher Education, 62*(1), 48–61. https://doi.org/10.1177/0022487110381999
Kim, M., Lee, E., & Park, Y. (2015). Effects of the multicultural education program for preservice teachers utilizing multicultural films and books. *Literacy Education., 48*, 45–80.
Koo, J. (2010). A study on practice of the 'multicultural education' course in teacher training. *The Korean Journal of Multicultural Education, 1*(1), 95–117.
Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal, 32*(3), 465–491. https://doi.org/10.2307/1163320
Ladson-Billings, G., & Tate, W. (1995). Toward a critical race theory of education. *Teachers College Record, 97*(1), 47–68.
Lee, O., Luykx, A., Buxton, C., & Shaver, A. (2007). The challenge of altering elementary school teachers' beliefs and practices regarding linguistic and cultural diversity in science instruction. *Journal of Research in Science Teaching, 44*(9), 1269–1291.
Lee, Y., Cho, H-S, & Li, S. (2018). A comparative study of multicultural and multilingual teacher education in Korea and the U.S. *Culture and Convergence, 40*(6), 341–374.
May, S., & Sleeter, C. E. (2010). *Critical multiculturalism: Theory and praxis.* Routledge.
Ministry of Education. (2015). *The National Curriculum for the Primary and Secondary Schools.* Proclamation of the Ministry of Education #2015–74 [Annex 1]. http://www.ncic.go.kr/english.kri.org.inventoryList.do
Mo, K. (2009). Policies and directions of multicultural teacher education in Korea. *Journal of Korean Teacher Education, 26*(4), 245–270.
Mo, K., & Hwang, H. (2007). A Study on multicultural awareness of secondary school teachers-focused on Korean and social studies teachers in the metropolitan area. *Theory and Research in Citizenship Education, 39*(3), 79–100.
Mo, K., & Lim, J. (2013). Multicultural teacher education in Korea: Current trends and future directions. *Multicultural Education Review, 5*(1), 96–120.
Mollie, D. (2013). Facilitating professional development for teachers of English language learners. *Teaching and Teacher Education, 29*(1), 197–207. https://doi.org/10.1016/j.tate.2012.10.002
Moon, J., & Ju, M. (2010). A case study of multicultural mathematics teacher education course: An analysis of course effect on preservice mathematics teachers' multicultural competence. *The Journal of Curriculum and Evaluation, 13*(3), 103–132.
Mullis, I. V. S, Martin, M. O., & Foy, P. (2008). *TIMSS 2007 International mathematics report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth grade.* Boston College.
Na, J. (2011). A review and synthesis of literature on multicultural teacher education curricula. *The Journal of Curriculum Studies, 29*(2), 173–197.
OECD. (2019). TALIS 2018 Results (Volume I): *Teachers and School Leaders as Lifelong Learners, TALIS*. OECD Publishing, Paris. https://doi.org/10.1787/1d0bc92a-en
Oh, J. (2013). The study of multicultural education for preservice teachers in Gangwon-do who major in mathematics education. *The Mathematical Education, 52*(3), 379–398.

Paris, D. (2012). Culturally sustaining pedagogy: A needed change in stance, terminology, and practice. *Educational Researcher, 41*(3), 93–97.

Park, M., & Kim, K. (2012). A study for the multicultural competency changes of preservice teachers who have taken the multicultural education courses already. *Multicultural Education Studies, 5*(1), 155–176.

Park, S., & Cho, Y. (2020). Explaining academic achievement gaps in South Korea with multicultural education paradigms. *Asia Pacific Journal of Education*, 1–24. https://doi.org/10.1080/02188791.2020.1823315

Park, S., & Sung, M. (2011). The impact of teachers' experience of multicultural education on their multicultural awareness. *Social Studies Education, 50*(3), 1–15.

Park, Y., Sung, K., & Cho, Y. (2008). Elementary and secondary school teachers' attitude towards cultural diversity and students from multicultural families. *Theory and Research in Citizenship Education, 40*(3), 1–28.

Parkhouse, H., Lu, C. Y., & Massaro, V. R. (2019). Multicultural education professional development: A review of the literature. *Review of Educational Research, 89*(3), 416–458. https://doi.org/10.3102/0034654319840359.

Schniedewind, N. (2001). Embracing the rainbow: An integrated approach to diversity education. *Multicultural Perspectives, 3*(1), 23–27.

Siwatu, K. O. (2007). Preservice teachers' culturally responsive teaching self-efficacy and outcome expectancy beliefs. *Teaching and Teacher Education, 23*(7), 1086–1101.

Song, R.-J., noh, S. S., & Ju, M. K. (2013). An analysis of Korean mathematics teacher's multicultural competence: Implications for multicultural mathematics teacher education. *Journal of Education Research in Mathematics, 23*(3), 313–333.

Song, R. (2017). An analysis of mathematics teachers' multicultural competence change in a multicultural mathematics teacher education course. *Korean Journal of Educational Research, 38*(2), 1–20.

Song, R., & Ju, M. (2014a). Development research of multicultural mathematics teacher education model: Exploring preliminary model based on situational analysis. *Journal of Educational Research in Mathematics, 24*(2), 227–251.

Song, R., & Ju, M. (2014b). Need analysis of multicultural mathematics education: Mathematics teachers' narratives about multicultural mathematics education. *Journal of Learner-Centered Curriculum and Instruction, 14*(5), 287–311.

Song, R., & Ju, M. (2021). An analysis of teachers' pedagogical design capacity for multicultural mathematics education. *Journal of Educational Research in Mathematics, 31*(1), 83–107, https://doi.org/10.29275/jerm.2021.02.31.1.83

Song, R., Moon, J., & Ju, M. (2010). Principles and methods of multicultural mathematics teacher education. *Journal of Korea Society of Educational Studies in Mathematics, School Mathematics, 12*(4), 639–665.

Song, R., No, S., & Ju, M. (2011). Investigation of the teaching practice in mathematics classroom with immigrant students. *Journal of Korea Society of Educational Studies in Mathematics, School Mathematics, 13*(1), 37–63.

Um, S., & Won, J. (2012). Current research trends and directions for future research in multicultural teacher education. *Korean Journal of Early Childhood Special Education, 12*(4), 51–80.

Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education, 8*(1), 69–91. https://doi.org/10.1080/1361332052000341006

Chapter 28
Rethinking Lesson Study in Japan: A Case Study Analysis

Tetsuo Isozaki and Takako Isozaki

Abstract Teachers in Japan have traditionally engaged in lesson study (*jyugyou-kenkyuu*) to systematically improve their teaching and enhance students' learning since the late nineteenth century. Lesson study, a part of teachers' culture in Japan, is an art of investigation for teaching and learning through which teachers observe, analyse, and review each other's lessons. Lesson study is based on traditional understanding and expertise rather than on educational theories. Understanding and analysing teachers' methods for developing lessons may help bridge the gap between research and practice for both teachers and researchers. The authors reviewed the literature on lesson study and teacher knowledge then focussed primarily on the preparation phase of lesson study conducted at schools attached to one national university, as case studies. This phase, through researching and developing teaching materials (*kyouzai-kenkyuu*) and making and revising lesson plans (*gakushuushidouan-sakusei*), requires teachers to identify a lesson's implicit and explicit values, such as academic, pedagogical, and teacher's values, clarify their teacher knowledge, and regularly apply in lessons. Therefore, teachers spend much time and energy on this phase. There are some problems in lesson study; however, we argued that the success or failure of lesson study is related to the school culture and collegiality of the professional learning community.

Keywords Teacher knowledge · Continuing professional development · Lesson study · Japan · Case study

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Introduction-Background and Research Questions

Background of This Study

Teaching practices in classrooms and other special rooms, such as laboratories and kitchens, are partly based on the professional knowledge and expertise of teachers. Teachers in Japan have traditionally engaged in "Lesson Study (lesson study)", a practice that has become deeply embedded in teachers' professional culture (e.g. Isozaki, 2015, 2020; Isozaki & Isozaki, 2011; Isozaki et al., 2019). Through their experience with this practice, teachers have realized that lesson study enhances teacher knowledge base and teaching competencies, which are a part of continuing professional development (CPD). However, it is difficult for them to recognize the implicit contribution of lesson study to their CPD, especially in improving teacher knowledge, as stated by Shulman (1986, 1987).

Relatively few attempts have been made to theorize lesson study in terms of teaching and learning (e.g. Fujii, 2014, 2017; Lewis, 2002; Lewis & Hurd, 2011; Lewis et al. 2009; Winsløw et al., 2017).Despite its long history of application, neither teachers nor researchers seemed interested in investigating lesson study in Japan until the publication of Stigler and Hiebert's *The Teaching Gap: Best Ideas from the World's Teachers for Improving Education in the Classroom* in 1999. Bartalo (2012) pointed out that a key point of the report entitled *Strong Performance and Successful Reformers in Education*, published by the Organisation for Economic Co-operation and Development (OECD, 2011), was to "mirror and reinforce" (p. 9) Stigler and Hiebert's ideas. This strengthens the belief that cultural factors, such as school culture and teacher culture, shape teaching and learning in every country. For supporting teachers' CPD, a theoretical understanding of lesson study as a teacher culture would contribute to students' learning in the classroom, which Black and William (1998) called the "black box", as the primary focus of lesson study is on students' learning.

Meanwhile, Winsløw et al. (2017) argued that "a theoretical framework (with explicitly defined categories and terms) is needed to move the analysis of mechanisms and principles of lesson study …toward a more international and explicit stance" (p. 126). Clivaz and Takahashi (2017) asserted that it is still unclear whether or not "lesson study projects outside Japan can properly support schools and teachers" (p. 162). Lewis (2002) and Lewis and Hurd (2011) identified lesson study as having four processes. Borrowing from these two studies, Fujii (2017) divided the cycle of lesson study into five processes. However, the findings of previous studies could not explain why Japanese teachers devote so much time and energy to preparing their lessons (OECD, 2014, 2019), or how teachers improve their knowledge and skills. Based on the experience of designing the lesson study processes with teachers, Isozaki and Isozaki (2011) and Isozaki (2015, 2020) identified the lesson study process as comprising the following phases: preparation, research lesson, and reflective meeting/conference. Isozaki et al. (2019) illustrated these three phases of lesson study in both pre-and in-service teacher education. In the present study, we

adopt these three phases of lesson study for analysis of case studies. Primarily, the preparation phase of lesson study is a dynamic process where teacher knowledge and values are represented implicitly and explicitly (Isozaki, 2020).

In this study, first, we consider theories on teacher knowledge proposed by Shulman (1986, 1987) and other researchers, as well as the nature of lesson study in the cultural context of Japan. We then investigate the nature of lesson study and associated problems from teacher knowledge perspective by analysing two case studies. Finally, we make several suggestions for conducting lesson study effectively for teachers and researchers.

Research Questions

Based on the theoretical analysis of lesson study and teacher knowledge, this study aims to rethink lesson study in Japan through an analysis of case studies to which one of the authors have directly contributed and focussed on open-house lesson study or open-house school based CPD (Isozaki & Isozaki, 2011) conducted at two schools on the same campus, one elementary and another secondary, attached to "A" national university. To achieve this purpose, we ask two research questions: first, what is the nature of lesson study in Japan and why do teachers engage in it? Second, what kind of teacher knowledge do teachers use in lesson study and how do they improve teacher knowledge, primarily pedagogical content knowledge (PCK). A careful description of the lesson study process can explain why Japanese teachers tend to devote much time and energy to prepare lesson study and develop their regular classroom lessons.

Theories on Lesson Study and Teacher Knowledge

As Lewis et al. (2009) have argued, "Lesson study makes various types of knowledge more visible…thereby enabling teachers to encounter new or different ideas, and to refine their knowledge" (p. 286). For this reason, we focus on teacher knowledge, primarily PCK, applied in the lesson study process. Analysing lesson study using the theoretical framework of teacher knowledge will be significant for not only teachers but also researchers in Japan and beyond.

Characteristics and Nature of Lesson Study in Japan

The term lesson study is the English translation of the Japanese term "*jyugyou-kenkyuu*" (or *kenkyū*), where *jyugyou* means "lesson" and *kenkyuu* means "study" or "research". Thus, lesson study is a comprehensive and well-articulated approach to examine and investigate teacher's practices. Lesson study is strongly embedded in the

professional culture of teaching in Japan as pre-and in-service training. Prospective teachers experience the nuance of lesson study during teaching practice under the guidance of mentors in their alma maters, schools attached to universities, or other partnership schools, while teachers periodically engage in lesson study within their professional learning communities (Isozaki, 2015, 2020; Isozaki & Isozaki, 2011).

The first phase of lesson study process is preparation, which includes setting the goals of a particular lesson, researching and developing teaching materials (*kyouzai-kenkyuu*), and making and revising lesson plans (*gakushuushidouan-sakusei*). Educators in Japan sometimes use the two Japanese terms, *kyhouzai-kenkyuu* and *kyouzai-kaihatsu*, separately. *Kyouzai* means "teaching materials" while *Kaihatsu* refers to "development". Therefore, *kyhouzai-kenkyuu* and *kyouzai-kaihatsu* mean researching teaching materials and developing teaching materials, respectively. However, as *kyouzai-kaihatsu* follows *kyhouzai-kenkyuu*, in this study, we regard the two terms as representing one process and use the term *kyouzai-kenkyuu*. While educators in Japan recognize *kyouzai-kenkyuu* as an essential part of the preparation phase of lesson study and regular lessons, non-Japanese lesson study adapters have ignored it, as the effort spent on this process may almost be imperceptible (Doig et al., 2011).Moreover, as Japanese researchers Fujii (2014, 2017) and Takahashi and McDougal (2016, 2019) argue, some aspects of Japan's lesson study are left out in other countries. As lesson study in Japan is deeply embedded in the school and teacher culture of Japan, for non-Japanese researchers, it may be not easy to recontextualize lesson study from its original cutural context. Elliott (2019) warned that lesson study would be "'cherry picked' and forged to fit an organisational culture that is driven by test data" (p. 187).

Researching and developing teaching materials, and making and revising lesson plans are the central activities for teachers in lesson study, as well as in everyday practice. These activities are the main part of the preparation phase, and teachers must identify the lesson's implicit and explicit values, such as academic as well as pedagogical values (Isozaki, 2020). It is expected from teachers who deliver a research lesson to carefully engage in researching and developing teaching materials, and making and revising their lesson plans based on advice and reflective discussion/conversation with colleagues and external advisors (e.g. professors and consultant teachers on the local board of education) who are "knowledgeable others" (Takahashi & McDougal, 2016, p. 515).

Through experiencing these processes, not only teachers but also student teachers can gain and improve teacher knowledge, especially PCK, values, and insight into their own subjects. Thus, lesson study helps teachers "internalize productive mindsets" (Fernandez, 2002, p. 404), and can provide them the opportunity to be a reflective practitioner (Schön, 1983).

Figure 28.1 shows a typical lesson plan and its components (Isozaki, 2015, 2020).

It is worth noting that lesson plan in Japan consists of a unit perspective, and teachers try to anticipate students' behaviour and response in a lesson as far as possible. To do this, teachers need to understand the scope and sequence of the subject curriculum in its entirety, linking lessons both within and across related units in previous and later grades, and know what students learned and understood in

(1) Name of the unit.

(2) The unit objectives, which comprise knowledge and understanding, skills, and attitudes relating to the Course of Study.

(3) A section about the unit which includes the following three perspectives:

(a) Unit perspective: The focus is on the unit's targets in terms of the subject content and its scientific and educational values, the nature of the unit, and important scientific concepts.

(b) Learner perspective: This includes students' perspectives, such as their characteristics, previous knowledge, and naïve concepts.

(c) Instruction perspective: This describes teacher's instruction policy based on unit (a) and learner (b) perspective.

(4) Scheme of work, which includes the sequence of lessons in the unit, as well as the task and objectives for each lesson.

(5) Assessment criteria and methods for every lesson in the unit.

(6) A one-hour lesson structure, as follows:

(a) Today's topic.

(b) The objectives of today's lesson (In general, these describe what students do or can do…)

(c) Today's lesson process as follows:

Time (estimated time)	Students' learning	Instruction and assessment
【Introduction】5–10 mins 【Development】30–40 mins 【Conclusion】5–10 mins	What students do or can do	What a teacher makes students do [Assessment criteria and methods]

Fig. 28.1 A typical lesson plan

previous grades (Isozaki, 2020). Consequently, several types of teacher knowledge and values are reflected in the lesson plans. Therefore, a lesson plan can be considered as reflection-on-action (Schön, 1983) for teachers and participants of lesson study. Along with the lesson plan, many teachers and student teachers create a worksheet, which engages students in practical work, and a board plan *(bansho-keikaku* in Japanese),which presents a proposed layout of the lesson. These are also important components for discussion at the reflective meeting. Finally, a teacher designs the research lesson.

The second phase involves research lessons. While the teacher conducts a lesson in the classroom based on the revised lesson plan, participants and colleagues observe and collect data on students' learning as well as teachers' teaching. Students' behaviour, informal conversation or mutter (*tsubuyaki* in Japanese), and notebooks

and worksheets are observed, and a teacher's management of the research lesson is examined. Often, colleagues of teachers record the research lesson using photos and videos, which are used for reflection and future reference. This implies that the lesson plan should be created for not only teachers and students, but others too. During the research lesson, students are taught according to the revised lesson plan; however, it may not be perfect. Even though teachers think deeply about and carefully anticipate students' behaviour and response at the preparation phase, revising the lesson plan several times, complex and unpredictable events can always occur. In such a case, teachers are required to use their professional judgement and make impromptu corrections to the lesson plan in their minds. The primary purpose of the lesson is to improve students' learning, not to deliver a lesson according to the revised lesson plan. This behaviour of teachers is referred to as refection-in-action (Schön, 1983).

The third phase is a reflective meeting/conference held after the completion of the research lesson. At the beginning of the reflective meeting, the teacher who delivered the research lesson explains his/her ideas behind teaching. Next follows a discussion based on the lesson plan, teacher's explanation, and data collected during the research lesson. Advisors, as knowledgeable others, comment on the lesson study, and at the end of the reflective meeting sometimes deliver a lecture relating to the main or subtheme of lesson study. Thus, participants can exchange and share their views and ideas on the lesson study.

This shows that lesson study is an evidence-based approach to improve learning and teaching in the professional learning community (e.g. Isozaki, 2015, 2020). Thus, starting from their student teacher term until their retirement, teachers can learn a lot of things related to teaching and learning, and implicit and explicit professional norms through lesson study.

Two Theories on Teacher Knowledge

This study focusses on teacher knowledge applied in the lesson study processes. For example, a science teacher's scientific knowledge should be organized from the teaching perspective and delivered as the foundation for the teaching of scientific concepts and ideas. According to Bosch and Gascón (2006) and Chevallard(1989, 1999), a teacher is not a scholar; therefore, teachers sometimes face difficulties when directly transforming the scholarly knowledge produced by scholars into a form that can be learned by students, which can be identified as knowledge-to-be-taught, as described in the official documents, such as the national curriculum and the textbook. In the classroom context, teachers also transform knowledge-to-be-taught into taught knowledge because the knowledge described in curricula and textbooks is standardized and not necessarily suitable for all students. The transformation of knowledge into a teachable form occurs during the preparation phase of the lesson study and regular lessons. Teachers are responsible for this transformative process because they determine the teaching methods best suited to their students and tend to focus on and take part in "internal didactic transposition" (Winsløw, 2007, p. 528), in

which knowledge is transformed from knowledge-to-be-taught to taught knowledge, and then to learned knowledge. As mentioned above, these transformations primarily take place during the preparation phase of lesson study.

Shulman (1987, p. 8) categorized teacher knowledge into seven types: (1) content knowledge, (2) general pedagogical knowledge, (3) curriculum knowledge, (4) PCK, (5) knowledge of learners and their characteristics, (6) knowledge of educational contexts, and (7) knowledge of educational ends. Additionally, Shulman (1987, pp. 12–19) proposed a model of pedagogical reasoning and action comprising: (1) comprehension, (2) transformation (preparation, representation, selection, and adaptation and tailoring to student characteristics), (3) instruction, (4) evaluation, (5) reflection, and (6) new comprehension. According to this model (Shulman, 1987, p. 16), the transformation of teacher knowledge into teachable and learnable forms suitable for students entails the following processes: (a) *preparation*, including critical interpretation; (b) *representation* of ideas as analogies, metaphors, and so on; (c) instructional *selection* of teaching methods and models; (d) *adaptation* to the general characteristics of students; and (e) *tailoring* these adaptations to specific students. This transformation can be observed in the process of lesson study, primarily during the preparation phase.

Although Shulman (1987) did not define PCK clearly, several researchers, including Magnusson et al. (1999); Loughran et al., (2006, 2012); and Bishop and Paul (2007), have tried to identify PCK in science teaching. Magnusson et al. (1999, pp. 96–97) conceptualized a PCK model to analyse teacher knowledge, which comprises the following five components: (a) orientations towards science teaching, (b) knowledge and beliefs about science curriculum, (c) knowledge and beliefs about students' understanding of specific topics in science, (d) knowledge and beliefs about assessment in science, and (e) knowledge and beliefs about instructional strategies for teaching science. Although van Driel and Berry (2012) argued that PCK can be developed both individually and in the professional collegiate community, the latter being the same as lesson study, in the present study, we use Magnusson, Krajcik, and Borko's PCK model (1999) as a tool for analysing PCK represented in the preparation phase of lesson study and regular lessons.

Research Design: Two Case Studies on Special School Culture in Japan

We conducted two case studies for one academic year within a special school context, focussing on an elementary and a secondary school attached to "A" national university. Schools attached to national universities in Japan (called (higher) normal schools before WWII) have played important roles since their establishment. With students' education, they have functioned as (1) a teaching practice school for student teachers, (2) an experimental school, and (3) a model school in the region. However, their role as a model school has largely become limited since the second World War.

While teachers in attached schools engage in open- and in-house lesson study, they also act as mentors for student teachers and conduct lesson study during teaching practice. Moreover, students in attached schools are generally selected through an entrance examination at the elementary and the secondary school levels, and therefore, academically, may perform better than their municipal school counterparts. Thus, while attached schools to national universities have had a long history of lesson study and have established their own school culture, Elliott (2019) argues that school culture shapes and distorts the implementation of lesson study. This is why we conducted case studies at attached schools and not municipal schools.

In addition, it is worth noting that in Japan, every teacher in a secondary school, regardless of school type, belongs to a grade group that spans across subjects performing several functions, such as coaching school clubs, and guiding students. Furthermore, some secondary school teachers also are homeroom teachers. As a result, as Isozaki and Isozaki (2011) asserted, similar to elementary teachers, secondary school teachers have a deeper understanding of each student's characteristics from multiple perspectives, not only their own teaching subject.

Two Case Studies

Both the elementary and secondary schools under consideration were established as attached schools to the Higher Normal School (one of the former institutes of "A" university), which was founded in 1905. The elementary school started open-house lesson study in 1915, and the secondary school in 1920. While the two attached schools under consideration have been conducting both open- and in-house lesson study with support of the "A" university for over one hundred years, both schools have become more connected to the local board of education in recent years. The elementary school has been publishing a monthly journal every year since 1914, including reviews of lesson study. The secondary school provides its lesson plans, worksheets, and other teaching materials on the school website after open-house lesson study.

Case study 1

The research lesson of open-house lesson study at the elementary school was conducted on 7 February 2020. The school's department of science had two teachers. However, though they were science majors, similar to municipal elementary school teachers in Japan, they were also homeroom teachers and taught several subjects similar to other municipal school teachers.

A male teacher with a bachelor's degree in education and 14 years of teaching experience delivered the research lesson. Before moving to this school, he worked at municipal elementary schools and was involved for a year with an elementary school attached to another national university.

He started preparing a lesson study from the beginning of the academic year in April 2019, just after coming to this school. During his stay at the school, he experienced in-house lesson study. As part of the open-house lesson study, he delivered two lessons, one on "how to warm things" for Grade 4 and the other on "the nature of electromagnets by programming a robot" for Grade 5. After the open-house lesson study, he published a report on the nature of electromagnets by programming a robot in the school's monthly journal. As Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) encourages programming education in schools, by conducting a lesson on the nature of electromagnets for Grade 5, he wanted to present his ideas on programming education in science teaching.

From April 2019 to February 2020, he consulted his advisor, who was a professor of "A" university, 11 times and held discussion on the pedagogical values of the main and sub-themes, contents of lesson plans, how to engage in researching and developing teaching materials involving worksheets, and also other educational issues. Of these 11 meetings, four were conducted face-to-face at the university or his school with another female teacher, and seven were conducted through email. The two science teachers often engaged in reflective conversation regarding the pedagogical value of teaching materials. They, fortunately, could obtain suggestions from the attached secondary school science teachers on the scientific value of the proposed teaching materials.

The male teacher focussed on how to improve students' learning using his previously created worksheet, and how to organize problem-solving activity in science lessons using a robot with a competitive game function to stimulate students' interest at Grade 5. The purpose of the lesson was not only to program a robot but also to develop a tool to understand the nature of electromagnets.

However, unfortunately, after the lesson study, there were few instances of reflective discussion on his research lesson with the advisor, except for writing a report to the school journal.

Case study 2

The research lesson of open-house lesson study at the secondary school was conducted on 13 October 2018. The school's department of science had nine teachers (three majored in physics, three in chemistry, two in biology, and one in earth science), and normally held a meeting every week. A male teacher who was a chemistry major with a master's degree in education and nine years of teaching experience conducted the lesson study. He had carried out lesson study several times at this and another secondary school attached to "A" university. At the beginning of April 2018, he started preparing the lesson study.

Considering the school's research theme and science department's sub-theme related to "deep learning" which MEXT enhances, he targeted the unit "the properties of matter and its changes" at Grade 7, which comprised seven lessons, and selected the fifth one for the research lesson. From April to October 13, he revised the lesson plan six times based on discussions in department meetings, reflective conversation with two other chemistry teachers on the teaching materials and the approaches from perspectives of scientific and pedagogical values, comments

from a university professor as the advisor, and the results of preliminary experiments. He conducted several preliminary experiments for the following purposes: for researching and developing teaching materials suitable for student engagement, for safe practical activity due to many participants observing the research lesson, and for observing students' acquired practical skills, such as measuring temperature and drawing graphs. He also focussed on how each group of students can effectively think and represent its particle model to explain the results of the experiment, and how to share their ideas in the class. The reason why he insisted on using the particle model is that the science curricula from elementary to upper secondary school include four key concepts as part of a spiral curriculum designed by MEXT: energy, particle, life, and earth. He conducted trial lessons in two other classes based on the revised lesson plan, and following students' responses, made minor corrections to the lesson plan before the actual research lesson.

However, after the lesson study, there was no time for reflective discussion on the research lesson with the advisor, except for revising the lesson plan in a department meeting before sharing it on the school website.

Discussion

How Do Japanese Teachers Gain and Improve Their Teacher Knowledge Through Engaging in Lesson Study?

During the preparation and representation phases of Shulman's (1987) model, teachers in Japan tend to critically reflect on teaching materials they had previously produced, and reference previous lessons. They read official documents, such as the Course of Study, other guidelines, and textbooks, and consider the specific key concepts and skills to be taught in the unit based on their academic and pedagogical values. They consider the topics of the unit from different perspectives so that the relevant ideas and skills provided are accessible to the students during the lesson. In the process of selecting materials, teachers apply their knowledge developed from previous teaching experiences and personal self-improvement activities, such as reading books and participating in in-service programs involving lesson study, to develop teaching materials. In the adaptation process, teachers customize their teaching materials (involving worksheets) according to their students' characteristics and understanding by considering their abilities, prior knowledge, or naïve concepts, and carefully anticipate students' behaviour and responses in and to the lesson. During the tailoring process, teachers consider within-class variation and differentiate the teaching material accordingly. Thus, pedagogical reasoning and action occur during the preparation phase of lesson study. These processes could be observed in the two case studies, and the internal didactic transposition was carefully and effectively executed by the two teachers. This exemplifies why teachers in Japan spend much energy and time preparing lessons, as shown by OECD (2014, 2019).

Furthermore, referring to Magnusson, Krajcik, and Borko's PCK model (1999), we analysed teacher knowledge represented in the lesson plan. The first and second components, orientations towards science teaching and knowledge and beliefs about science curriculum, are represented in the lesson plan described in Fig. 28.1 as "The unit objectives" and "A section about the unit which includes the following three perspectives: (a) Unit perspective". The third component, knowledge and beliefs about students' understanding of a *particular* topic in science, is similar to "(b) Learner perspective: This includes students' perspectives, such as their characteristics, previous knowledge, and naïve concepts" part of the lesson plan. Knowledge and beliefs about assessment in science can be identified as "(5) Assessment criteria and methods for every lesson in the unit". The fifth component, knowledge, and beliefs about instructional strategies for teaching science, can be observed as "(c) Instruction perspective". Thus, all the components of PCK identified by Magnusson et al. (1999) are implicitly and explicitly included in Japan's lesson plan.

Thus, from the theoretical analysis of lesson study and case studies, we can identify teacher knowledge, and pedagogical reasoning and action during the preparation phase of lesson study, as well as regular lessons in Japan.

Next, we identified the following characteristics of lesson study conducted in two schools attached to "A" national university in Japan, especially at the preparation phase.

(1) Teachers in both schools focussed on students' learning when being engaged in researching and developing teaching materials (*kyouzai-kenkyuu*), and making and revising a lesson plan (*gakushuushidouan-sakusei*), in parallel and provided feedback to each other. We identified that both Shulman's model of pedagogical reasoning and action, and internal didactic transposition, were carefully implemented during this phase.
(2) They spent more than half a year preparing the lesson study with colleagues.
(3) They revised the lesson plan several times based on discussion and reflective conversation with colleagues, comments from the advisor, and the results of preliminary experiments.
(4) They performed several preliminary experiments as part of researching and developing teaching materials from both learning and teaching perspectives.
(5) They conducted trial lessons in other classes based on the revised lesson plan to confirm and grasp students' understanding and behaviour.

Additionally, the themes of both schools for lesson study were related to the recent MEXT policies.

These case studies reflect the traditional attached school culture in Japan, with an established professional learning community based on collegiality in schools, and its academic links with universities and its connection with the local board of education. Not surprisingly, both the teachers were aware that teachers of schools attached to "A" national university should engage in lesson study positively. Furthermore, they recognize that both open- and in-house lesson study can improve their teacher knowledge base and teaching competencies and that they learn from participants, colleagues, and advisors even though they have to spend much energy and time on it.

This realization keeps teachers of attached schools up to date with the latest research trends. Of course, teachers in other municipal schools take engaging in lesson study for their CPD for granted (e.g. Fujii, 2014; Isozaki, 2020; Isozaki & Isozaki, 2011).

The standardization of lesson study can easily be achieved in other schools. According to an OECD (2019) report on the Teaching and Learning International Survey, 91% of the teachers in Japan were satisfied with the training they received involving lesson study, against the average of 82% in OECD countries. On the other hand, standardization of lesson study can lead to stylization, rigidity, and trivialization (e.g. Isozaki, 2015). For example, in general, while the reflective meeting provides opportunities to exchange ideas and learn from others about creating teaching materials, developing teaching approaches, and how to manage the class, participants tend to hesitate to criticize the research lesson, and sometimes it becomes difficult to ask questions. In addition, teachers in both schools did not get the opportunity for reflective discussion on their practices after the open-house lesson study and engaged in less informal reflective conversation with colleagues. As Sato (2009) argued, a new favourite trend in lesson study is its transformation from a program-based approach that involves researching and developing teaching materials and making and revising lesson plans in the preparation phase to a project-oriented approach that focusses on its designing processes and reflections. In this sense, the case studies under consideration are regarded as having a program-based approach, though a university professor joined the design process of lesson study as an advisor for the elementary school's case study rather than for the secondary school.

Japanese Teachers Spend Much Effort at the Preparation Phase of Lesson Study from Teacher Knowledge Perspective

The case studies showed that the two teachers spent much time and energy at the preparation phase. They revised the lesson plan and conducted preliminary practical work several times. We analyse the reason behind their spending this much effort from teacher knowledge perspective.

After the PCK summit in 2012 (Carlson et al., 2015), Gess-Newsome (2015) redefined the PCK model proposed by Shulman (1987) and developed a model of teacher professional knowledge and skill (PCK & S) that includes PCK as follows:

- Personal PCK is the *knowledge* of, *reasoning* behind, and *planning* for teaching a particular *topic* in a particular *way* for a particular *purpose* to particular *students* for enhanced *student outcomes* (Reflection *on* Action, Explicit).
- Personal PCK & S is the *act of teaching* a particular *topic* in a particular *way* for a particular *purpose* to particular *students* for enhanced *student outcomes* (Reflection *in* Action, Tacit or Explicit) (Gess-Newsome, 2015, p. 36: *italics* in original)

Gess-Newsome(2015) argued the importance of PCK & S in the classroom context. A typical lesson plan in Japan (see Fig. 28.1) and the process of conducting researching and developing teaching materials, and making and revising lesson plans include all the components (knowledge and skills) mentioned in the first definition given by Gess-Newsome (2015). As Fig. 28.1 shows, a lesson plan includes the unit objectives and scheme of works, including the objectives of each lesson and main activities and the assessment criteria and methods in each lesson. This unit perspective allows teachers to recognize why it is important for *particular* students to know the ideas presented in the unit, critically think about what is important for improving students' learning in the classroom context, and carefully reflect on what should be done for appropriate learning. The process of making and revising lesson plans is not observed by other teachers. The revised lesson plan, representing teacher knowledge and several values, serves as a guide to the research lesson and a platform for discussion at the reflective meeting. This is one of the reasons why the two teachers revised their lesson plan several times. Consequently, participants of the lesson study can understand the reasoning behind a lesson plan, and recognize and confirm it at the reflective meeting where a teacher explains his/her own ideas on students' understanding and behaviour, teaching materials, teaching approaches, and other ideas about the lesson. Therefore, a careful analysis of the lesson plan is important not only to understand how teachers plan the lesson and create the teaching material using their teacher knowledge base and skills, but also why teachers make and often revise the lesson plan for enhancing students' understanding in lesson study..

As mentioned above, teachers normally conduct research lessons and regular lessons according to a lesson plan. Although the final version of the revised lesson plan may not necessarily be perfect, it is more important for teachers to carefully observe students' behaviour during a lesson, even though they anticipate students' responses before a lesson, and need to make an instantaneous modification to the lesson plan in their minds in accordance with students' unpredicted responses during a lesson. This improvising behaviour of teachers can be identified as reflection-in-action (Schön, 1983).To effectively engage in such behaviour, teachers must have opportunities to reflect on their practices. Thus, the latter definition proposed by Gess-Newsome (2015) regarding PCK & S concerns classroom practice in lesson study.

While teachers focus on improving students' learning and enhancing outcomes in research lessons as well as regular lessons, as argued the importance of reflection by Sato (2009) and exemplified by the two case studies, teachers do not tend to reflect on their lesson study with researchers. This implies that teachers miss the opportunities to deeply reflect on what students experienced in the research lesson and discuss students' outcomes, such as learned knowledge and acquired skills represented in their notes, worksheets, and other collected data in lesson study. As Gess-Newsome (2015) argues, PCK & S can be inferred by participants and researchers through careful observation in lesson study. The two case studies also exemplify that it is important to conduct lesson study effectively for the teachers themselves as well as for the participants and that teachers need to design the lesson study process in

association with researchers to investigate students' authentic learning in a classroom context.

Implications and Conclusion

As Isozaki (2015, 2020) has argued, while lesson study has potential value for CPD and is *one* of the important vehicles for developing teacher knowledge and skill, it is important for teachers and researchers to recognize that the standardization of lesson study may lead to stylization and rigidity. Clivaz and Takahashi (2017) argued that theorizing a lesson study could help researchers and teachers outside Japan understand its specific cultural norms. As lesson study is embedded in the teaching culture of Japan, there is space for non-Japanese education researchers to identify social and cultural norms in Japan's school context. This implies that researchers and teachers in Japan have to provide enough information to educators outside of Japan who wish to design lesson study.

Through lesson study within the professional learning community, teachers can improve their knowledge base and teaching competencies. In order to bridge the gap between theory and practice in education, enhancing reflection with researchers based on collected data using analysis tools of PCK models such as those conceptualized by Magnusson et al. (1999), Loughran et al., (2006, 2012), and Gess-Newsome (2015) is important. Therefore, in the collaborative design process of lesson study with teachers, researchers should adopt the PCK model to analyse the transformation of teachers from being a novice to experienced ones and provide adequate feedback to them. However, it is relatively difficult to change teachers' beliefs through CPD involving the lesson study (Isozaki, 2020). In the short term, researchers as knowledgeable others can provide teachers with opportunities to reflect on what knowledge is transformed and why in a particular unit, as well as help teachers draw on their knowledge to decide what and how to teach in a *particular* unit. In the long term, researchers as knowldgeable others should be able to actively increase teachers' CPD and aid in the development of more reflective practices. For example, they can monitor teachers and provide them adequate advice for developing PCK and PCK & S, as conceptualized by Shulman and other researchers, according to the stage of their teaching experiences. Furthermore, as argued by Lampley et al. (2018), lesson study is a promising approach for graduate teaching assistants at the higher institution to reflect on their teaching practice. This implies that lesson study can be useful for young researchers becoming knowledgeable others as well.

As a result, teachers' in-depth analysis of collected data and reflection with researchers *after* lesson study can elucidate students' authentic learning in the classroom, both within Japan and beyond. It is worth noting that the development of teacher knowledge and skill is not limited to the preparation phase, but can also be developed through a continuous process of lesson study.

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References

Bartalo, D. (2012). *Closing the teaching gap: Coaching for instructional leaders*. Corwin Press.

Bishop, K., & Paul, D. (2007). *Learning science teaching: Developing a professional knowledge base*. McGraw-Hill/Open University Press.

Black, P., & William, D. (1998). *Inside the black box: Raising standards through classroom assessment*. School of Education, King's College London.

Bosch, M., & Gascón, J. (2006). Twenty-five years of the didactic transposition. *International Commission on Mathematical Instruction Bulletin, 58*, 51–63.

Carlson, J., Stoke, L., Helms, J., Gess-Newsom, J., & Gardner, A. (2015). The PCK summit: A process and structure for challenging current ideas, provoking future work, and considering new directions. In A. Berry, P. Friedrichsen, & J. Loughran (Eds.), *Re-examining pedagogical content knowledge in science education* (pp. 14–27). Routledge.

Chevallard, Y. (1989, August). On didactic transposition theory: Some introductory notes. Retrieved from http://yves.chevallard.free.fr/spip/spip/Iarticle.php3?id_article=122. In *Proceedings of the International Symposium on Selected Domains of Research and Development in Mathematics Education* (pp. 51–62). Bratislava.

Chevallard, Y. (1999). *Didactique*? Is it a *plaisanterie*? You must be joking! A critical comment on terminology. *Instructional Science, 27*, 5–7.

Clivaz, S., & Takahashi, A. (2017). Mathematics lesson study around the world: Conclusions and looking ahead. In M. Quaresma, C. Winsløw, S. Clivaz, J. P. da Ponte, A. NíShúilleabháin, & A. Takahashi (Eds.), *Mathematics lesson study around the world: Theoretical and methodological issues* (pp. 153–164). Springer.

Doig, B., Groves, S., & Fujii, T. (2011). The critical role of task development in lesson study. In L. C. Hart, S. Alice, & A. Murata (Eds.), *Lesson study research and practice in mathematics education* (pp. 181–199). Springer.

Elliott, J. (2019). What is lesson study? *European Journal of Education, 54*, 175–188.

Fernandez, C. (2002). Learning from Japanese approaches to professional development: The case of lesson study. *Journal of Teacher Education, 53*, 393–405.

Fujii, T. (2014). Implementing Japanese lesson study in foreign countries: Misconceptions revealed. *Mathematics Teacher Education and Development, 16*(1), 65–83.

Fujii, T. (2017). Lesson study and teaching mathematics through problem solving: Two wheels of a cart. In M. Quaresma, C. Winsløw, S. Clivaz, J. P. da Ponte, A. NíShúilleabháin, & A. Takahashi (Eds.), *Mathematics lesson study around the world: Theoretical and methodological issues* (pp. 1–21). Springer.

Gess-Newsome, J. (2015). A model of teacher professional knowledge and skill including PCK: Results of the thinking from the PCK Summit. In A. Berry, P. Friedrichsen, & J. Loughran (Eds.), *Re-examining pedagogical content knowledge in science education* (pp. 28–42). Routledge.

Isozaki, T. (2015). Lesson study research and practice in science classroom. In R. Gunstone (Ed.), *Encyclopedia of science education* (pp. 615–618). Springer Reference.

Isozaki, T. (2020). Exploring the professional learning values inherent in Japan's lesson study. In D. Corrigan, C. Butting, A., Fitzgerald, & A. Jones (Eds.), *Values in science education: The shifting sands* (pp. 139–152). Springer Nature.

Isozaki, T., & Isozaki, T. (2011). Why do teachers as a profession engage in lesson study as an essential part of their continuing professional development in Japan? *International Journal of Curriculum Development and Practice, 13*(1), 31–40.

Isozaki, T., Nozoe, S., & Isozaki, T. (2019). Science teachers' pedagogical development: Focusing on lesson study. In *Electronic proceedings of the ESERA 2019 conference. The beauty and pleasure of understanding: Engaging with contemporary challenges through science education, Part 14* (co-ed. C. Fazio, & M. Welzel-Breuer) (pp. 1606–1614). University of Bologna.

Lampley, S. A., Gardner, G. E., & Barlow, A. T. (2018). Exploring pedagogical content knowledge of biology graduate teaching assistants through their participation in lesson study. *Teaching in Higher Education, 23*, 468–487.

Lewis, C. (2002). *Lesson study: A handbook of teacher-led instructional change.* Research for Better Schools.

Lewis, C. C., Perry, R. R., & Hurd, J. (2009). Improving mathematics instruction through lesson study: A theoretical model and North American case. *Journal of Mathematics Teacher Education, 12*(4), 285–304.

Lewis, C., & Hurd, J. (2011). *Lesson study step by step: How teacher learning communities improve instruction.* Heinneman.

Loughran, J., Berry, A., & Mulhall, P. (2006, & 2012 (2nd ed.)). *Understanding and developing science teachers pedagogical content knowledge.* Sense Publishers.

Magnusson, S., Krajcik, J., & Borko, H. (1999). Nature, sources, and development of pedagogical content knowledge for science teaching. In J. Gess-Newsome & L. Leaderman (Eds.), *Examining pedagogical content knowledge: The construction and its implications for science education* (pp. 95–114). Kluwer Academic Publishers.

Organization for Economic Cooperation and Development (OECD). (2011). *Strong performers and successful reformers in education: Lessons from PISA for the United States.* OECD publishing.

OECD. (2014). *Results from TALIS 2013, country note: Japan.* OECD. Retrieved from http://www.oecd.org/japan/TALIS-2013-country-note-Japan.pdf

OECD. (2019). *Results from TALIS 2018, Country note: Japan.* OECD. Retrieved from https://www.oecd.org/education/talis/TALIS2018_CN_JPN.pdf

Sato, M. (2009). *Kaikaku no doukou* [Trend of reform]. In National Association for the Study of Educational Methods (Ed.), *Lesson study in Japan* (pp. 104–114). Gakubunsha. [in Japanese]

Schön, D. (1983). *The reflective practitioner: How professionals think in action.* Basic Books.

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4–14.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1–23.

Stigler, J. W., & Hiebert, J. (1999). *Teaching the gap: Best ideas from the world's teachers for improving education in the classroom.* Free Press.

Takahashi, A., & McDougal, T. (2016). Collaborative lesson research: Maximizing the impact of lesson study. *ZDM, 48*, 1–15.

Takahashi, A., & McDougal, T. (2019). Using-wide collaborative learning research to implement standards and improve students learning: Models and preliminary results. In R. Huang, A. Takahashi, & J. P. da Ponte (Eds.), *Theory and practice of lesson study in mathematics: An international perspective* (pp. 263–284). Springer.

van Driel, J. H., & Berry, A. (2012). Teacher professional development focusing on pedagogical content knowledge. *Educational Researcher, 41*, 26–28.

Winsløw, C. (2007). Didactics of mathematics: An epistemological approach to mathematics education. *The Curriculum Journal, 18*(4), 523–536.

Winsløw, C., Bahn, J., & Rasmussen, K. (2017). Theorizing lesson study: Two related frameworks and two Danish case studies. In M. Quaresma, C. Winsløw, S. Clivaz, J. P. da Ponte, A. NíShúilleabháin, & A. Takahashi (Eds.), *Mathematics lesson study around the world: Theoretical and methodological issues* (pp. 123–142). Springer.

Chapter 29
From Student Teachers to Hired Educators: Exploring the Attributes of Successful Teacher Certification and Placement Through Data Mining

Yi-Fen Yeh, Mei-Hui Liu, Ying-Shao Hsu, and Yuen-Hsien Tseng

Abstract Periodic checkpoints for teacher quality are necessary. We collected metadata from 2551 students registered in a teacher education program in Taiwan. Rules for predicting success at certification and placement checkpoints were generated based on learning algorithms found to have the best model performances. The results from the decision trees showed that across two checkpoints, student teachers' pedagogical content knowledge served as a successful rule for student groups from different academic schools. Other successful rules showed that teachers who found placements had comparatively higher performance scores in courses in which they would have traditionally been weak, based on their discipline. The methods used in this study, including metadata pre-processing and decision trees, can be applied to future studies in teaching and learning.

Keywords Teacher education · Pedagogical content knowledge (PCK) · Data mining · Teacher certification · Decision tree

Introduction

Teacher quality is a critical determinant of student learning (Darling-Hammond, 2000a). Entering into teacher education programs and completing the related requirements comprise the primary pathway to becoming a teacher. Teacher certification functions as a gatekeeper of teacher quality, but it does not necessarily guarantee teacher effectiveness (Kane et al., 2008). A comparison study that discussed quality assurance in teacher education among 17 countries ranked the teachers in Singapore and Taiwan at the top, focussing on the subject of mathematics, the teaching profession in general, and student learning outcomes (Ingvarson & Rowley, 2017). Unlike the highly centralized control over teacher preparation seen in Singapore, deregulation of teacher education in Taiwan which was originally manifested to attract talents from different backgrounds has led to an oversupply of teachers, making the teaching

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market very competitive (Wang & Fwu, 2014). The low birth rate in recent decades has made the situation even worse, with as few as 2% of qualified teachers finding placement annually (Li, 2013). In this way, identifying the attributes of qualified teachers who successfully find employment would make the selection process less opaque.

We are interested in determining the key attributes that allow certain candidates to succeed in a bottleneck situation in which thousands of qualified teachers compete for significantly fewer placements. Traditionally, researchers have used multivariate statistical analysis to identify the interaction and contribution of target factors affecting effective teaching and learning. In this study, we collected metadata on teacher candidates to explore what the most favoured attributes of successful teacher candidates were at checkpoints along the path to placement. Rather than using a top-down, theory-driven method, we employed decision trees to uncover patterns of success in an opaque job market, as well as to engage in a data-driven examination of teacher development and the selection process. The methods and findings of this study are not solely case based; instead, this use of machine learning will bring new insights to teacher education.

Background

Teacher preparation is essential to equipping the next generation (Darling-Hammond, 2000b). Metadata such as course grades and school performance that are grossly but innately generated throughout teacher development may reveal certain aspects of teacher candidates, but such data can be messy and difficult to analyse. Some researchers have argued that course grades have only a limited association with teacher effectiveness, with the exception of methods-related courses (Ronfeldt et al., 2014). The present study attempted to unearth attributes of successful teacher candidates, from which the quality of prospective teachers can be anticipated and improvement plans for teacher education can be proposed.

Attributes of Effective Teachers

To develop teachers "professional competence", individuals must develop their pedagogical skills and knowledge, as well as certain personal traits, attitudes, and beliefs (Liakopoulou, 2011). Capable teachers' knowledge and academic degrees may bring positive impacts to students' academic performance, especially with regards to content-focussed subjects like mathematics at middle or high school levels (Goldhaber & Brewer, 2000; Harris & Sass, 2008). Pedagogical Content Knowledge (PCK) is viewed as craft knowledge that accommodates teaching and learning needs (Grossman, 1990; Shulman, 1987). It transforms alongside teachers' actual practices and reflections (Cochran-Smith & Lytle, 1999). Although student teachers need to

build up their didactic knowledge (i.e. pedagogical knowledge, [PK]) in addition to their academic majors (i.e. content knowledge, [CK]), it is even more important for them to integrate what they have learned, such as teaching subject matter in a language students understand (i.e. PCK) and properly managing their classrooms (i.e. PK). Intensively supervised clinical work has also been found to be important, since it functions like a capstone course connecting what has been learned to how teaching and learning actually function in school (National Council for Accreditation of Teacher Education, 2010; Ronfeldt et al., 2014). Since novice teachers' professionalism mainly comes from the courses they take as part of their academic degrees or teacher education programs (TEPs), personal course records such as course types and score performances can be used as predictors of their success in early teaching careers, though may not be as useful with experienced teachers.

Non-cognitive abilities comprise another part of professional competence that has been found to make a significant impact on teachers' effectiveness and level of passion for their career. Many researchers have analysed teachers' personalities by using the "Big Five" model, wherein five domains (i.e. openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) are thought to be predictors of their job performance (Anglim & Grant, 2014; McCrae & Costa, 1987). Psychomotor characteristics like resilience and self-regulation are critical to teacher effectiveness (Gutman & Schoon, 2013; Klassen & Tze, 2014). Motivation to become a teacher and continuously engage in teaching profession is usually bonded to teacher's perceptions of career values, collections of prior teaching and learning experiences, and dedications to making a social contribution (Richardson & Watt, 2006; Watt & Richardson, 2007). These non-cognitive attributes are longitudinally shaped by teachers' sociocultural context and educational environment (Klassen et al., 2018). They were also found to positively influence future students' academic achievement whether or not combined with teachers' cognitive traits (Klassen & Tze, 2014; Rankoff et al., 2008). Psychometric tests or situational judgement questions may be good tools for employers to estimate candidates' non-cognitive attributes, but from a naturalistic perspective the attributes that characterize quality teachers should be observable when they are working their teaching degrees. Therefore, records like extra-curricular activities and related honours probably can serve as substitutes for non-cognitive detectors.

Systems of Teacher Selection

Teacher preparation is a long journey for both motivated individuals and the government enhancing the quality of education. Checkpoints prior to certification serve as markers of qualification attainment. Wang and colleagues at the Educational Testing Service (ETS) (2003) compared the teacher education and selection systems of eight countries. The processes were quite similar, but related criteria or thresholds were found to be weighted differently. High school GPAs and national examinations are often used as indicators for whether someone should be admitted to

a teacher education program (e.g. in the USA). The length of student teaching can vary from three to four weeks in Japan, to 12–18 months in the Netherlands. England and most US states require their teacher candidates to pass certification tests after completing TEP. Taking the standards-based Teacher Performance Assessment (edTPA) in the USA as an example, student teachers are evaluated on their subject-specific instructional performance via artefact and commentary tasks collected during their student teaching or internship placements. Their pedagogical practices are evaluated according to three main aspects (i.e. planning, instruction, and assessment), their use of academic language, and ability to engage in robust instructional reasoning (AACTE, 2013). Although teaching credentials are issued upon qualification fulfilment and/or examination, research findings do not consistently support the notion that certified candidates are necessarily more productive or significantly outperform those without certification (Kane et al., 2008; Wilson & Youngs, 2005).

The hiring process involves significant competition. Common methods of evaluation include interviews with school principals and faculty, teaching demonstrations, and integrity tests (e.g. job knowledge, PCK, and situational judgement tests) (Rutledge et al., 2008). Soft skills (e.g. teamwork, interactions with students and parents) are pivotal to teaching, so situational judgement tests that demand candidates rationalize their in situ responses and educational decisions have become popular. The reality is that decisions regarding teacher placement are often opaque to candidates. The mismatch between teacher surplus, vacancy distribution, and lower entry standards in lower-income schools would make teacher quality unstable (Darling-Hammond, 2006; Whipp & Geronime, 2015). Selection and screening criteria often vary by district and school, as well as by need, and hence the attributes of selected teachers are case-sensitive. Therefore, mining several years of data for successful candidates versus those who failed to be placed will give a general picture of the overall hiring criteria.

Research Questions

Darling-Hammond (2003) described teacher development as “a black box” (p. 303). This does not simply refer to the mystery of knowledge transformation, but also the factors affecting teacher recruitment (e.g. vacancies, policies). Along the teacher education pipeline, there can be problems of leakage (i.e. candidate exits), flow control (i.e. supply and demand), teacher quality (i.e. the competitiveness of the teacher market), etc. Consequently, a construct as complex as teacher qualification should be evaluated at different checkpoints, since teaching is a multifaceted profession that needs time to mature. In this study, we collected the records of student teachers’ academic degrees and TEP. Data mining was then used to explore prediction rules for success at each checkpoint.

Method

Student teachers' PCK is mainly accumulated from their learning experiences in education programs. Records of their learning, such as course scores and teaching-related activities, can also contribute to their PCK. Decision trees were used to explore their critical attributes and any patterns that distinctively marked successful groups of students at different checkpoints.

Data Selection

In Taiwan, colleges and universities are allowed to offer teacher education programs if they are authorized by the Ministry of Education. As shown in Fig. 29.1, students who are interested in becoming school teachers in either primary or high school need to pass the TEP selection criteria (differs per school) and register themselves with TEP (stage 0), complete the requirements for their teaching degree (stage 1), pass their teacher certification examinations (stage 2), and be selected via a teacher screening process (stage 3). Teaching certificates are issued upon their reception of a diploma, successful completion of the required courses and a half-year internship (TEP requirements), and certification examinations. Their certificate indicates the subjects they are qualified to teach, which are usually bounded by their major or the course requirements they fulfilled. Table 29.1 lists the guidelines by which the courses were classified and then entered into data mining procedures. Only certified teacher candidates are qualified to attend the school- and district-based screening

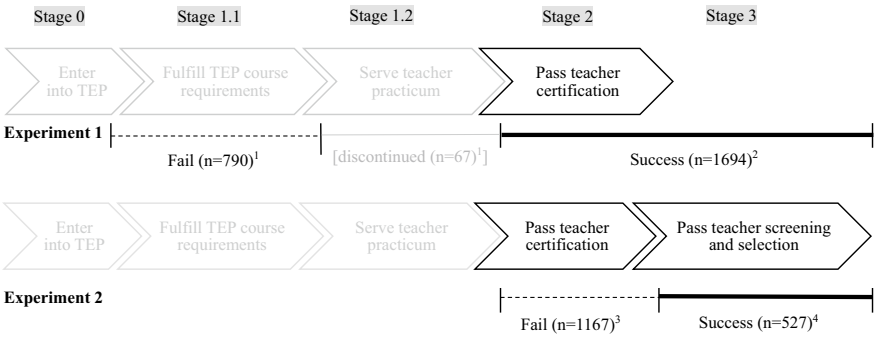

Fig. 29.1 Checkpoints in teacher education path and experiment designs for machine learning. Note:
1. [a] means the number of students who completed course requirements (stage 1.1) but not serve teaching practicum (stage 1.2) or pass teacher certification exams. This group was not considered in experiment 1 since their performances might be different from other groups
2. [1] and [2] were the two groups analyzed in the experiment 1; [3] and [4] were the two groups analyzed in the experiment 2.

Table 29.1 Rules for categorizing courses by knowledge type

Attributes	Description	
1. Grade levels	1 = bachelor's degree, 2 = graduate degree, 3 = Ph.D.	
Learning records in TEP		
2. Teaching practicum score	The score that a student teacher earns for their performance in the half-year teaching practicum	
3. Participation in instructional competitions	Amount of participation in instructional competitions held by TEP	
4. Awards from instructional competitions	Number of awards won from instructional competitions held by TEP	
5. Extra teaching certificates	Numbers of teaching certificates beyond the first teaching certificate. (Extra certificates are issued upon fulfilment of mandatory courses required for subject specialization, based on the *Course Requirements for Teacher Certification*.)	
Professional knowledge estimation		Knowledge Type
6. cer_man (T)	Total scores of mandatory certification courses (example: English–Chinese Translation)	CK
7. cer_man (ct]	Numbers of courses listed in attribute #6	
8. cer_man (avg)	Average scores of courses listed in attribute #6	
9. cer_ele (T]	Total scores of elective certification courses (example: Children's and Young Adults' Literature in English)	CK
10. cer_ele (ct)	Numbers of courses listed in attribute #9	
11. cer_ele (avg]	Average scores of course listed in attribute #9	
12. dep_CK (T)	Total scores of academic knowledge courses (example: Functional Grammar of the English Language)	CK
13. dep_CK (ct]	Numbers of courses listed in attribute #12	
14. dep_CK (avg)	Average scores of courses listed in attribute #12	
15. PE_PK (T]	Total scores of pedagogical knowledge courses (Educational Psychology)	PK

(continued)

Table 29.1 (continued)

Attributes	Description	
16. PE_PK (ct)	Numbers of courses listed in attribute #15	
17. PE_PK (avg)	Average scores of courses listed in attribute #15	
18. dep_PCK (T)	Total scores of courses on discipline-specific pedagogical issues (example: Literature in EFL Instruction)	PCK
19. dep_PCK (ct)	Numbers of courses listed in attribute #18	
20. dep_PCK (avg)	Average scores of courses listed in attribute #18	
21. PE_PCK (T])	Total scores of courses on discipline-specific teaching methods (example: English Teaching Methods)	PCK
22. PE_PCK (ct)	Numbers of courses listed in attribute #21	
23. PE_PCK (avg)	Average scores of courses listed in attribute #21	
24. dep_PK(ed) [T]	Total scores of pedagogical knowledge-related courses (Dep. of Education)[a]	PK
25. dep_PK(ed) [ct]	Numbers of courses listed in attribute #24	
26. dep_PK(ed) [avg]	Average scores of courses listed in attribute #24	
27. dep_CK(ed) [T]	Total scores of education-related courses (Dep. of Education)[a] (example: Education Administration and Management)	CK
28. dep_CK(ed) [ct]	Numbers of courses listed in attribute #27	
29. dep_CK(ed) [avg]	Average scores of courses listed in attribute #27	

[a]Only taken by education majors

processes, which include interviews and teaching demonstrations (or written tests). Therefore, the two major checkpoints for this teacher education roadmap are: 1) teacher certification and 2) screening and selection.

The sample for this study was collected from student teachers at a university that was originally a teaching college in Taiwan. The minimum number of years of attendance for student teachers graduating with bachelor's and TEP degrees is five, whereas it is three for those obtaining master's degrees. Given that student teachers

may not pass certification immediately upon graduation, the sample included those who enrolled as first-year undergraduate or graduate students from 2003 to 2005, for which a full cycle of teacher development was accessible. The full cycle meant a five-year TEP study plus an estimation of three years for placement. TEP students who enrolled after 2006 were not included in this study, due to the unavailability of a list of those who successfully became teachers.

This study only focussed on student teachers teaching the 10 main middle school subjects (i.e. Chinese, English, history, geography, math, biology, chemistry, earth science, physics, and civic education). The sample ($n = 2551$) included student teachers from the academic departments corresponding to the ten core subjects mentioned above, mainly the schools of Liberal Arts, Science, and Education. Student teachers with degrees in Education were eligible to teach these subjects only if they first fulfilled the course requirements for subject-based teachers.

A total of 29 attributes were collected to predict whether student teachers would be successful at particular checkpoints (see Table 29.1). The records of the course grades (professional knowledge estimation) listed in Table 29.1 were formulated according to three formats for each student: the total grade scores (T), average scores (avg), and number of courses taken by the student (ct). Each estimation format revealed different information, such as the total grade scores for general understanding, average scores for knowledge depth, and course count for knowledge breadth. Learning records also included student teachers' performances in teaching practicums and participation in instructional competitions.

Data Analysis

The open source WEKA software incorporates a number of machine learning methods and algorithms for automatic data mining. WEKA users can evaluate competing models to find the one with the best learning performance (Dekker et al., 2009; Sharma & Jain, 2013). In this study, we used rule-based classifiers (i.e. ZeroR, OneR, PART), decision trees (i.e. J48, AD Tree), and Multi-Layer Perceptron (MLP). According to Witten et al. (1999), both rule-based classifiers and decision trees are useful in examining data and inducing prediction rules for distinctive groups. The performance by ZeroR, due to the primitive models it generates through numeric average algorithms, were viewed as a baseline for each experiment. The learning performance generated by MLP offered upper-band predictive performance estimations for neuro-network models with embedded nonlinear decisions.

During classification, stratified cross-validation was used instead of testing the training data. Repeatedly averaging the learning performances of randomly partitioned data sets usually generates more accurate estimations (Diamantidis et al., 2000). Ten folds are commonly used, though that number can also be determined by the size of the data set (Sharma & Jain, 2013). Performance measures inform model evaluations, but there are no absolute cut points and there can be trade-offs.

Generally speaking, the higher the values, the better the predictions. Kappa statistics measure the agreement of the true class predictions with random guesses. F-measure suggest how balanced the precision and recall are for the prediction rules, but with limited information regarding the correct labelling of case classifications (Sokolova et al., 2006). Receiver Operating Characteristic curves (ROC) diagnose decision performances considering compromises between sensitivity (False Positive Fraction) and specificity (False Negative Fraction). Values approaching 1 mean excellent predictability, while values around 0.50 imply worthless prediction rules (Metz, 1978). The rule of thumb in evaluating algorithm-based learning models is to comprehensively consider the statistics.

Predictors for successful teacher certification and placement were explored through learning models with different algorithms. The cohorts in each experiment were purposefully manipulated, based on checkpoint passes or fails (see Fig. 29.1). Experiment 1 was designed to explore the prediction rules for student teachers' ability to pass teacher certification examinations. The cohort for success was successful certification ($n = 1694$), while the cohort for fail was the group which did not complete their TEP ($n = 790$). The successful group in experiment 1 was further sub-grouped into cohorts of those who passed the teacher screening process ($n = 527$) and those who did not but were certified to teach ($n = 1167$). That is, experiment 2 was designed to explore prediction rules for those who were able to pass their teacher screenings and gain employment as teachers. Further investigations regarding whether the rules for success differed by academic school were also carried out in experiments 3.

Results

To find the prediction rules best suited to explaining the data sets, the performance measures of the learning models were compared; the rules revealed by the model with the highest performance were then adopted. The prediction rules indicated the thresholds for the knowledge determined to be most critical to passing different checkpoints.

Experiment 1: Predictors for Student Teachers to Become Certified

In Experiment 1, the AD Tree performed better than the other algorithms (see Fig. 29.2 and Table 29.2). Rules regarding total scores from PK and PCK courses offered by TEP (Rule 1A, Rule 1C) corresponded to the course requirements for teaching degrees: 10 PK courses two PCK courses (course waivers could have applied). Rule 1B pointed out an upper limit for total scores in education-related

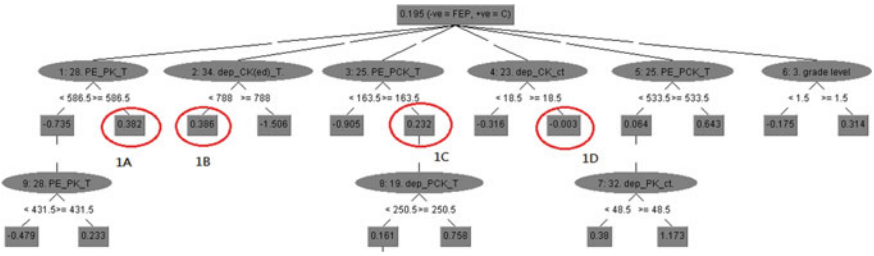

Fig. 29.2 Decision tree for students who passed teacher certification examinations (Experiment 1)

Table 29.2 Learning analytics performance and prediction rules for successful groups at main stages in teacher education

	Zero R	One R	PART	J48	AD Tree	MLP	
Experiment 1: certification [success ($n = 1694$)/fail ($n = 790$)]							
Kappa	0	0.623	0.495	0.447	0.536	0.618	Rules from the AD Tree: 1A. PE_PK(T)≧586.5 1B. dep_CK(ed)(T) < 788 1C. PE_PCK(T)≧163.5 1D. dep_CK(T)≧1324.5 + PE_PK(T)≧370.5
F-Measure	0.553	0.841	0.788	0.768	0.805	0.838	
ROC	0.499	0.785	0.804	0.778	0.844	0.844	
Experiment 2: screening and selection [success ($n = 527$)/fail ($n = 1167$)]							
Kappa	0	0.088	0.119	0.110	0.175	0.144	Rules from the AD Tree: 2A. PE_PCK(T)≧257.5 + PE_PK(T)≧936.5 + PE_PCK(avg.)≧91.125
F-Measure	0.562	0.623	0.632	0.629	0.66	0.640	
ROC	0.497	0.537	0.592	0.587	0.64	0.617	

knowledge courses offered only to students with Education degrees (dep_CK), implying that less energy should be directed towards these types of classes. Indications for students' scores in CK courses (Rule 1D) were not interpreted as predictors for passing teacher certification examinations, because these thresholds met the degree requirements for students in the Schools of Liberal Arts and Science.

Experiment 2: Predictors for Teacher Candidates to Become Hired

The performances of the learning models used in Experiment 2 were less powerful than those in Experiment 1 (see Fig. 29.3 and Table 29.2), which meant that there might be other possible variations on the suggested rules. Prediction rules generated by the AD tree indicated that those who became career teachers would also have

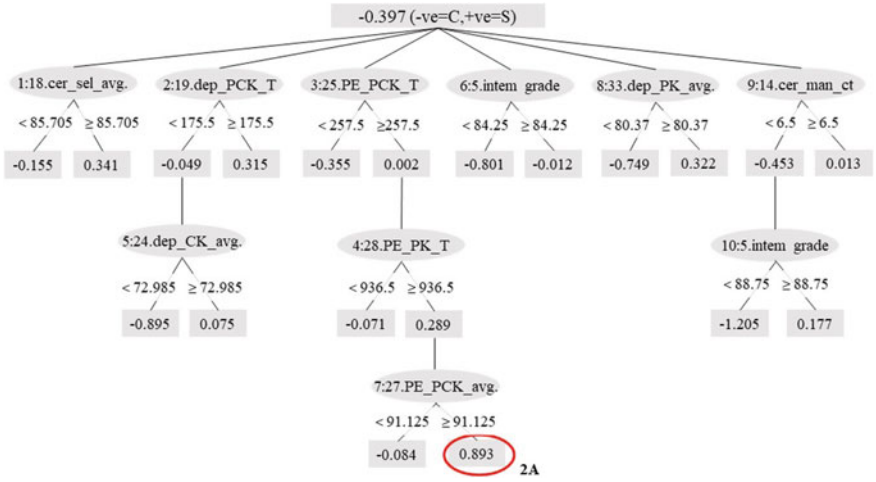

Fig. 29.3 Decision trees for who were hired as school teachers (Experiment 2)

high-quality PCK based on the total and average scores, the thresholds for which were no lower than 257.5 and 91.125, respectively. Total high scores on PK courses also suggested that students either took more than just the basic class requirements (10 courses), or they attained high average scores.

Experiment 3: Predictors Varied by Candidates' Disciplinary Backgrounds

An additional experiment was conducted regarding the successful and unsuccessful cohorts, (see Fig. 29.4 and Table 29.3). However, no worthwhile prediction rules were obtained for teacher candidates with liberal arts degrees, due to the poor measurement performance of the learning models. As for teacher candidates in the science field, the AD tree suggested only one prediction rule: PCK played an important role (see Fig. 29.4a). Rule 3-2A showed that those who successfully became science teachers took at least one PCK course offered by their department and earned high grades, even though it was not required for either their academic or teaching degrees. Therefore, we suspect that those successfully transitioning to teaching careers (from certification to job placement) are either highly motivated to become science teachers or eager to strengthen their instructional skill; either would motivate them to take extra PCK courses and earn high grades.

As for Education majors, the prediction rules generated from J48 best explained the data set. In the J48 decision, the size of each leaf was indicated by two numbers in brackets; the former correctly classified cases and the latter referenced those that were misclassified (Rule 3-3 in Fig. 4b and Table 29.3). Regarding the size of the data

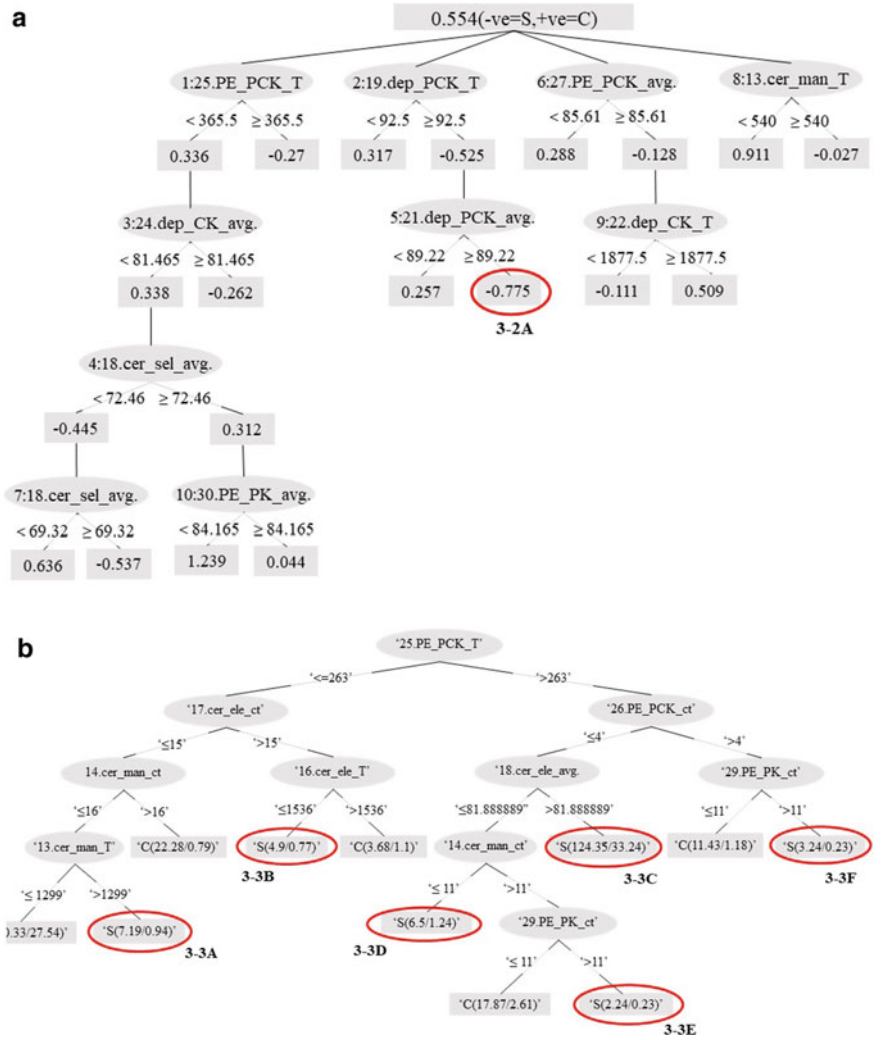

Fig. 29.4 Decision trees for the hired by disciplinary backgrounds (Experiments 3). **a** Candidates from the school of science, **b** candidates from the school of education

($n = 303$), the leaf size was set to 2 as the default. Results with smaller sizes needed to be interpreted with caution. Two rules with more classified cases confirmed the demand for students with high-quality PCK, based on rules indicating that successful students took at least three PCK courses and earned a total score of no less than 263 (see Rules 3-3C and 3-3D). Good CK commands (i.e. cer_man and cer_ele) were worthy of pursuit (see Rules 3-3A and 3-3C), though there were some exceptions (see Rules 3-3B and 3-3D). Some clarification of CK, especially for the Education majors, needed to be made. They referred to the CK of the subjects they attempted

Table 29.3 Learning analytics performance and prediction rules at the checkpoint of teacher screening and selection

	Zero R	One R	J48	AD Tree	MLP	
Experiment 3.1: students with *Liberal Art* degrees [successful ($n = 251$)/fail ($n = 609$)]						
Kappa	0	0.066	0.022	0.042	0.080	
F-Measure	0.587	0.631	0.605	0.605	0.634	
ROC	0.497	0.528	0.549	0.549	0.574	
Experiment 3.2: students with *Science* degrees [successful ($n = 131$)/fail ($n = 399$)]						
Kappa	0	0.098	0.080	0.207	0.101	Rules from the AD Tree: 3-2A. dep_PCK(T)≧92.5 + dep_PCK(avg.)≧89.22
F-Measure	0.647	0.685	0.681	0.724	0.668	
ROC	0.495	0.540	0.602	0.678	0.587	
Stage 3.3: students with *Education* degrees [successful ($n = 145$)/fail ($n = 159$)]						
Kappa	0	0.138	0.286	0.261	0.148	Rules from the J48: 3-3A. PE_PCK(T)≦263 + cer_ele(ct)≦15 + cer_man(ct) < 16 + cer_man(T) > 1299 [7.19/0.94] 3-3B. PE_PCK(T)≦263 + cer_ele(ct) > 15 + cer_ele(T)≦1536 [4.90/0.77] 3-3C. PE_PCK(T) > 263 + PE_PCK(ct)≦4 + cer_ele(avg.) > 81.89 [124.35/33.24] 3-3D. PE_PCK(T) > 263 + PE_PCK(ct)≦4 + cer_ele(avg)≦81.89 + cer_man(ct)≦11 [6.5/1.24] 3-3E. PE_PCK(T) > 263 + PE_PCK(ct)≦4 + cer_ele(avg)≦81.89 + cer_man(ct) > 11 + PE_PK(ct) > 11 [2.24/0.23] 3-3F. PE_PCK(T) > 263 + PE_PCK(ct) > 4 + PE_PK(ct) > 11 [3.24/0.23]
F-Measure	0.359	0.570	0.644	0.629	0.575	
ROC	0.489	0.565	0.623	0.632	0.611	

to teach, rather than the CK specific to Education majors (denoted as dep_CK(ed) in Table 29.1). For example, candidates who majored in Education and minored in Mathematics were expected to be more knowledgeable about pedagogy and less competent in math-related topics, when they were compared to those who majored in Mathematics for the openings of middle school math teachers. In this study, their performance scores for CK specific to Education majors (denoted as dep_CK(ed)) were found not to be included in the predication rules at all, not even scores from any PK or professional education courses they took in their TEPs or department. Among the cohort of Education majors, it was the CK of the subjects besides the PCK they attempted to teach that critically determined their success in becoming middle school teachers.

Discussion

Machine learning from metadata has become more popular in recent decades, especially among education researchers. At-risk and talented students alike can be identified and better assisted if students' learning data can be meaningfully interpreted. Some researchers have tried to predict which students are at a high risk of dropping out, while others have used data to project university students' levels of achievement (Dekker et al., 2009; Superby et al., 2006). Similarly, we used decision trees to explore key attributes of student teachers who succeeded at various checkpoints. The rules identified, though machine generated without a theoretical framework underpinned, echoed to what we knew of PCK as the foundation of teachers' professionalism. Findings of rules shared within successful cohorts made sense in terms of teacher development or job seeking strategies. Using machine learning algorithm as a data-driven approach, though not common in educational studies, are worthy of being attempted and deployed to explore innovative ideas when the data formats permit.

First, success in attaining a teaching certificate primarily corresponded to the completion of TEP requirements. That is, it was not difficult to pass the certification test if the student teacher completed all the TEP coursework and teaching practicum. We did not attempt to judge if the TEP dropout rate (approximately one-third of student teachers) was high or not from the perspective of young students exploring their career options. For example, student teachers in science areas who earned extremely high scores in CK (and thus had great potential) might not necessarily complete their teaching degrees, since they might find better non-teaching jobs. Workshops and related measures designed to help college students better understand themselves and the teaching profession would probably decrease the TEP dropout rate, ensuring that the student teachers recruited were both motivated and talented, and thus the TEP's learning resources were better allocated.

Second, PCK scores served as a powerful success rule across various stages and disciplinary groups, suggesting that teacher educators should holistically strengthen students' knowledge and competence regarding the subjects they seek to teach. The thresholds for PCK and PK performance for receiving a placement were found to be higher in terms of the number of related course being taken, as well as the average scores, as compared to those identified for certification. This aligns with previous findings showing that methods-related courses were most critical in teacher preparation (Ronfeldt et al., 2014). In a job market with only a 2% successful placement rate, those succeeding at each checkpoint are likely to have excellent CK and PK, in addition to PCK. One interesting observation stemmed from variations according to discipline: PCK was pivotal for science backgrounds but CK was necessary for Education majors. Science-related subjects greatly demand abstract thinking, so teachers who were good at translating science knowledge into a language that students could understand were favoured in their teaching demonstrations and school interviews. Moreover, we expect that successful individuals with Education degrees will outperform their competitors due to their robust knowledge of pedagogy. In reality, the majority of the success rules favoured those with a command of both PCK and CK.

Considering that all of the teacher candidates were academically proficient (science knowledge for Science majors and pedagogy for Education majors), what makes teacher candidates stand out from their competitors may be their outperformance in weakest area for most other candidates in the pool. This explain the importance of PCK for Science majors and CK for Education majors.

Finally, the substantial difference between the high teacher certification passing rate and extremely low placement rate forced us to reconsider the teacher selection process. The half-year teaching practicum scores were not indicated in any of the success rules, which contradicted their intent to engage students in coherent instructional practice (Darling-Hammind, 2006). Therefore, we suggest that practicum scores be graded truthfully and also separately for categories like school administration, classroom management, subject content instruction, and student counselling.

The rules for success that were identified from the algorithms were fitted to the data sets not just from a statistical perspective, but also according to theoretical and practical reasoning. Romero and Ventura (2007) viewed data pre-processing such as pre-selection and pre-organization as necessary, since the embedded patterns could be better identified when the metadata were cleaned and transformed to have the least amount of noise. The scores used in this study came from approximately 9700 courses; analysing such a large body of raw data is impractical because the sizes of the leaf and branch nodes in the decision trees are too small to be meaningfully interpreted. Therefore, we used a tertiary knowledge construct (i.e. PCK) to frame these seemingly unrelated scores and estimate the proficiency of each knowledge subset. Variances caused by different grading systems and academic major requirements could also be minimized or adjusted through such score recalculations. Evidence such as the good performance of the learning models, in addition to the prediction rule, suggests that this use of a meaningful framework is a feasible way of completing the data pre-processing. Thus, the success rules for the "teacher screening and selection" stage were considered to be trustworthy.

Conclusion

Data mining can serve as a means of exploring the unknown, but the data must first be pre-processed according to a meaningful framework that facilitates the legitimacy of cross-discipline comparisons. The results of the data mining conducted for this research show PCK to be the key body of knowledge for student teachers seeking to become certified and eventually selected for careers in the field. Teaching middle or high school may not require a great command of CK, whereas PK that takes the form of facilitating general instruction and quality interaction with students can hardly be observed in short-term job interviews. In response to the pressure of the extremely low rate of placement, teacher candidates must work hard to prepare themselves to become qualified and quality teachers. It is not surprising to see high scores from the successful cohort, but candidates who seek success probably need to reverse their

thinking. What makes them stand out from the pool of prospective teachers should be avidly planned and pursued. Such characteristics are probably the weakest areas commonly shared by those with same academic background.

This research does not attempt to overemphasize the importance of PCK as the key success rule, since this rule would be at risk of being overturned if all teacher candidates only pursued high scores in PCK courses, making their PCK scores important but less discriminative. In authentic teaching contexts, both knowledge integration and instructional quality are coherently hinged and cooperatively enhanced. No matter how mysterious or temporary the gate-keeping standards can be, a balanced development of teachers' professionalism should still be the goal.

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Compliance with Ethical Standards The manuscript "From student teachers to hired educators: Exploring the attributes of successful teacher certification and placement through data mining" has not been submitted to other journals for considerations of reviews or publications. To the best of our knowledge, the named authors have no conflict of interest, financial or otherwise. The study used students' electronic data from Student Management System, but students' personal information was removed and all the data was used under the privacy policy.

References

American Association of Colleges for Teacher Education. (2013). *About edTPA: Overview. American Association of College for Teacher Education.* Retrieved on 9 Jan 2016 from: http://edtpa.aacte.org/about-edtpa

Anglim, J., & Grant, S. (2014). Predicting psychological and subjective well-veing from personality: Incremental prediction from 30 facets over the Big 5. *Journal of Happiness Studies, 17*(1), 1–22. https://doi.org/10.1007/s10902-014-9583-7

Cochran-Smith, M., & Lytle, S. L. (1999). Relationships of knowledge and practice: Teacher learning in communities. *Review of Research in Education, 24*, 249–305.

Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education, 51*(3), 166–173.

Darling-Hammond, L. (2003). Keeping good teachers: Why it matters, what leaders can do. *Educational Leadership, 60*(8), 6–13.

Darling-Hammond, L. (2006). Constructing 21st-century teacher education. *Journal of Teacher Education, 57*(3), 300–314.

Darling-Hammond, L. (2000a). Teacher quality and student achievement. *Education Policy Analysis Archives*, *8*, 1–44. Retrieved on 9 Jan 2016 from: http://dx.doi.org/https://doi.org/10.14507/epaa.v8n1.2000

Dekker, G., Pechenizkiy, M., &Vleeshouwers, J. (2009). Predicting students drop out: A case study. In *Proceedings of 2nd International Conference on Educational Data Mining* (pp.41–50).

Diamantidis, N. A., Karlis, D., & Giakoumakis, E. A. (2000). Unsupervised stratification of cross-validation for accuracy estimation. *Artificial Intelligence, 116*, 1–16.

Goldhaber, D. D., & Brewer, D. J. (2000). Does teacher certification matter? High school certification status and student achievement. *Educational Evaluation and Policy Analysis, 22*, 129–146.

Grossman, P. L. (1990). *Making of a teacher: Teacher knowledge and teacher education*. Teachers College Press.

Gutman, L. M. &Schoon, I. (2013). *The impact of non-cognitive skills on outcomes for young people: A literature review*. London: Education Endowment Foundation. Retrieved from https://pdfs.semanticscholar.org/f4a5/2db3001fb6fb22eef5dc20267b5b807fd8ff.pdf

Ingvarson, L., & Rowley, G. (2017). Quality assurance in teacher education and outcomes: A study of 17 countries. *Educational Researcher, 46*(4), 177–193.

Kane, T. J., Rockoff, J. E., & Staiger, D. O. (2008). What does certification tell us about teacher effectiveness? Evidence from New York City. *Economics of Education Review, 27*(6), 615–631.

Klassen, R. M., & Tze, V. M. C. (2014). Teachers' self-efficacy, personality, and teaching effectiveness: A meta-analysis. *Educational Research Review, 12*, 59–76.

Li, H.-J. (2013). The oversupply of teachers in Taiwan: Causes and consequences. *Education Journal, 41*(1–2), 107–133.

Liakopoulou, M. (2011). The professional competence of teachers: Which qualities, attitudes, skills and knowledge contribute to a teacher's effectiveness? *International Journal of Humanities and Social Science, 1*(21), 66–78.

McCrae, R. R., & Costa, P. T. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81–90.

Metz, C. E. (1978). Basic principles of ROC analysis. *Seminars in Nuclear Medicine, 8*(4), 283–298.

National Council for Accreditation of Teacher Education. (2010). *Transforming teacher education through clinical practice: A national strategy to prepare effective teachers* (Report of the Blue Ribbon Panel on Clinical Preparation and Partnership for Improved Student Learning). Retrieved from https://eric.ed.gov/?id=ED512807

Rankoff, J. E., Jacob, B. A., Kane, T. J., &Staiger, D. O. (2008). Can you recognize an effective teacher when you recruit one? (Working Paper 14485). Retrieved from https://www.nber.org/papers/w14485

Richardson, P. W., & Watt, H. M. G. (2006). Who chooses teaching and why? Profiling characteristics and motivations across three Australian universities. *Asian-Pacific Journal of Teacher Education, 34*(1), 27–56.

Romero, C., & Ventura, S. (2007). Educational data mining: A survey from 1995 to 2005. *Expert Systems with Applications, 33*(1), 135–146.

Rutledge, S. A., Harris, D. N., Thompson, C. T., & Ingle, W. K. (2008). Certify, blink, hire: An examination of the process and tools of teacher screening and selection. *Leadership and Policy in Schools, 7*, 237–263.

Sharma, T. C., & Jain, M. (2013). WEKA approach for comparative study of classification algorithm. *International Journal of Advanced Research in Computer and Communication Engineering, 2*(4), 1925–1931.

Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, *57*(1), 1–23. *Society*, *1*(1), 1–12.

Sokolova, M., Japkowicz, N., &Szpakowicz, S. (2006). Beyond accuracy, F-score and ROC: a family of discriminant measures for performance evaluation. In A. Sattar & B. H. Kane (Eds), *Australasian Joint Conference on Artificial Intelligence* (pp. 1015–1021). Heidelberg, Germany: Springer Berlin Heidelberg.

Superby, J. F., Vandamme, J. P., & Meskens, N. (2006). Determination of factors influence the achievement of the first-year university students using data mining methods. In *Workshop on Educational Data Mini*ng, *ITS'06* (pp. 37–44).

Wang, H.-H., & Fwu, B.-J. (2014). "Once hired, seldom gone": The deliberation process of beginning teachers in Taiwan in deciding to stay in teaching. *Teaching and Teacher Education, 37*, 108–118.

Wang, A. H., Coleman, A. B., Coley, R. J., Phelps, R. P., Educational Testing Service [ETS] (2003). *Preparing teachers around the world*. Princeton, NJ: ETS. Retrieved from https://www.ets.org/Media/Education_Topics/pdf/prepteach.pdf

Watt, H. G., & Richardson, P. W. (2007). Motivational factors influencing teaching as a career choice: Development and validation of the FIT-Choice scale. *The Journal of Experimental Education, 75*(3), 167–202.

Whipp, J. L., &Geronime, L. (2015). Experiences that predict early career teacher commitment to and retention in high-poverty urban schools. *Urban Education*, 1–30.

Wilson, S., & Youngs, P. (2005). Research on accountability processes in teacher education. In M. Cochran-Smith & K. Zeichner (Eds.), *Studying teacher education: The report of the AERA panel on research and teacher education* (pp. 591–644). Lawrence Erlbaum.

Witten, I. H., Frank, E., Trigg, L., Holmes, G., & Cunningham, S. J. (1999). Weka: Practical machine learning tools and techniques with Java implementations. (Working paper 99/11). Hamilton, New Zealand: University of Waikato, Department of Computer Science.

Chapter 30
Changes in Teacher Education Requirements in Thailand in the Twenty-First Century

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Abstract This paper examines the recent structural changes in program requirements of an undergraduate teacher education program in Thailand. A historical overview of Thai teacher education policy, structure, and practice serve as a backdrop for discussion of the proposed policy changes of 2019. The new policy features the reduction of mandatory five-year teacher education curriculum from five to four years; the introduction of ambitious English language skills and soft-skill examination thresholds; and a drastically restructured pre-service experience for new teachers. Using documentary analysis, the paper evaluates the proposed 2019 policy changes, they consider issues revealed through the ongoing practice and implementation of the policy and provide recommendations for further study.

Keywords Teacher education · Teacher education policy · Teacher education structure · Teacher education curriculum

Introduction

Thailand stands out from other Asian counterparts in its distinctive culture, language, history, society, and approach to education. Unlike its Southeast Asian neighbours, Thai educational practices do not predominantly derive from the Confucian philosophies and ways of life that underpin educational practices in other East Asian countries such as China, South Korea, Vietnam, and Singapore (Suwansirimethi, 2007). Instead, the history, culture, and practices of Thai education derive more from Indian civilization and Western traditions. Thai philosophies and practices of education are singularly distinct from its Asian neighbours in that they are deeply influenced by the tenets of Theravada Buddhism, which is currently practised by 90% of Thais and which, for over twelve centuries, has guided and moulded the lifestyles, social manners, traditions, and character of Thai people.

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In keeping with its cultural distinctiveness, Thailand also faces challenges as it maps out educational policy and practice for globalization and the twenty-first century and seeks to compete in the ASEAN Community and global level. These challenges include a diminishing supply of quality teachers; fits and starts in educational policy over the last two decades; uneven funding for rural and urban schools; the challenges of meeting the curricular needs of a culturally diverse nation; and the sudden mandate for achievement in the sciences, technology and English language amidst a shortage of adequate resources and teaching talent, teacher workload on other tasks and debts situation of teachers (Thongying, 2016).

Many of these educational challenges are indeed shared in common with Thailand's Asian neighbours, but as we shall see in this chapter, Thailand's historical efforts to embrace and adapt Western ideals, culture and standards of education for over a century present a unique context. A large number of studies by Thai and foreign academic revealed that Thai education reform including teacher education reform continually since King Rama V, showed both advantages and disadvantages. Since 2007, the five-year teacher education curriculum was used for 14 years, then, in 2017, the Thai Ministry of Education (MOE) unveiled a new wave of education reforms intended to respond to the many challenges. The new policy, which came into effect in 2019, reduces the nationally mandated undergraduate teacher education program from five years to four years; a starkly reduced Practicum in the Profession of Teaching pre-service program; and the introduction of high-stakes English language certification examinations for teacher licensing. In this chapter, we consider this policy and the issues that surround it as one that is endemic to the problems of Thai educational policy and reflective of global issues in the evolution. To study on the problems with consideration of the benefits and obstacles of the five- to four-year reduction in teacher education curriculum in Thailand. A thorough discussion of the new policy is set against the historical backdrop of Thai teacher education.

Historical Overview of Teacher Education in Thailand

Teacher education in modern Thailand finds its roots in a long tradition spanning over eight centuries of chronicled history of Siam. Following Fry (2002), Thongthew (2014), Jamjuree (2017) and others, this paper breaks the history of Thai educational policy into distinct phases, which are defined according to historical, political, and economic factors and contexts that have shaped education policy. For the purposes of this discussion, we aim to identify the following phases: The Early Traditional Era (1187–1868); Modernization of Education (1868–1945); The Dawn of the Professional Teacher (1946–1999); and the period following the Education Reform Act of 1999 leading up to the present.

From the earliest appearance of teacher education during the Sukothai and Ayuthaya eras (1187–1870) to the mid-nineteenth century, teacher education in Thailand or called Siam in the former time was guided and shaped by the principles and

practices of Theravada Buddhism. Over the nearly seventh-century span of the traditional era, education in the Kingdom of Siam primarily existed in the domain of temples, families, and palaces. Teaching and learning in the form of living and guidance to be virtuous persons. The scriptural language of Pali was taught along with grammar, mathematics, astronomy, and such at local temples by monks.

As in most agrarian societies, life skills and traditions were passed from one generation to the next through family and community. Hence, the three components of family, temple, and palace, in the case of royal or upper classes, form an essential triangle at the foundation of Thai education (Ministry of Education (MOE), n.d.).

Under this configuration, monks, parents, and community leaders or local wisdoms teachers worked together to transfer vocational skills including farming, fishing, crafts, as well as Buddhist teachings and cultural lore to children and young adults in their communities. Although formal teacher education did not exist during this period, teachers were expected to possess qualities of "knowledge and morality" (Jamjuree, 2017). At the palace, which was the place to gather local wisdoms in many fields to serve the king and royal family especially in handicrafts and royal rites, can be called the main setting of the kingdom's knowledge transferred from generation to generation (Phantasoot, 2019).

The traditional education system in Thailand continued until the early Rattanakosin era, with the industrial revolution in Europe, Westerners from the European continent, such as the Portuguese, reconnected with the kingdom for merchant and evangelization after having quitted in the late Ayutthaya period, followed by other countries like England, France and Holland. King Rama III of Rattanakosin Thailand further opened the country to welcome western people for mercantile and accepted new technology into the country like modern medicine and the printed press (ibid.).

To further illustrate the historical setting of the time, Nitungkorn (2000) described that during the reign of King Rama III, inscriptions of knowledge in various fields such as medicine, Buddhism, literature, and the art of Thai traditional massage were commissioned to be painted and etched on the walls of Wat Phra Chetupon (Wat Pho) in Bangkok, with the purpose to encourage learning. In addition, a fundamental volume of Thai textbooks was composed, among those, the Chindamanee manuscript written in 1672, was one of the most famous books. During the same period, missionaries from the USA started to arrive Bangkok and initiated the organization of schools, however with little success. Only children from Chinese immigrants studied at the missionaries' schools, while Thai families opted out from sending their child there due to religious reasons. Nonetheless, a small group of Thai princes and elites were keen in Western knowledge and among them included the future to be King Rama IV.

The reign of King Rama IV (1804–1868) was marked by Siamese diplomacy with the West. Rama IV, known as King Mongkut (meaning "crown" in Thai), successfully counteracted and averted Western military incursion through the negotiation of new policies with the West and the embrace of Western culture, education, and traditions. King Mongkut had received a Western education himself and was interested in the study of science. He was fascinated in astronomy and could predict a total eclipse

in 1868. From his achievements, Thai people named him the Father of Science in Thailand (Yuenyong & Yuenyong, 2012). He also had an extensive vision and employed a British governess, Anna Leonowens, to educate his own children and the royal family. Leonowens and other Western missionaries helped lay a distinctively Western cornerstone for the future of Thai education—one that was consequently strongly influenced by the British Education system.

King Rama V, known as Chulalongkorn, succeeded the throne in 1868 and brought about significant structural changes, reform, and modernization to nearly every sector of Siamese society during his reign. Under his rule spanning from 1868 to 1910, King Chulalongkorn also brought about the modernization in teacher education in Siam. Mounier and Tangchuang (2010) observed that this transformation was characterized by the rising significance of the organization of teaching and learning in Siamese society. As a product of the Western education that his father had promoted within the royal court, Chulalongkorn would continue to embrace Western ideals and ideas of education. The monarch envisioned Western schooling as a potential vehicle for the reliable production of an educated citizenry capable of fulfilling the demand for governmental leadership throughout the Kingdom and like his father, the king recognized the strategic potential of a centralized education system for nation-building as well as for protection against colonial intrusion. As Fry (2002, p. 5) pointed that "King Rama V recognized that human resource development was critical to a nation's economic success and prosperity; that education needed to have an important moral dimension; and finally, that there was an important element of creativity and aesthetics also as an important element in education".

King Chulalongkorn's younger brother Prince Damrong Rajanubhub would become a central influence on the foundation of Siamese education. From 1880–1892, Damrong served as the Kingdom's first Director of Public Instruction and would later serve as Minister of Interior. Prince Damrong coordinated across the triad of the Ministry of Education, the Ministry of Interior, and local Buddhist monasteries to establish the first centralized education system that could begin to reach poorer rural regions such as Udon Thani Province in the north-eastern region of Siam. During his tenure as Director of Public Instruction, Prince Damrong authored a paper entitled "Opinions of Education" which helped guide King Chulalongkorn's policy and would later serve as a philosophical foundation for the "Education for All" movement of the twentieth century (Fry, 2002).

As part of this effort, the Kingdom's first teacher education/training school to create primary school teachers was established in 1892. At the time all school principals were British, thus teacher education followed the British education traditions of teaching and learning. From 1892–1900 the production of primary school teachers was the fundamental concern of teacher training schools, but all school teachers during this phase had been trained under the so-called traditional teacher training model conducted by teachers colleges. According to the model, those who aspired to be teachers were required to study for an additional year in a teacher training school after completing their secondary education. In 1903, teacher training for secondary educators was first introduced. For secondary teaching candidates, an additional two

years of teacher training was required for teaching candidates after they completed their secondary education (Thongthew, 2014).

In 1910, King Rama VI, known as Vajiravudh, ascended the throne and followed in the spirit of his royal forefathers as he brought about progressive, systematic, and widespread reforms on education throughout the Kingdom of Siam, particularly teacher education and professional development in rural areas. As Jamjuree (2017) classified this period to be the era of teacher education for the Siam national reform which began the establishment of teacher training schools to prepare teachers in Bangkok and cities around the capital in coherence with the era of developing and modernizing the nation.

As an alumnus of the University of Oxford, Rama VI's legacy was marked by the establishment of schools grounded in the British school traditions. A year after his coronation, Rama VI brought the Boy Scouts to the Kingdom as an import from England. In 1916, King Vajiravudh established the first four-year undergraduate teacher training program at the Royal Page School within the Royal Palace, which the king would rename as Chulalongkorn University after his father's name, in the following year. The teacher training degree program at the University recruited both secondary school graduates and certified primary school teachers as degree candidates. Students were required to spend the first two years of the program enrolled as students at the Faculty of Liberal Arts and the Faculty of Pure Sciences. Students would then progress to the Division of Secondary School Teachers for their final two years to complete their degrees (MOE, n.d.).

In 1921, the official compulsory education from grades 1–4 was established by Rama VI. To meet the demands of the mandate, the government encouraged and invited private shareholders including Western Christian missionaries to establish schools across the Kingdom. This was made possible under the recently passed Private School Act of 1918, which permitted the establishment of independent private schools. As Fry (2002) pointed out, the history of Thai education reveals "a remarkable capability of being eclectic and selective in its attempt to balance the global with the local" that is, to balance Western influence with the preservation and cultivation of Siamese identity. A significant instance of this tension is seen in the historical inclusion of English language as a staple of Thai curriculum. As English language became an essential tool for trade and diplomacy with the West, it became a requirement for royal elite students who sought the prestige of a government appointment or who wished to study overseas (Thiraeak, 2017). To that end, the first bilingual schools were established, offering half day instruction in English to the children of royal and noble families.

The following decades brought about an extended period of political and economic upheaval. The absolute monarchy of Siam had become the fledgling democracy of Thailand, and a new era was defined by a democratic constitution which dissolved absolute monarchy.

Thongthew (2014) identified this period as the Teacher Education during Democracy Constitution (1932–1949) period. During the time, Thailand faced a major political change from an absolute monarchy to constitutional monarchy. Thongthew's emphasis was placed on the development of agricultural education especially in rural

areas, where teachers were regarded as community leaders, and as agriculture was the primary occupation of Thai people. In addition, she classified the phrase of 1946–1979 as the dawn of the teaching profession as the first Teacher's Act was initiated in 1945.

The Ministry of Education at that time emphasized the production of primary school teachers. Therefore, a great number of teacher training schools were initiated all over in Thailand, especially in the provincial areas. Primary school teacher certificates were granted to those who had their primary school certificates with three more years in teacher training. As for secondary school teacher certificates, those with lower secondary school certificates will be granted certification after they had continued teacher training for three years.

Continuing from Rama V and VI, Thai education was established to benefit people in general and to promote well-being and good living. The teacher education for modernization era was during around 1946–1973, this phase was considered to be the stage of modern teachers, using the curriculum and methods of Western teaching, along with the aid of international experts.

After World War II, in 1949, Srinakharinwirot University was established as "a Higher Teacher Training School" under the Ministry of Education. In 1953, it became the college of education called in Thai "Withayalaikansuksa". Also, in 1974, this college was further developed to become Srinakharinwirot University. Furthermore, the First National Education Plan was announced in 1951. The Department of Teacher Training was established in early 1954 during the third phase of teacher preparation which is the Teacher Education after World War II phase. This department was to ensure that teacher training schools were up to standards and aligned with the country's social and economic development (Jamjuree, 2017).

In 1956, the first Faculty of Education granting a bachelor's degree in education (BEd) was established at Chulalongkorn University. Those who received their upper secondary school certificates had to invest in at least four years of selected program out of the eight programs provided at that time. The eight programs were elementary education, secondary education, higher education, content education, research and evaluation, educational psychology, physical education, and non-formal education (ibid.).

During the 1990s, Thailand, similar to other emerging developing countries, attempted to emphasize on increasing access to education. The country expanded the length of compulsory schooling from six to nine years, and finally reached 12 years of free schooling (Office of the National Education Commission (ONEC), 1999). Due to the advancement of technology and innovation, knowledge has been recognized as a key factor for economic and social development, as Peter Drucker pointed out in his book "The Landmarks of Tomorrow" in 1959, in which he described skilled workers as important human resources that apply theoretical and analytical knowledge acquired through training to improve work. This classical paradigm of education as a socio-humanistic activity steered the need for improvement in training teachers and in developing knowledge which led to creating new opportunities (Vali, 2013).

The rise in education investment reflected the views that the country's economic development would require a labour force that is more knowledgeable and skilled. Moreover, in coping with the cultural exigencies of globalization and prospering at the global level, the nation also needed new capabilities and attitudes (Fry, 2002; Mounier & Tangchuang, 2010; Hallinger & Lee, 2011).

As Thailand attempted to develop the country, economic, infrastructure, and education were the important functions to achieve the goal. Though without clear and good policy practices and under the concern of jarring modern and traditional culture, the education system and teacher production operated in a blur and was non-directional. Teacher production was high with about 12,000 persons each year, while school position replacements were only open for 3000–4000 new teachers. Therefore, nearly 10,000 teacher students were unemployed or had to work in the other fields. This condition led to the demise of the teaching profession and did not motivate outstanding pupils to study in the faculty of education (Pahae, 2013).

In response to the situation and to encourage reform in education including in the teaching profession at large, the country vowed for new and modern mandate of the national education enactment. Therefore, the National Education Act 1999 was established.

The National Education Act 1999

The National Education Act 1999 was established to propose quality education in Thailand as Pongwat and Mounier (2010) pointed that it prescribed the education reform which reflected the political context that arose from political transformations and economic turmoil. As the 1997 Constitution changed the political landscape drastically by urging counterparts in political and academic fields to work together on education reform, with the aspiration that Thai citizens with better education will help strengthen democracy.

This National Education Act aimed to reorganize the country's structural and procedures in education. The principles composed of policy that was united in nature and diversified in implementation; decentralization to administrative areas, schools, and local administrative organizations; establishment of standards and quality assurance system; raising professional standards of all educational personnel, through continuous development; mobilization of resources; partnerships with individuals, families, communities, private sectors, religious institutions, and other social institutions (ONEC, 1999).

This educational reform enforced the curriculum construction to become decentralized and school-based, meaning that schools have flexibility in producing local curriculum based on standard content. The teaching reform changed the pedagogic philosophy from teacher-centred towards student-centred. Learning was focussed on a student-centred approach and lifelong learning, so that learning could occur anywhere, at any time, and at all levels, within students themselves and outside the classroom (ibid.).

The subject on teacher of this Act appears in Chap. 7 (page 18) on teacher, faculty staff and educational personnel in section 52 which states that "the Ministry shall promote development of a system for teachers and educational personnel including producing and further refinement of this category of personnel, so that teaching will be further enhanced and become a highly respected profession". To implement this Education Act, Thailand's regulatory agency for teaching standards, the Teachers' Council of Thailand (Khurusapha) was established. This organization is responsible for issuing teacher licenses; setting and approving national, regional, and local curricula; providing ethics oversight, and promoting best teacher practices nationwide. In the next section below, the paper will give an overview on the Teachers' Council of Thailand.

Teachers' Council of Thailand (TCT)

In the past, to be a teacher in Thailand one does not need a license. However, after Thailand amended the teacher curriculum in 1999, the teacher license became a mandatory certification of professional standards for those in the teaching career. Thailand then launched the Council and Education Personnel Act of 2003 to constitute teaching as a licensed profession encompassing teachers, school administrators, educational administrators, and other educational personnel including both Thai and foreign teachers (Khuanwang et al., 2016).

To control and maintain the teaching profession standards in Thailand, in which teaching has been regarded as a highly respected career, the council for teachers was founded. Interestingly, it was formally established long before many other councils of high-status professions such as in the fields of medicine or engineering. In order to support training and assembly of teachers to develop knowledge and competence, a teacher council was formed for the first time in 1893 and was later recognized in 1905 as **"Samakayajarn Samakom" (The Teacher Association)**.

Subsequently, after the Teachers' Council of Thailand (Khurusapha) had been inaugurated, **"Samakayajarn Samakom"** was combined with **Khurusapha**. Accordingly, **Khurusapha** became the main organization to control and maintain the standards of the teaching profession and influenced policy recommendations to the Ministry of Education. Khurusapha then adapted its role to correspond with the National Education Act 1999 which brought about major reform of the educational system and upgraded the teaching profession.

Later in 2006, the government of Prime Minister Thaksin Shinawatra and Minister of Education Pongpol Adireksarn enacted the Teachers and Educational Personnel Council Act 2006, which re-emphasized the Teachers' Council of Thailand (TCT) or Khurusapha's role in establishing professional standards. The TCT's function also included the issuing and revoking teaching licenses. It monitored and supervised practices according to the standards and ethics, raising the profession to an honourable level (Teachers' Council of Thailand (TCT), n.d.).

At the present, TCT is an organization that has four main objectives, (1) to issue teachers' license, (2) to set up standards for Thai teachers, approving teacher education curriculum of the Teacher Education Institutes based on the Thai teachers' standard, (3) to oversee the teachers' ethic and (4) to promote and recognize professional practices of teachers.

In terms of the standards of professional knowledge and experiences of teachers, those who are in the teaching profession shall meet the principles as follows:

1. standards of knowledge, those having minimum qualifications with a bachelor's degree in education or the equivalent or other degree as accredited by TCT with the knowledge in areas such as technology, psychology, educational measurement and evaluation, classroom management, etc.
2. standards of professional experience, those having completed a minimum of one year of practical training at school.

As for the standards of courses needed to be undertaken as part of a degree program for an aspiring teacher include:

1. Courses in a degree program not lower than a bachelor's degree recognized by the Office of the Higher Education Commission (OHEC) or educational qualifications certified by the Office of the Civil Service Commission
2. Courses in which necessary of knowledge are equivalent to no less than three out of four of the essence of knowledge required for the professional knowledge standard specified in the equivalence determination application
3. Courses which the applicant earned no less than 2.00 grade point or equivalent.

With radical changes due to the advancement of technology and high competition among the ASEAN region and globally, TCT revised the proclaimed standards of knowledge to be for those having minimum qualifications with a bachelor's degree in education or the equivalent with the knowledge in these following areas: (1) the context of global and societal changes and the concept of sufficiency economy, (2) developmental psychology, educational psychology, and counselling psychology for evaluation and development of student individual, (3) content on each teaching, curriculum, pedagogy, and digital technology for learning provision, (4) measurement, learning evaluation, and research for problem-solving and student development, (5) Thai language usage, English for communication and digital technology usage for education and (6) design and educational quality assurance operation.

Teacher Education Programs in Colleges to University Degree

Referring back to during 1974–1980, student teachers in Thailand had to study for 140 credits to graduate the four-year teacher education. Most teacher Education Colleges (Wittayalai Kru, now known as Rajabhat University) and other universities emphasized not only on the contents of specialization, but on the understanding of

problematic issues in society as well. The other development in teacher education was the introduction of the Teacher Training College Act of 1975. According to this act, elementary school and secondary school teachers needed to have a bachelor's degree (four-year curriculum). All the teacher training colleges had reorganized their curriculum and administrative structure to improve better teacher competencies and the facilitation of the teacher degree (Thongthew, 2014).

Thailand's context of the teacher education programs is that in the past these programs were only taught at teacher training colleges or "Wittayalai Kru". These colleges were later called Rajabhat, which have since been upgraded to universities and a total of 38 Rajabhat universities are now located nationwide. As a consequence of the rapid expansion of Rajabhat universities and universities producing teachers, challenges emerged as a number of teachers and teacher educators graduated with lack of knowledge and skills for teaching and learning innovation. With the belief that qualified teachers reflect on the quality of education, well trained and highly qualified teacher trainees are considered essential. By 2004, nearly every Thai higher educational institutions with teacher education degrees began providing five-year curriculum instead of the four-year curriculum in order to meet the new challenges and improve quality of teachers, especially to uplift the reputation of the teaching profession (Chailom, 2019). In the next section, the paper will present on the five-year teacher education/training curriculum.

Five-Year Teacher Education/Training Curriculum

From 2004, the five-year Bachelor's degree in education has been the standard academic precondition for teachers in Thailand. This curriculum includes course-work at university for four years and one year of school internship. It is believed from the educational policy level perspective that this extra year of instruction is a positive development, providing student teachers intensive academic and expertise in teaching (Chailom, 2019; Jamjuree, 2017).

Moreover, the five-year curriculum of teacher education has been intended to deliver high professional standards in accordance with the criteria set by the Office of Higher Education Commission and TCT. As Kiatkheeree (2018) pointed out that TCT together with the Office of the Education Council (OEC) carry the role of preparing teachers to have desired characteristics. Professional standards were issued to ensure the quality of educational personnel. The five-year curriculum also emphasizes on the learner-centred teaching methods, specialization in the field of teacher education, curriculum development, learner development activities, school administration, classroom action research, and general education subjects, as well as optional specialized courses.

Upon completing the five-year Bachelor of Education curriculum, graduates are qualified to obtain a teacher license conferred by TCT in order to be permitted to teach in schools.

The Structure of the Five-Year Teacher Education

The Office of Higher Education Commission (under the Ministry of Education and later in 2 May 2019 upgraded to be the Ministry of Higher Education, Science, Research and Innovation) improved and announced the academic qualification standard to five-year teacher education with requirement courses, a minimum of 160 credits offered throughout the program, in which all credits are to be broken down into 30 credits in General Education, 50 credits in Teaching Profession, 74 credits in the Subject of Specialization and 6 credits in Elective courses. The curriculum structured together with detailed description of the courses offered belonging to each institution must be thoroughly reviewed for approval by subcommittee members appointed by the TCT Board.

The five-year curriculum of teacher education under the National Professional Standard at Higher Education Level in 2000 and the Council of Teachers, has been designed to focus on 6 issues accordingly: (1) teacher ethics and moral, (2) knowledge, (3) conceptual skills, (4) human interaction skills and responsibility, (5) mathematics, ICT skills, and (6) learning management skills.

To further breakdown the credits needed for teacher students to obtain, the structure of teacher education consists of 3 sets of credits as follows:

(1) 30 credits for General education, categorized into 12 credits on Language and Communication, 9 credits on Humanities and Social Sciences, 6 Credits on Science and Mathematics, and 3 credits on Activities-based courses
(2) Field of Specialization courses consist of major and core courses on the teaching profession requiring at least 50 credits.

In terms of the pedagogical knowledge and practices at school, teacher students must enrol in courses comprising of:

1. Principles of Education Philosophy
2. Developmental Psychology and Educational Psychology
3. Curriculum Design and Development
4. Learning, Learning Resources, and Learning Environment Management
5. Teaching Profession and Teacherness
6. English in Education Context
7. Introduction to Education to Educational Statistics
8. Education Measurement and Evaluation
9. Contemporary Special Education
10. Innovation, Educational Information
11. Technology and Technology and Communication
12. Administration and Education
13. Multicultural Education
14. Micro Teaching Practice
15. Preparation for Teaching Profession Practicum

16. Educational Research
17. Practicum in Teaching Profession 1, 6 credits
18. Practicum in Teaching Profession 2, 6 credits.

(3) Major courses in the subject of specialization for at least 74 credits comprising of:

1. Academic Content, students need to study courses at other faculties, for example, for chemistry-majored teacher students, students have to study some courses at the Faculty of Sciences, English teaching majors would study content courses at the Faculty of Humanities. However, for Elementary Education, Early Childhood Education, and Special Education majors, students could study within the Faculty of Education.
2. Educational Courses, these sets of courses are based on Pedagogical and Content Knowledge which includes psychology for teacher, curriculum development in each major, classroom management, innovation, information technology on education, measurement and evaluation on education.

(4) Free Elective courses for 6 credits.

Universities offering teacher education curriculum are permitted to provide some initiative into their five-year teacher education with courses in alignment with the academic qualification standards announced by the Office of Higher Education Commission. As an example, details of the curriculum structure and credits for a Bachelor of Education at the Faculty of Education in Chiang Mai University in Chiang Mai province is shown in comparison with those of the degree offered at Srinakharinwirot University in Bangkok in Table 30.1.

To further elaborate in detail, as teacher students progressed their studies into the fourth year, teacher producers have to arrange preparation for teaching practice in order to build readiness and create good attitude towards the teaching profession among students. This essential course is called "preparation for teaching profession practicum". Even though this course is only for 1 credit, teacher students have

Table 30.1 Comparison of the credits required by two universities offering five-year teacher education

Structure of the curriculum for five-year teacher education (major in mathematics)	No. of credits Chiang Mai University	No. of credits Srinakharinwirot University
General education course	30	30
Specialization courses	81	79
Major: teacher profession courses	52	49
Free elective course	6	6
Total	169	164

Sources Rupavijetra et al. (2019), Saeluang (2020)

the opportunity to observe the classroom instruction of teacher mentors or senior teacher students, along with being assigned with tasks from teacher mentors and learn throughout the teaching system up to the process of examination and marking. Moreover, students are required to conduct one classroom teaching and finish a small classroom research project. Each month, teacher students deliver a report in the Major's seminar at university about what they have learnt. One semester of such learning, with the prospect to comprehend the context, roles, and duties of teachers, teacher students should then be more equipped and prepared to carry out duties appointed by the school. Once in their final year of studies, they could then be expected to competently carry out teaching and delivery of instruction.

In addition, teacher students are also required to have 240 hours of teaching practice for two semesters (1 year) in selected schools located near campus. In the first semester, they have to teach and conduct other teacher tasks as assigned by teacher mentors or school directors. During the second semester, teacher students have to teach as well as conduct classroom action research in order to solve classroom problems or to improve their students' behaviours. Throughout the one year of teaching practice, teacher students are regularly supervised by both supervisors from the faculty (university) and teacher mentors from the school. To provide an example, the Faculty of Education, Chiang Mai University schedules at least 6 sessions of supervision on classroom observation. Supervisors also offer recommendations for improvement in supervision forms designed by each institution. To fulfil teaching experiences, teacher students who are in teaching practice have to participate in meetings conducted once a month with the supervisors and once a month with the faculty.

There are many pieces of research which examine the condition of field experience of teacher students at schools, for example, Jantarakantee et al. (2012) and Kengkeankit et al. (2020) found that the one-year teaching experience at school indeed assisted teacher students to acquire understanding of teacher's duties in real work situation. Students learnt about working at school, while also handled tasks assigned by teacher mentors and supervisors from both school and university. Nonetheless, students experienced problems with classroom control, overload of teaching, and issues such as lack of attention from teacher mentors who were mostly busy. In some cases, teacher mentors were occupied with other school tasks and left their classroom for teacher students to teach instead. Also, some senior teacher mentors were unable to adapt to new teaching methods such as active learning and were not fond of integrating technology as a media for teaching and learning in and outside of the classroom. In addition, they provided little time to guide on classroom teaching and classroom problem-solving including classroom action research.

In Thailand, the definition of the term teacher educators (education faculty members) has been less discussed. The qualifications of university-based teacher educators, pedagogical course instructors, content course instructors, major course instructors, and faculty supervisors, including school-based teacher mentors should be openly addressed. In general, at university level, it is not always simple to recruit lecturers for the faculty of education who hold a doctoral degree or master's degree

with a background in education and teaching experiences. Therefore, teaching professional development for university-based teacher educators and school mentors to have modern pedagogical and content knowledge including mentoring skills (Vibulphol, 2015).

The next section of the paper will present projects on teacher production to attract good and smart students into the teaching profession after the Education Reform in 1999.

Projects on Teacher Production to Attract Good and Smart Young People into the Teaching Profession

For more than the past 10 years, Thailand has initiated projects designed to prepare future teachers who will be academically outstanding and capable of teaching well, including students who come from difficulty background but express high intention to study in teacher education in the forms of grants, scholarships, and conditions. Example of the projects are as follows.

The New Generation of Teachers Project

The Office of the Education Council, MOE (2017) presented a report on projects of teacher production in Thailand to invite a competent new generation of high school students into the teaching profession. Following the National Education Act in 1999, the country has initiated numerous projects to train skilled teachers with productive teaching performance and high moral standards. Among these projects, some offered fully funded scholarships throughout the whole scheme.

The New Generation of Teachers Project comprised of two phases of implementation as described below:

Phase 1 Offered a five-year Bachelor of Education program to prepare teachers in basic education. The project attracted students through scholarships and guaranteed future positions in schools. Implemented between 2004 and 2006, the project was able to produce 2500 qualified teachers each year. Fifty higher education institutions participated in phase 1 and outstanding teaching candidates were eligible to receive considerable government funding to attend faculties of education across the country.

In exchange for a lifetime commitment to a career as a government school teacher or administrator, 2500 students were awarded 69,000 THB per year ($2265 USD) to cover university tuition and living expenses (with an average of 15,000 THB per year ($412 USD). This allowed each student an annual surplus of approximately 54,000 THB ($1772 USD) after deducting expenditures (Pongsapichat, 2015). As Pongwat (2014) summarized that political situations and hiccups within the country which hindered the implementation of the national education reform until the Teachers and

Educational Personnel Council Act, B.E. 2546 (2003) was promulgated followed by the Teacher and Educational Personnel Act, B.E. 2547 (2004) which was the most important for the production, promotion, and development of the "new generation of teachers".

Phase 2 Approved by the Cabinet in 2009, Phase 2 was conducted during 2009 and 2010 and included 4000 outstanding students of teacher education, including 2000 third-year and 2000 fourth-year students. This Phase recruited 1867 students through interviews conducted at the faculty of education to find those who were prepared to study for five years with guaranteed job, but with no scholarship provided. The applicants for this project were required to have a grade point average throughout the course (GPAX) of no less than 3.00 with more than 3.00 in major and teaching subjects. The applicants had to work at assigned schools depending on three school choices they chose respectively after graduation. This project continued for 2 years (Jamjuree, 2017).

In 2012, the "New Generation of Teachers Project" rebranded to be the "Professional Teacher Project" which aimed to prepare teachers of high-demanding academic subjects. Therefore, teachers from this project possess academic knowledge, high teaching skills, and favourable attitudes towards teaching.

Furthermore, Thailand also administered the "Cooperative Teacher Education Project" in 2008, initiated under the provision of the Office of the Higher Education Commission as a solution to solve urgent teacher shortages in basic and vocational education. Undergraduates in other fields could undergo a one-year graduate certificate program in education and/or attend teaching training at approved education institutions before receiving their teaching license. This project helped produce a new generation of teachers, thus also solving the teacher shortage problem.

In addition, Thailand provided special projects for Science and Mathematics teacher students and outstanding students from family with disadvantaged economic background, details are provided below.

Project for the Promotion of Science and Mathematics Talented Teachers (PSMT)

In the first phase of this project during 1996–2004, it produced talented teachers in the fields of science and mathematics. Phase 1 of the project produced outstanding science teachers and accomplished its objectives. In Phase 2 during 2005–2006, students were recruited upon completion of the four-year bachelor's degree program. In Phase 3, implemented during 2012–2017, each year the project granted 580 the one-year Graduate Diploma Program in Teaching Profession scholarships. This project welcomed graduates from the Faculty of Sciences who studied Science subjects (Chemistry, Biology, Physics, Mathematics and Computer Science) to participate in this project.

Projects on the Bright Students from Poor Families

This project, "Diamond in the Rough" (Phet Nai Tom), was introduced by the Faculty of Education, Srinakharinwirot University in 1986. It aims at increasing educational opportunity for talented students from disadvantaged households. As a result, students who had been selected succeeded in furthering their studies and received a bachelor's degree in education.

Another project called "Returning-Home Graduate Project" (Kru Kuean Tin), aspires to encourage young students in remote areas to strive towards obtaining a bachelor's degree then return to their hometown to support their local villages such as in Nan and Mae Hong Son Provinces located in the Northern region of Thailand.

The Local Teacher Development project, previously called the "Gurudhayadha Teacher Preparation Project" (Karutayad), is a pilot project to produce teachers for some high-demand subjects under the requirements of the Office of the Basic Education Commission, the Office of the Vocational Education Commission, the Bangkok Metropolitan Administration, the Office of the Non-Formal and Informal Education. Phase 1 of the scheme was conducted during 2016–2018. The current phase has been ongoing since 2019 and will continue till 2029. The project intends to attract excellent students to become teachers, offering them intensive practice and training. Upon graduating from 113 participating programs, graduates will be employed as teachers in their hometowns.

The first year of the project in 2016, 4079 students were selected to join from a pool of 39,400 applicants. This project receives applications from those with a teaching degree, and those from other fields recognized by the Office of the Teacher Civil Service and Educational Personnel Commission (OTEPC) (MOE, 2017).

Projects presented above explicates Thailand's attempts to elevate the teaching profession. In spite of this, problems of education reform, teaching, and teacher education in the country remain a concern.

The State and Problems of Teacher Education in Thailand

It is widely accepted that teachers are important human resources crucial to the development of a nation. Therefore, the teacher education system must be well managed. Due to rapid technological advancement, Thailand tries to develop the country especially in the field of education by reforming all systems following the National Education in 2004. Though, results of this reform remain under critique nationwide. Outcomes of the five-year teacher education curriculum, which have been applied for 14 years (since 2004–2018), show both advantages and disadvantages.

Some academic experts like Rukspollmuang et al. (2017) studied the state and problems of the production, recruitment, and professional development of Thai basic education teachers in relevant to the needs of the future. The finding revealed that the number of incoming teacher students at pre-service level doubled during the

year 2010 to 2013. The research focussed on higher education institutions which produced teacher students and found that production of teacher productions had doubled, especially in private higher education institutions, while there was a demand for only 20,000 persons per year. In Thailand, there is no regulation to control the number of teacher production. As a consequence, the demand and supply of teachers is not balanced.

Moreover, the research found that even though institutions have adjusted their curriculum to better match the Teacher Curriculum Standard Framework and the Teacher Professional Standard, which are controlled by TCT and the Higher Education Commission: OHEC, but the teacher production in Thailand still encounters the challenge on quality, especially the quality of the development of teaching skills, and teacher professional ethics. Apart from that, there were some major systematic problems which reveal the disparity between the present professional development system and the actual teacher professional competency. The curriculum tends to be more based on theory or content rather than practice, as well as lack of innovation to train teacher students and lack of training system for novice teachers and assistant teachers. The research also suggested recommendations that the policy level should (1) rethink the system and process of teacher student requirement, (2) focus on the expertise and emphasis on teacher spirits of each higher institution which produces teachers and (3) revise the structure of curriculum.

In addition, Prachyapruit (2016) studied the development of teacher preparation model to serve the aspiration of Education 4.0 for Thailand. The findings on the current strengths and weaknesses of teacher production were: (1) there were more weaknesses than strengths and (2) general education courses were less relevant to the Teacher 4.0 competency concept. Focussing on the curriculum, the research found that many courses were repetitive, lacked linkage with each other, lacked linkage between courses learnt and school practices, and lacked both the quantity and quality of teacher mentors at school. Moreover, the research found that the teaching and evaluation of teacher education was focussed on theory or content rather competency, and the philosophy of teacher production was not clear.

As there are many higher education institutions which produce teachers, the process of teacher production nationwide still experiences problems (Office of the Education Council (OEC), 2017) such as:

(1) Policy on teacher production lacked continuity as there were many changes in the Ministry of Education during these past 20 years. Each new Minister of Education also meant new policies.
(2) Teacher supply was not balanced with the demand.
(3) The number of qualified teachers or professors at the faculty of education is limited.
(4) Students lacked teaching ethics and skills as teacher students focussed more on subject matter knowledge.
(5) Teacher student's practice at school was not efficient due to many assigned tasks at school in addition with less qualified teacher mentors or poor supervision systems.

To confirm about the challenges, Sinrarat (2015), a senior professor on teacher education, pointed out in his paper on the role of teachers in future and the preparation of learners for self-directed learning. First, he concluded that the status and problems of teachers in Thailand were as follows:

(1) The dignity and recognition of teachers in the society have declined. In the past, teachers in Thai society were regarded as the second mother or father, but the acceptance and respect for teachers has faded in the present. Teaching is now considered another ordinary profession in society. Due to societal changes, the teacher's duty has shifted from providing knowledge and livelihood guidance and counselling for students and people in the community to merely being an agent for knowledge transfer.
(2) The increased workload at school as a result of school-based management since the education reform in 1999. The budget allocation to schools was calculated by subsidies per capital or per head of students, thus teachers have additional work other than teaching such as school accounting, managing school supplies as well as participation in training courses, school administration, community service and so on.
(3) The increase in societal demands for teachers to be well educated and able to teach on matters such as democracy and anti-corruption.
(4) The income of teachers is not enough to compensate the high cost of living especially for teachers who had low starting salaries.

In addition, Sinrarat pointed another problem facing teachers in future as some are unable to develop themselves to handle new technology. At the same time, students who are the younger generation could learn faster and are more capable of understanding and utilizing modern technology. He also argued that there is a limit to teacher's capability to provide diverse styles of teaching/learning. The teaching styles of some teachers in their middle age have become irrelevant to real-life situations and the new patterns of society in future. What is being taught in schools needs to prepare students to be able to tackle emerging issues such as corruption, terrorism, cultural diversity, pandemics like the COVID-19, people's uprising movement, and natural disasters, etc.

Currently, Thailand is in the period of globalization with influences from values such as capitalism and consumerism. Some new generation students have been taught by teachers who still preserve the values of traditional Thai culture like diligence, politeness, honesty, humbleness, while some teachers avoid teaching these ideals. The Thai education system faces many obstacles and challenges, such as the importance of skills transformation for living and working in the regional (ASEAN) and global setting. These problems are results from various factors such as school administration, educational financing, budget allocation, budget provision, distribution of resources, examinations which focus on scores rather application, accreditation, teacher management, and classroom conduct (Lupa, 2016).

The Culture of Thai Community and Learners in Thailand

In Thailand, there are many traditional cultural norms and practices which have somewhat been barriers to Thai people's adjustment to the era of technological advancement, especially for learners pursuing modern education. The six cultural dimensions concept proposed by Hofstede (1991 cited in Rupavijetra, 2017) discussed that power distance, uncertainty avoidance, collectivism and restrain dimensions are high in Thai society. Some cultural norms have been carried on from generation to generation such as respecting elders who are persons in authority, keeping quiet and maintaining the culture of face-saving, meaning the attempt to not loose one's face and especially senior's face in public.

Revisiting the education of Thai people before the facilitation of western education and culture, education then took place at temples and education values in part stemmed from Buddhist teachings and based on the essence of living in an agricultural society. Cultural perspectives in Thai communities indeed influenced education values in which some of these characteristics are supportive of teaching and learning, while some are obstacles. As Yuenyong and Yuenyong (2012) debated that Thai people were taught via Buddhist lessons to live peacefully together, respect seniority and authority. Children were taught at home and at school to be good children by obeying their parents, teachers, and other adults. In the classroom, teaching and learning tend to lack discussion as most students believed that good students shall not oppose the teacher.

Also, students are familiar with listening and receiving information from teachers through lectures, without preparation or researching contents on the topic before going to class like western students or students from developed countries like Japan or Singapore. Most students at school level and higher education level attend class submissively as passive observers rather than active students, in hope that the class will be a one-way communication relying solely on the knowledge and skills of the teacher/instructors, and not wanting to contribute to the class (Nicholls & Apiwattanakorn, 2015).

Even though Thailand has greatly invested in education and infrastructure, especially in information technology system (ICT), the results of Thai student achievements have been of low performance in every test, both nationally and internationally, whether it be the O-NET, the National Institute of Educational Testing Services (NIETS), PISA, TOEFT, or EF English Proficiency Index (Vibulphol, 2015). On the contrary, Thai people ranks top in the world for time spent on the internet per day, a consequence of high social media usage. In 2018, Thailand ranked in the top 10 for mobile social media consumption and top four for time spent on these platforms (Leesa-nguansuk, 2018).

Clearly, it seems that schooling and family socialization cannot endure the predominance of social and technology influences. As easy access to technology, which is more persuasive, interesting, and joyful than the teacher's teaching, the arrival of imported cultures, combined with the wearying of some traditional Thai values call for a much-needed movement for cultural revival and the preservation

of Thai identity. It can be argued that the new generation in Thailand is facing an "identity crisis". Thus, civics and values education need to be improved and applied in current school settings (Sujiva & Pitiyanuwat, 2000).

Evaluation on the Proposed 2019 Policy Changes for Four-Year Teacher Education Curriculum

Worldwide, technology has been considered as both a solution and problem to the lives of human beings. On one hand, education is driven by the literacies demanded by emerging technology, but on the other hand, technology is seen as means of and in service to education. In developing nations such as Thailand, the integration of technology in education can be falsely perceived as a panacea for foundational and structural educational issues. Due to the highly advanced and disruptive technological era, Teerakiat Jareonsettasin, Minister of Education, who was in office during 2017–2019, proposed substantial changes for higher institutions to modify and shorten their teacher education curriculum from five years to four years. He proposed that the shorter courses would not cause a drop in quality, on the contrary the quality of education will increase as students can learn offsite through available technology.

However, there has been much discussion and debate on the issue of this new policy on teacher education curriculum, reducing the years of instruction from five to four years. This transition of teacher education will begin at Rajabhat universities and at all higher education institutions which must urgently adjust their curriculum and inform prospective applicants in advance before they proceed into the student admission system. Before responding to the Ministry of Education's policy, academia from teacher training institutions had discussed and expressed concern on this sudden change (Saengpassa, 2018). Though they finally accepted the revision of the teacher curriculum to be a four-year training education and due to be implemented in 2019. This portrays the top-down policy and hierarchical system of administration in Thailand. Moreover, adjustments in term of knowledge and professional experience and practice were announced in accordance with the Teacher Council and Educational Personnel Act of 2003.

Details on the modification consists of three areas: (1) standards of knowledge and experience, teacher students have to realize and be capable of handling challenges in the global context and have the ability to apply the concept of **sufficiency economy** (initiated by King Rama IX) to modern society. In addition, teacher students have to integrate knowledge, subject content, and science curriculum in learning management. In the area of professional experience, teaching must be conducted in an educational institution for at least 1 year, (2) performance standards divided into teacher duties, learning management, and relationship with parents and communities and (3) standards of conduct, which is related to the conduct of one's own professional ethics.

An example of the four-year teacher curriculum which commenced in 2019 presented below is the curriculum for teacher students majoring in the Mathematics program at the Faculty of Education, Chiang Mai University, (Faculty of Education, Chiang Mai University, 2019). Students need to study a total of at least 144 credits, divided into 30 credits for General Education (GE) and a minimum of 108 credits for subjects in the Field of Specialization.

The Core Courses require a minimum of 39 credits, with 37 credits of Required Core Courses such as,

1. EDPF 109 Model of Teacherness for Modern Classroom
2. EDPF 110 Globalization and Education for Smart Citizenship
3. EDPF 112 Psychology for Student Development in Digital Era
4. Teaching Profession Practicum in School 1
5. EDPF 228 Communicative Language for Teachers in Digital Era
6. EDPF 229 Innovation and Digital Technology for Learning in Modern Era
7. EDPF 230 Learning Measurement and Evaluation in Modern Trends
8. EDPF 231 Educational Quality Assurance for Excellence
9. EDPF 291 Teaching Profession Practicum in School 2
10. EDPF 315 Multicultural Education and Community-Based Education
11. EDPF 316 Special Education for Enhancing Potentials of Students with Special Needs subject
12. EDPF 317 Microteaching Skills Practice
13. EDPF 391 Teaching Profession Practicum in School 3
14. EDPF 404 Research for Learners' Quality Development
15. EDPF 491 Teaching Profession Practicum in School.

In terms of Electives Core Courses which require a minimum of 2 credits, students select from the following courses, EDPF 214 Active Learning Management, EDPF 216 Differentiated Instruction, EDPF 220 Creative Art Integration in Education, EDPF 222 Global Education for Lifelong Learning, EDPF 232 Laws for Teaching Profession or EDPF 233 STEM Education for Life, Economy, Society and Environment, while Major Courses amounts for a minimum of 69 credits, divided into a minimum of 36 credits in major courses at 300 level and a minimum of 18 credits at 400 level courses. Students also need a minimum of 51 credits in Academic Content Courses by selecting from the available Required Courses (Table 30.2).

As for teacher practice at school, this new four-year curriculum aims to support students in integrating knowledge gained from many of the courses taken to teaching practice at the school. The pattern of teaching practice for this four-year curriculum will start early in the first year and second year of studies, meaning that teacher students will be practising at school as assigned by the faculty of education for two weeks, and practice will last for eight weeks in the third year. Finally, in the fourth year, teacher students have to practice at school for one semester.

Significantly, this current teacher education curriculum requires all graduates from the programs to demonstrate a solid knowledge of **English skills** by achieving the B2 or Vantage level of proficiency (upper intermediate), based on the Common European Framework of Reference for Languages (CEFR). As for those studying to teach the

Table 30.2 Structure of the four-year teacher education of the Faculty of Education, Chiang Mai University, Thailand

Structure of the four-year curriculum	No. of credits required by Chiang Mai University
General education courses	30
Specialization courses	39
Major teacher profession courses	69
Free elective courses	6
Total	144

Source Faculty of Education, Chiang Mai University (2019)

English subject at school, they must achieve the level of proficient users (C1 category) or persons demonstrating effective operational proficiency or advanced knowledge of English. This English requirement is a burden to educational institutions in the attempt to support their students to gain English language competency during the four-year study. Furthermore, there is a need of concern as in the year 2023, graduates from the previous five-year teacher education curriculum and the new four-year curriculum will graduate in the same year.

Taking the Teaching Professional License Examination

Graduates from the previous five-year teacher education curriculum automatically gain a teacher professional license issued from the Teacher Council of Thailand (TCT) upon completing their studies, while graduates from the 2019 four-year teacher education curriculum will have to take a teaching professional license examination. Therefore, there will be an examination to obtain a teacher license again for the first time in the academic year 2023. The criteria for examinations courses are Thai language for communication, academic use of English for communication, academic use of digital technology for education, teacher profession and major knowledge. Applicants will have to pay a 300 THB ($10 USD) fee for each examination course.

Conclusion

Thailand's historical overview suggests that education has been recognized by its ruler as crucial to the development of the country since early times. Traditional Thai education which took place in families and at the temples and palaces were replaced with modern standard education following along the tracks of Western counterparts in early Rattanakosin era in order to counter threats from abroad such as colonialism and benefit from opportunities such as oversees trade. From royals, elites, monks, whom were the first to be educated, access to education further expanded to provide

education to people across the country. Education institutions increased the production of teachers to supply for the growing expansion of primary and secondary schools nationwide. Extended years of free basic education was also provided by the government. Despite much progress, the Thai education development indeed endured challenges such as the quality of teachers, curriculum standards and such, thus education reform was inaugurated. One of the major milestones of modern Thai education reform is the implementation of the National Education Act in 1999 which embraces the values of decentralization, educational standards, quality assurance, partnership with individuals, families, communities, and all sectors of society. These qualities of the education system were drafted in line with the 1997 Thai Constitution which overwhelmingly supported democracy. In more recent period, Thailand continues its attempt to develop the country through reforms in order to cope with globalization and the twenty-first century and ensure competitiveness in ASEAN and globally. However, though Thailand's investment on education is high, regular policy changes due to political instability and bureaucratic obstacles hinder the overall development of the education system. Education failure in Thailand also stems from unequal education opportunities, qualifications of teacher educators and teacher mentors, overload of teachers' duties, the inability to adapt to change and technological advancement and in some cases, aspects of the underlying Thai culture. Outcomes of uneven development in education and the abovementioned challenges can be observed through low student performances in national and international standard tests. The teaching profession also experienced the decline in trust, respect, and the status it once held in society. Many modifications at the policy level have been made to improve teacher education with the aim to produce high-quality teachers and balance the supply and demand of teachers in schools. The government and education institutions have also implemented projects to attract future teachers who are academically outstanding and possess good teaching skills in the forms of grants, scholarships, and guaranteed employment opportunities. Most recently in 2019, the Ministry of Education restructured the teacher education curriculum from a five-year curriculum, which was adopted by most education institutions in 2004, to a four-year curriculum in order to attract prospect students. As the current four-year instruction has only been implemented for a few years, studies and research on the outcome of the curriculum should be further conducted.

References

Chailom, S. (2019). *Fiver-year curriculum of teacher education in Thailand, gain or pain?* Paper presented at the ICBTS 2019 International Academic Research Conference in London, pp. 215–221.

Faculty of Education, Chiang Mai University. (2019). *Bachelor of education program in mathematics.* Retrieved from https://webmaster.edu.cmu.ac.th/assets/upload/files/2021/03/20210303131103_98523.pdf

Fry, G. (2002, September). *The evolution of educational reform in Thailand*. Paper presented at the Second International Forum on Education Reform on September 2–5, Organized by the Office of the Nation Commission, Office of the Prime Minster, Kingdom of Thailand.

Hallinger, P., & Lee, M. (2011). A decade of education reform in Thailand: Broken promise or impossible dream? *Cambridge Journal of Education, 41*(2), 139–158.

Hofstede, G. (1991). *Cultures and organizations: Software of the mind*. McGraw-Hill Books. Cited in Rupavijetra, P. (2017). *Management styles learning: Cross culture management*. The Knowledge Centre Publishing.

Jamjuree, D. (2017). Teacher training and development in Thailand. *Journal of Research and Curriculum Development, 7*(2), 7–19.

Jantarakantee, E., Faikhamta, C., & Roadrangka, V. (2012). The state of field experience management in five-year teacher education program: A case of observation and teaching practice course. *Journal of Humanities and Social Sciences Mahasarakham University., 31*(2), 150–165.

Kengkeankit, K., Luonmongkon, K., & Saongai, O. (2020). The study of the problems of pre-service teachers of art education at the Faculty of Education, Ramkhamhaeng University. *Ramkhamhaeng Research Journal of Humanities and Social Sciences, 23*(2), 1–10.

Khuanwang, W., Lawthong, N., & Suwanmonkha, S. (2016). Development of evaluation standards, for professional experiential training of student teachers. *Social and Behavioral Sciences, 217*, 878–886.

Kiatkheeree, P. (2018, June). Insights into teacher education curriculum in Thailand. In *Proceeding of the 4th International Conference on Frontiers of Educational Technologies in Moscow*, Russian Federation (pp. 5–9). Retrieved from https://doi.org/10.1145/3233347.3233352

Leesa-nguansuk, S. (2018, February 6). Thailand tops internet usage charts. *Bangkok Post*. https://www.bangkokpost.com/business/1408158/thailand-tops-internet-usage-charts

Lupa, Y. (2016). Corrupt problems in the Thai education system. *APHEIT Journal, 5*(1), 66–76. Retrieved from http://apheit.bu.ac.th/jounal/Inter-1-2559/p66-76-Yuvares-Ludpa.pdf

Ministry of Education. (2017). *Education in Thailand*. Prigwan Graphic.

Ministry of Education. (no date). *History of Thai education.* Retrieved February 12, 2021, from https://www.moe.go.th/moe/upload/blog/htmlfile/107-9400.html

Mounier, A., & Tangchuang, P. (Eds.). (2010). *Education and knowledge in Thailand: The quality controversy*. Silkworm Books.

Nicholls, P., & Apiwattanakorn, P. (2015). Thailand: Where culture and the classroom collide. *The New English Teacher., 9*(1), 1–14.

Nitungkorn, S. (2000). Education and economic development during the modernization period: A comparison between Thailand and Japan. *Journal of Southeast Asian Studies, Kyoto University., 38*(2), 142–164.

Office of the Education Council. (2017). *Education in Thailand*. Retrieved from http://backoffice.onec.go.th/uploads/Book/1532-file.pdf

Office of the National Education Commission. (1999). *Education in Thailand*. Wattana Panit Printing and Publishing. Retrieved from http://www.onec.go.th/HTML_99/ONEC_PUB/Book/YR42/ed_inthailand99

Pahae, S. (2013, December). *Teacher profession development towards the education reform era in the second decade.* Proceeding presented in the Seminar on Teacher Development following the strategic of Education Reform in the second decade (2012–2018) at Phrae Tower Hotel, Phrae Province on December 28–29, pp. 1–12.

Phantasoot, P.(2019). Reflection of Thai Education System from Past to Present. *Journal of Education Administration, Silpakorn University, 10*(1), 1035–1046.

Pongsapichat, J. (2015). *Ministry of Education resurrect the new generation of teachers, lead 4000 scholarships-guarantee job.* Retrieved from https://www.isranews.org/thaireform/thaireform-documentary/10655-4000-html

Pongwat, A. (2014). A new breed of teachers: Thailand's efforts to improve the quality of her teachers. *CICE Series, Hiroshima University., 4*(2), 155–166.

Pongwat, A., & Mounier, A. (2010). Education Act 1999: A workable education reform? In A. Mournier & P. Tangchuang (Eds.), *Education and knowledge in Thailand: The quality controversy* (pp. 79–89). Silkworm Books.

Prachyapruit, A. (2016). Development of teacher education model to serve Education 4.0. *Romphruek Journal Krirk University, 35*(3), 101–135.

Rukspollmuang, C., Pitiyanuwat, S., Maneelek, R., Preededilok, F., & Charungkaittikul, S. (2017). The study of state and problems of production, recruitment, and professional development of Thai basis education teachers related to future need. *Journal of Education Studies, 45*(3), 17–33. (in Thai).

Rupavijetra, P., Hanwong, U., & Maotheuak, S. (2019). *Teacher education system in Thailand and Chiang Mai University. Teacher education curriculum: A comparative study across Asia and ASEAN Chiba*: Asia & ASEAN Center for Educational Research, Faculty of Education, Chiba University. Retrieved from https://www.jgp.kyoto-u.ac.jp/iuepasean/dynamic_files/News/86/1th_detail_file/TWINCLE%20joint%20publication(2019-1).pdf.

Saeluang, K. (2020). *History of teacher production and the evolution of the teaching profession in Thailand that change according to the social context in the advanced profession era (new era) and the model demonstration school*. Faculty of Education, Srinakharinwirot University. Retrieved from https://fliphtml5.com/oxqg/basic

Saengpassa, C. (2018, October 21). New teacher-education policy 'will hurt quality'. *The Nation.* https://www.nationthailand.com/news/30356894

Sinrarat, P. (2015). Role of teacher in the future: Prepare learners to be self-directed learning. *Special Issue Journal of Humanities and Social Sciences, Rajapruk University., 1*(1), 1–8.

Sujiva, S., & Pitiyanuwat, S. (2000). Civics and values education in Thailand: Documentary analysis. *Asia Pacific Journal of Education, 20*(1), 82–92.

Suwansirimethi, K. (2007). *Thai society and Confucius philosophy.* Course Document for Political Philosophy. Political Sciences Curriculum. Mahachulalongkornrajavidyalaya.

Teachers' Council of Thailand. (no date). *History*. Retrieved January 28, 2021 from http://site.ksp.or.th/about.php?site=englishsite&SiteMenuID=7

Thiraeak, A. (2017). *Elite Languages: The politics behind the study of the English language under King Rama V*. Matichon.

Thongthew, S.(2014). Changes in teacher education in Thailand 1978–2014 [Electronic version]. *Journal of Education for Teaching, 40*(5), 543–550.

Thongying, C. (2016). Teacher challenges: Awaiting reform. Retrieved from https://library2.parliament.go.th/ebook/content-issue/2559/hi2559-091.pdf

Vali, I. (2013). The role of education in the knowledge-based society. *Procedia-Social and Behavioral Sciences.* 76, 388–392. Retrieved from https://www.sciencedirect.com/science/article/pii/S1877042813006769

Vibulphol, J. (2015). Thai teacher education for the future: Opportunities and challenges. *Journal of Education Studies., 43*(3), 50–64.

Yuenyong, J., & Yuenyong, C. (2012). Connecting between culture of learning in Thai contexts and developing student's science learning in the formal setting. *Procedia-Social and Behavioral Sciences., 46*, 5371–5378.

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Chapter 31
Improving Teacher Education Curriculum in Vietnam

Nam Danh Nguyen and Quang Hong Pham

Abstract The requirement of the fourth Industrial Revolution and reforming general education curriculum is to improve the quality of the teacher education curriculum. This chapter poses some issues related to the curriculum development in Vietnam such as curriculum approach, teacher education model, future teacher competencies, barriers in developing the curriculum, limitations of the system of the teacher education institutions, and implications for a better curriculum. Because of the trend of globalization, teacher education institutions need to train teachers to have the ability to develop learner competencies. In other words, the teacher education curriculum would play an important role in the context of educational reforms to meet the requirements of future human resources. This chapter also focusses on the competence-based approach in improving teacher education programs and proposes some strategies for changing teacher education philosophy, enhancing training objectives and contents of the teacher education curriculum so that it could meet the new demand of the teacher labour market.

Keywords Curriculum · Curriculum development · Teacher education · Teacher training · Teacher education institution

Introduction

The Industrial Revolution 4.0 signals a strong shift for the global workforce, highly skilled and professional workers will move more to developed countries. To catch up with that shift, higher education must have a fundamental and comprehensive change. The transformation of the teaching method from imparting knowledge to developing competencies and self-learning ability for students. It requires each teacher to spend more time, learners must have more choices about methods and knowledge suitable for their passion (Vu et al., 2012, p. 24; Nguyen & Dang, 2017, p. 78). In that context, teacher education institutions must renew objectives, training programs,

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content, training forms, teaching methods, and outcome-based assessment according to practical and technology-oriented. Thus, it is necessary to invest more in advanced educational technology, promote online training and retraining to foster pedagogical competencies for students, teachers in the educational system. Teacher education institutions must associate the training and retraining of teachers with the practical teaching and education; continue to improve teaching methods and strategies; consolidating the management of teachers and schools; improve remuneration for qualified and capable teachers who are knowledgeable in technology application; enhance international integration (Tran, 2006, p. 68; Pham, 2013, p. 15). At the same time, to build mechanisms and policies, and create favourable conditions to attract and strongly use investment resources for teacher education to improve teaching profession competence in the digital age.

Fundamental and comprehensive renovation of education and training in Vietnam in recent years has posed urgent requirements in the reform of general education programs and training programs of universities (Nguyen & Dang, 2017, p. 81). Teaching in schools is no longer the only source of information, mainly giving to each learner. In that context, although general education still plays a decisive role, not only imparting knowledge but also forming in students the ability to self-study, develop and adapt sustainably. The role of general education is to make the young generation absorb knowledge purposefully, selectively, and systematically. The rapid socio-economic changes lead to a change in value, teachers not only impart knowledge but also develop emotions and attitudes, behaviour, ability to master and apply that knowledge (Vu et al., 2012, p. 41; Pham, 2013, p. 112). We believe that the role of teachers in the twenty-first century has changed in the direction of taking on more functions, the responsibility to choose educational content is heavier, must shift from the way of transmitting knowledge to the way of organizing learning activities to occupy knowledge, attach importance to individualized teaching, know how to make the most of diverse sources of knowledge in society, must know how to use information technology, and self-study to improve professional qualifications continuously; require closer cooperation with colleagues, teamwork skills, communication skills, behaviour in social relations, with students' parents, and social organizations; require teachers to participate widely activities inside and outside the schools (Pham, 2013, p. 127).

With new roles and functions, the teacher is the educator. This changes the role of a professional educator, carrying out the mission of social improvement and comprehensive development of students by thinking ability and acting capacity on scientific and humanistic arguments. The teacher is a lifelong learner. The aim is to improve social and scientific understanding in the fields of work while developing personal and professional capabilities. The teacher is also a researcher who researches and solves problems of educational practice. Finally, the teacher is a cultural–socialist. This emphasizes the teacher's responsibility to contribute to the residence community and the local community, where the school acts as a responsible citizen to build a cultural and exemplary environment in manners and lifestyles (Tran, 2006, p. 28; Nguyen & Dang, 2017, p. 84). For teachers to make important changes in the fundamental innovation of education, the innovation of the teacher education curriculum

has a very important meaning, thereby improving the quality of training and retraining is a key factor to ensure the success of the educational renovation.

The outstanding feature of teacher education in the context of the world economy changing from the industrial economic model to the knowledge economy model is the emphasis on the philosophy of comprehensive development of the teacher's personality. Teacher education is seen not only as training teaching skills to meet simple, regular, and repeated daily tasks, but essentially the educational process towards the formation of the quality and professional competence of education. Train (or educate) teachers towards the future teachers of both the knowledge, skills and attitudes, and behaviours they need to effectively perform their tasks in the classroom, school, and broader community. In the USA, the term "teacher training" has disappeared, and has been replaced by "teacher education" with the meaning of preparing teachers for a professional role as a creative, reflexive profession (Ries et al., 2016). The identified training objective is to equip teachers with educational and teaching competencies, in which educational capacity is more emphasized. The process of teacher education is a topic of political discussion in many countries, reflecting both the social and cultural values associated with preparing young people for life. In the spirit of emphasizing the human qualities of teachers, Singapore in recruiting teachers does not pay too much attention to the issue of good teaching but also pays much attention to the professional qualities—dedication and integrity (Vu et al., 2012, p. 125).

The labour market of teachers is not only localized within each locality, each country, but also expanded on a global and multinational family. This requirement means that teachers must be able to work anywhere and in any country. If this does not meet, teachers are at risk of being unemployed. This challenge for the teacher education institutions is to train teachers who are capable of intercontinental work. Otherwise, teachers must be multicultural, multi-ethnic, multi-religious, multinational, multidisciplinary, and multilingual. This requires teachers not only to meet the national professional standards but also to achieve international professional standards to adapt to this working environment (Tran, 2006, p. 110; Pham, 2013, p. 91). The demand for internationalization of education is attracting a proportion of international teachers—not only foreign language teachers but also teachers of some science and skills, etc. so the labour competition is inevitable, especially when Vietnam joined World Trade Organization (Pham, 2013, p. 22).

Moreover, the current model of training programs in the world is quite diverse and plentiful such as STEM training, project-based teaching, module teaching, integrated lesson model teaching (Nguyen & Dang, 2017, p. 77; Le & Nguyen, 2019, p. 11). In the trend with globalization and international integration, if teachers only can teach according to traditional lesson models, it is difficult for teachers to adapt to the diverse capacity development needs of learners. Therefore, teacher education institutions need to train teachers capable of teaching multi-model and this is an irreversible trend that forces pedagogic schools to respond. To ensure the training philosophy as a comprehensive and continuous development of teachers, teacher education systems see it as a seamless, at least inclusive process. In Vietnam, the philosophy and goals of comprehensive teacher education are officially expressed in

the standards of teachers' education qualifications, quality, morality, ideology, and health. This orientation is thoroughly grasped in teacher educationcurricula. Thus, it can be said that the current context requires a major change in the training of human resources, which is a transition from quantity to quality.

Literature Review

Curriculum and Curriculum Development

The concept of curriculum when used in education can be understood in many ways. The curriculum is a collection of subjects; the curriculum is a program of studies; the curriculum is a set of performance goals; curriculum is a course; the curriculum is all that happens in the school including extracurricular activities, instruction, and interpersonal relationships; the curriculum is all that is planned by the school organization department; the curriculum is what each learner gains as a result of their work in school (Pham, 2013, p. 35; Nguyen & Dang, 2017, p. 80). Hilda Taba defines the curriculum as a statement of aims and specific objectives; it indicates some selection and organization of content; it either implies or manifests certain patterns of learning and teaching, whether because the objectives demand them or because the content organization requires them. Finally, it includes a program of evaluation of the outcomes. He points out the curriculum including the following elements: (1) statement of specific goals and objectives; (2) program content selection and structure; (3) appropriate teaching strategies and learning styles; and (4) learning performance evaluation system (Taba, 1962). According to Carter V. Good's educational dictionary states that a curriculum is a systematic group of courses or a sequence of subjects requiring a graduation or certification in a field of study, such as chapter social science program, physical education program (Good, 1945, p. 70).Walker argued that a curriculum is an educational plan that reflects the educational goals pursued by the school. The plan outlines the teaching and learning content and methods needed to achieve the goals (Walker, 1990, p. 46). Tim Wentling defines that a curriculum as the overall blueprint for an educational activity. That overall design tells us the content needs to be educated, it specifies what to expect from the learners after the end of the course, it outlines the implementation process of the educational content, it also tells us educational methods and how to assess learning outcomes, and all the design issues are arranged in a tight timetable (Tim & Kah, 1993, p. 54; Goodlad, 1994, p. 65; Pinar et al., 1995, p. 110).

Raph Tyler claimed that the curriculum is all of the learning of students which is planned by and directed by the school to attain its educational goals. He believes that the curriculum includes the following four basic components: (1) educational objectives; (2) educational content; (3) educational method or process; and (4) evaluation of educational results (Tyler, 1949, p. 65). Thus, there is a consensus with the views of the authors Tim Wentling and Raph Tyler about the curriculum as follows:

"The curriculum is an overall design that is systematically presented for an educational activity of a subject within a specified period, and demonstrates the following four elements: (1) *educational objectives learning outcomes*; (2) *the content to be educated (subjects) and the length of each subject*; (3) *processes and methods of implementing in the curriculum to achieve educational objectives*; and (4) *method of evaluating educational results*". It can be said that the curriculum is a dynamic concept that developed according to the level of socio-economic development, of science, engineering, and technology.

In Vietnam, the following types of curriculum are available: *national curriculum* promulgated by the State; *local curriculum* and *school curriculum* are the concretization of the national curriculum to suit the locality, region, and each condition of each school (Pham, 2013, p. 130; Nguyen & Dang, 2017, p. 82). The master program identifies a national curriculum format including a curriculum development perspective; principles of curriculum development and designed educational goals; output standards; subject system or educational activity; the length of time devoted to each educational subject or activity; methods of education; evaluate learners. Curriculum development is the process of adjusting, supplementing, updating, or renewing all or some of the elements of an educational program, ensuring the change and relative stability of the educational program.

Approaches to Curriculum Development

Content Approach

Education is a process of imparting content knowledge. For instance, a one-subject program is the presentation of the subject's content, based on which teachers will know what they have to teach, learners need to know what they have to learn, and what knowledge to receive. Thus, the curriculum designed according to this approach is merely the index of a book or program to teach that subject, also, there is no mention of strategies and teaching methods. Consequently, to transmit the knowledge content of the program, the teacher also only needs to find suitable methods to convey that knowledge content, invisibly pushing the learners into the next passive position to receive knowledge. This is the traditional approach in developing a curriculum. This approach makes it difficult to assess learners' learning outcomes. In modern society, the amount of information increases very rapidly about scientific and technological knowledge in all fields. Therefore, this approach in the world no longer applies (Tran, 2006, p. 71; Pham, 2013, p. 32).

However, for Vietnam, this approach is still "haunted" quite heavily in the awareness and action of curriculum designers. Content lists to teach (which are to be taught) can be found mechanically bullet points in chapters and sections of the curriculum and lack a lot of instructions. The results of the learner's examination will inevitably appear on the test. In short, this approach still has many limitations such as: it is difficult to determine the specific objectives of the program, the orientation subjects

for teachers and learners to achieve together, so it is difficult to define standards to conduct teaching–learning performance assessments; do not encourage teachers to take responsibility for learners, those who acquire knowledge content and are the object of the transmission of knowledge, nor are they responsible for the impact of the content of knowledge on learner; learners are always passive and dependent on teachers in the process of acquiring knowledge and do not know how to take the test (Tran, 2010, p. 104; Vu et al., 2012, p. 55).

Objective Approach

Unlike the content-based approach, the starting point of building an educational program must first determine the purpose, the objectives of the curriculum, the subject, and the subject matter. The educational objectives of the curriculum should be explicitly and detailed in terms of both content knowledge, skills to be trained for learners, learner competencies as well as teaching methods (Chen & Zhu, 2003). According to this approach, the content of knowledge and skills is still focussed, but only on the types of knowledge and skills to help learners reach the educational goals. Based on the identified goals, curriculum designers make decisions in choosing the appropriate content knowledge, teaching methods, strategies, and forms of testing. Educational objectives are the basis for selecting teaching content and the criterion for assessing whether learning has achieved the goals set out in the program or not (Berliner & Calfee, 1996). The educational objectives are also the learning outcomes of the educational process reflected through changes in the competence to act, on the student's behaviour from school to school. Based on the educational objectives, the curriculum designer makes decisions in the choice of content, educational methods as well as assessment of learning results. This approach focusses on the product of education, so the educational objectives must be established as a criterion to evaluate the effectiveness of the educational process. It has the advantages of effective assessment and favourable assessment of program quality. However, there is the risk that learners can become machine dogmatic and lack creativity (Ramesh, 1977; Tran, 2006).

Developing the curriculum according to the objective approach also has some disadvantages as follows: (i) education is not merely a tool to forge and create products according to a similar "pattern" is like a production in which products must meet predetermined standards. Meanwhile, education with human objects is characterized by no one in all respects, the application of an educational technology process based on rigidly defined goals is difficult to keep; (ii) education is not only a process of imparting knowledge, not only training learners according to defined goals, but education is also a process of human development, helping learners maximize their experience. Nevertheless, according to this approach, the potential capabilities of individual learners are not brought to full attention, and their own needs and preferences cannot be met (Feldman, 2003, p. 71; Pham, 2013, p. 33).

Competence-*B*ased Approach

Competence in the most general sense is the ability that an individual demonstrates when participating in a certain activity at a certain time (Eva & Yoko, 2015). For instance, the ability to solve math problems, the ability to speak English, etc. is often assessed by academic tests. Competence is the ability to effectively perform a specific action, related to a certain field, based on knowledge, skill, and willingness to take action. A learner who is competent to act in a particular type of activity should meet the following basic signs: (i) systematic/specialized knowledge or understanding of that type of activity; (ii) know how to conduct activities effectively and achieve results consistent with the purpose; (iii) actions have results, respond flexibly and effectively in new and unfamiliar conditions (Iwata, 2004; Jeanne, 2006; Pham, 2013). From there, it is possible to define competence to act, that is the ability to mobilize the synthesis of knowledge, skills, and other personal–psychological attributes such as excitement, belief, the will, etc. to successfully perform a type of work in a certain context.

This approach also requires learners to master basic knowledge and skills but also focus on applying knowledge and skills to practice, solving learning and life situations. The nature and results of the activities also depend a lot on learners' interests, beliefs, morals so the curriculum also pays great attention to the goal of developing an individual's abilities. As such, a lesson designed according to the competence-based approach has the following characteristics: objective is oriented towards describing the expected learning outcomes rather than the content knowledge is transmitted (Zhu & Han, 2006; Gail et al., 2015; Nguyen & Dang, 2017; Zhu & Fang, 2011). This approach promotes teacher–student and student–student interaction, encourage student debate, evaluate, share experiences, promote a spirit of cooperation, teamwork skill. It emphasizes activities of learning, discovery, experience, self-learning through information extraction, searching, etc. especially applying knowledge to solve real-life situations. The main role of the teacher is to change learners such as being ready to absorb new concepts, actively expressing, actively interacting, experiencing, thinking about ways of thinking, enhancing excitement and confidence, stimulate the learners' creative thinking.

Teacher Competencies

The role of the teacher has changed in the following directions: (i) taking on many different functions than before, having heavier responsibility in choosing the teaching content; (ii) shifting strongly from imparting knowledge to organizing student learning, making maximum use of knowledge resources in society; (iii) to attach more importance to the individualization of learning, changing the nature of the teacher-student relationship; (iv) requiring the wider use of modern teaching facilities; (v) changing the structure in the relationship between teachers; (vi) requiring a stronger relationship with students' parents and community; (vii) requiring teachers

to participate widely activities inside and outside the school; (viii) reducing and changing the traditional prestige of relationship with students and with parents. From a pedagogical perspective, teachers must be trained to become more educators than experts in imparting knowledge with new information and communication technology skills, and mentally prepared for a fundamental change in their role.

Vietnamese secondary teacher professional standards include five standards with 15 criteria. These standards of competencies as follows: (1) *teacher quality* includes two criteria: ethics of teachers and teacher style; (2) *professional development* includes five criteria: professional development yourself, develop teaching and education plans, using teaching methods, students' competence assessment, counselling and student support; (3) *building an educational environment* includes two criteria: building school culture, Implementing democratic rights in schools. Implement and build safe schools, prevent school violence; (4) *develop relationships between family, school, and society* includes three criteria: create a cooperative relationship with parents or guardians of students and stakeholders, coordination between schools, families, and society to implement teaching activities for students, coordination between schools, families, and society to educate lifestyles for students; (5)*using foreign languages or ethnic languages, applying information technology, exploiting and using technological equipment in teaching and education* includes two criteria: use foreign languages or ethnic languages, application of information technology, exploitation, and use of technological equipment in teaching and education.

Teacher Education Model

There exist two models of training teachers in Vietnam. The first model is a parallel model or a traditional model. The parallel model is a model of parallel training of two blocks of basic scientific knowledge and pedagogy. The advantage of this model is that it highly integrates between the two blocks of basic science knowledge and pedagogy, but its limitation is rigidity. It requires students to study for four years full time to get a bachelor's degree, and they can become teachers after their graduation. According to this model, students receive simultaneous training in specialized science and educational science in a teacher-oriented training course from the beginning of the course. The model can implement in teacher education institutions as well as multidisciplinary universities. The fundamental advantage of this model is that students are oriented early into teaching and have a long time to acquire knowledge and practice pedagogical competence (Valerie & Chance, 2010, p. 17; Vu et al., 2012, p. 91). However, this model does not react quickly to the changing needs of teachers in society.

The consecutive model is the model of training the necessary scientific knowledge block first, the following pedagogical knowledge block. If in the traditional model, students take the university entrance examination or college education after graduating from high school and study for a bachelor's degree in education, then in this new model, after obtaining a bachelor's degree. If studying, students take a

master's degree in education to get a master's degree in education. Students must have a university degree in specialized science training (usually three or four years) and then study to receive a teacher training course, usually from one to two years to get a teacher's certificate or a master's degree and become a teacher. The advantage of the transition model is to provide learners with a solid scientific background and, at the same time, create an "open" input for pedagogy. It also is a quick response to the changing needs of teachers in society. The drawback of this model is the lack of integration between the two essential blocks of scientific knowledge and pedagogy, as well as oriented late in teaching and science education. Therefore, in teacher education, countries still maintain diversity and flexibility when applying the above training models.

In Vietnam, this model has been developed for more than 60 years with the following basic advantages: (i) it is a favourable pedagogical environment in forming the personality of an educator; (ii) the program is relatively stable; (iii) highly professional teaching staff and administrators; and (iv) management experience. However, reality in Vietnam shows that this model also has limitations such as: delay in program transition to adapt to reality; there is little screening in the training process, and at the same time students do not have the opportunity to change disciplines; and requires a large investment in the system.

The model of teacher education in a broad sense is a system of overall orientations for teacher education, including orientation, training goals, quality requirements and competencies of teachers, the framework of content structure, organizational methods, training, and evaluation methods (Nguyen & Dang, 2017; Wang, 2007). The model of teacher education should develop following the regulations for teachers in current legal documents, based on modern scientific perspectives on teacher education and practical relevance, meeting responds to new requirements for teachers. The model of teacher education should be oriented towards the implementation of professional standards in teacher education and is the basis for developing training programs.

Improving Teacher Education Curriculum

Barriers to Curriculum Development

In this chapter, we refer to the following barriers to curriculum development

Firstly, teacher education management has not been paid attention to, and there is a lack of planning (e.g. enrolment problems, training organization, employment of graduates, etc.). Therefore, it is necessary to flexibly apply teacher education models, depending on the advantages and disadvantages of each model that the universities have different choices. Teacher education programs need to be flexible to help graduates move their careers easily. Moreover, state management in education is fragmented and overlapping; has not created a close connection and coordination

between the education sector and ministries, branches, and localities. The work of planning and forecasting the contingent of teachers from the central to local levels is limited and inaccurate. Therefore, the determination of enrolment quotas of the pedagogy is not based on the practical needs of the quantity, quality, and professional structure of the teachers, and has not updated the renovation of general education.

Secondly, lack of planning in teacher education.The number of universities and colleges has increased rapidly, only from 1998 to 2020 the country opened more than 307 universities and colleges (Pham & Nguyen, 2020, p. 37). The function of teacher education has been socialized, so many new teacher education institutions have been opened; some colleges were upgraded to become pedagogical universities or teacher education institutions, and some economic and technical universities have also established pedagogy faculties, and educational centres also have the function of linking training and retraining teachers. The situation of "blooming flowers" has made the Ministry of Education and Training (MoET) lose control in regulating the supply and demand of teachers across the country. As teacher education institutions have entered a fierce competition in enrolment, service factors and profitability have gradually overwhelmed the requirement of quality of education, with many pedagogical colleges available. Hence, some local teacher education institutions do not guarantee the quality of training because of difficulties in recruiting the best students, are no longer a reliable address of educational institutions, lose credibility in society.

Thirdly, the shortage of local teachers in some places or some subjects. According to the MoET, compared to the teacher/student norm at all levels, there is a shortage of more than 43,000 teachers at the preschool level; nearly 19,000 teachers at the primary school level. The lower secondary school lacks more than 10,000 teachers and the upper secondary school lacks more than 3000 teachers. This situation happened that in some localities, teachers had to cross-subject and cross-level, creating a lot of frustration for teachers, a lot of concerns for parents, students, and public opinion.

Fourthly, lack of close connection between teacher education institutions and schools. For a long time, many teacher education institutions trained according to their capabilities but did not follow the needs of reality. That situation has created a lack of connection between teacher education institutions with schools; between the system of teacher education institutions; between teacher education institutions with research institutions of educational sciences. It is the lack of connection that makes the training programs and output standards not focus on developing the competence of learners, slowly innovating teaching methods and forms of organization, and lack of information technology application in teaching practice. The updating of the content and skill system of teacher education institutions is still slow before the renovation of educational practice, students are still confused when practising in the school environment.

Fifthly, most lecturers, graduates, and labour users have agreed that the current teacher educationcurriculum is inappropriate in providing future teachers with new professional standards. Since the curriculum is instead an inflexibility with a few elective courses, students do not allow to choose courses that are appropriate to their abilities and needs—the selection of subjects mandated by faculty. Because of the training funds lacking, class size is also enormous. Moreover, there was a lack of

close linkages between the "world of work" (WoW) and the universities of education. For that reason, job consulting services are not a concern of the universities. To understand about implementation of the curriculum, we have surveyed to examine the teaching strategies that lecturers at the universities of education used during their training. Therefore, it is necessary to have a specific mechanism to ensure the autonomy of universities and to build uniform and coherent mechanisms to ensure teachers' resources meet the requirements of the educational renovation.

Sixthly, the training program has not focussed on developing the professional competence of students, shown in the number of theoretical hours, while the number of hours for practice, discussion, seminar is relatively low. In the process of reviewing the university's curriculum, we have found that most of the modules (under the old training program) only spend about 10% on practical activities and very few periods for discussion. Therefore, it can be said that the training program is still academic, the ratio of the professional knowledge block to the practical knowledge block and the practical knowledge block is still relatively low, mostly below 20%, except for specific training disciplines such as primary education and early childhood education. The block of knowledge of the pedagogical profession accounts for a low proportion, which is not appropriate, the training program is still heavy on specialized scientific knowledge block. The total time of ten weeks for pedagogical students to go to high school during the course (three weeks of pedagogical and seven weeks of pedagogical practice) is too little and it is not until the third year that the pedagogical students can join this activity. Therefore, the training of pedagogical students' pedagogical skills is limited. According to the instructors in high schools, pedagogical students are still weak in soft skills, skills to design and organize social activities and creative experience activities, skills in handling pedagogical situations, educational scientific research skills, consulting skills to help students learn. In particular, pedagogical students lack confidence in communicating with teachers and students, have not had a sense of striving to excel in learning as well as accepting challenges.

In general, the most frequent curriculum problem factors reported concern: curriculum design problems related to module design, evaluation, and the WoW; lack of finance for practice transportation cost and teacher salaries; and lack of enrolment of students. The following reasons could be, in some combination, possible explanations for these consequences: lack of teachers' motivation to apply teacher education approach, lack of competent teaching staff, and the teachers' Confucian heritage and conservatism, lack of support of the top university leadership, lack of cooperation from supporting departments/faculties, inadequate coordination, and difficulties in maintaining WoW network. The following challenging issues also concerning the curriculum design cycle were found in teacher education programs: a poor connection of the teacher education programs with the competence profiles due to improper translation of competence profile into learning objectives and contents. Moreover, a traditional organization of learning process, a lack of a regulatory framework, guidelines, monitoring mechanism for the quality assurance of teaching and learning activities as planned for teacher education programs. Most of the teacher education institutions also see it in particular as a challenge to continuously integrate the contribution of WoW within the curriculum design cycle: a role in the curriculum

program, but also using the WoW feedback. This challenge asks for a real awareness of the teacher education approach and its importance to university leaders, education managers, and teachers; a lack of this awareness will inhibit the sustainable implementation and dissemination of teacher education programs.

Teacher Education Curriculum Development

Students need to understand the work of the teacher in schools (homeroom work, teaching, teamwork, professional group activities), understand the teaching period process, practice teaching skills, understand more about the psychology, practice pedagogical skills, understand and know how to analyse general textbook curriculum, practice communication skills, organize educational activities, organize extracurricular activities, know how to record timesheets, improve knowledge about teaching methods, feeling more in love with the job, understanding more about students' circumstances that influence their academic performance, and understand more about the educational environment. It is necessary to clearly define the teacher's portrait, thereby building the quality standards of teachers and standards for teacher education curriculum. It is also essential to approach the international trend in teacher education, that is to train teachers in multidisciplinary universities, to train teachers who can teach many subjects.

The model of teacher education in Vietnam follows the tradition of parallel training in teacher education institutions. In recent years, teachers have also been trained in many multidisciplinary universities along with the trend of multidisciplinary pedagogical universities. The orientation for development in future is to diversify the training model. There is no optimal training model, each model has its advantages and disadvantages. It is necessary to promote the advantages and limitations of each model's drawbacks. For instance, one obvious disadvantage is that in small teacher education institutions, specialized science forces may be less developed in multidisciplinary universities. On the other hand, in multidisciplinary universities, education science is easily overlooked. It is recommended to design and test the teacher education model of master level with a total training time of five years. The training of preschool and primary teachers can be applied according to the traditional model (parallel model). However, the training of secondary school teachers needs to approach international trends (consecutive model). Localities are encouraged to order standardized teacher education to improve the quality of the contingent of teachers. Teacher education institutions must actively arrange and restructure to improve the quality of teacher education.

Teacher education institutions have initially changed towards modernization (applying credit training methods, strengthening pedagogical practices, applying information technology, enhancing applied scientific research). However, in response to the fundamental and comprehensive renovation requirements of education and training, some universities of education are showing limitations in some aspects.

Firstly, the training program was not yet associated with the new teachers' professional standards, and the teacher education institution system itself is not connected and support among its members (Vu et al., 2012, p. 89; Pham, 2013, p. 127). Secondly, the teaching methods and assessments of students' learning outcomes are slow innovation, not focussing on applying knowledge to solve realistic problems in general education. Thirdly, limitations in international cooperation make the universities of education unbalanced the training objectives. This limitation poses a problem in determining the scope and objectives of training to improve the quality of their training while ensuring meet human resources. Fourthly, many traditional teacher education institutions have transferred to multidisciplinary training or upgraded to multidisciplinary universities. The relationship between the teacher education institutions and the educational management agencies at all levels and schools has recently made specific progress, but there is no close and sustainable connection in the activities of training, retraining teachers. Fifthly, teacher education has not met the needs of society, there is still a shortage of local teachers and high-quality teachers.

The reform of the teacher educationcurriculum should link to the reform of objectives, content, and training methods to implement standard and professional-oriented training. The development of the programs should focus on the training of professional competencies. It should note that the competencies defined in the professional standards are also at the same time the educational science capacities. However, this is not the only standard for teacher education in universities. Therefore, developing training programs on educational sciences, it is necessary to identify the specialized competencies and the contents to be trained in line with teachers' professional standards. The training contents are mainly based on a specialized scientific knowledge system corresponding to subject programs in schools (Donald, 2003, p. 347; Tran, 2010, p. 71; Vu et al., 2012, p. 93). Moreover, it should also concentrate on the principles of choosing teaching content, modernizing the training contents by eliminating outdated, unrealistic knowledge, and integrating modern and practical knowledge.

From the real situation of the training curriculum, we have proposed a new approach in developing the curriculum that satisfying the need of the labour market. From this approach, the teacher education program is based on a professional profile of competencies developed in dialogue with the WoW and taking into account national standards as well as international references. In this research, competency may describe as "the ability to integrate knowledge, skills, and attitude into an adequate professional action, given a specific situation in the field of the professional involved". The professional profile translated into an educational profile and didactic approach in which the teaching and learning activities support students to realize the intended learning outcomes. The program reflects an integrated approach in which theoretical knowledge is combined with practical and social skills training, focussed on the professional practice of the graduates. During the curriculum development process, we should focus on professional profiles and competence profiles. These profiles were obtained from the results of the WoW survey; therefore, the process represents the close relationship among crucial factors in designing a training curriculum.

Implications and Conclusions

For teacher education philosophy, future teachers need to have a broad and deep background, proficient in business, able to adapt and capable of social and cultural activities, approaching the orientation of developing a general education program and actively educating in the locality promotes national cultural identity and strengths.

For training objectives, the personality of teachers is still the most important. New roles in the context of the knowledge-based economy require teachers to have new career values. Training teachers in the current context must be recognized not only as a process of equipping future teachers with the knowledge, behaviour, and skills necessary for the successful implementation of daily tasks in class, school, and community. That is the process of developing future teachers as professional personalities. Professional value must become a core element in the teacher's personality. This process requires an approach, a logic-based training process that forms a system of personality values, quite different from the current approach and training process that focusses on competencies. Teachers need to be able to develop learners' competence through the process of organizing teaching—educate the subject instead of merely developing knowledge for learners. Teachers also need to be able to plan good teaching, actively select and organize for students to refer to a variety of different sources of teaching topics. The ability to use information technology in teaching is also a mandatory requirement in teacher competencies in the current context.

For training content, with the implementation of a new general education program, which focusses on developing the competencies and qualities of learners, teachers need to be able to develop learners' competencies through the process of teaching subject education instead of merely developing knowledge for learners. Besides, the ability to teach integrated knowledge or know-how to coordinate and organize interdisciplinary teaching is a new requirement for teachers. When a program has many textbooks, the teacher needs to be able to plan a good teaching, actively choose and organize for students to refer to many different resources according to the teaching topic. Regarding the proportion of specialized sciences and educational sciences in training programs, it is necessary to increase the time and quality of subjects in teaching methods, testing methods, and assessment. Subjects that provide the foundation knowledge for teachers such as educational philosophy, educational history, educational psychology, educational sociology should be included in the curriculum and quality teaching. Thus, it is possible to increase the length of time for teacher education from four to five years for high school teachers, of which three years of foundation knowledge and two years of training in pedagogy (master's degree). Training programs need to meet the requirements of the society, stick to the general education program and increase the time to practice in schools.

For training methods, there should be a change in the ratio of theoretical training time in universities to the time of internships and practices in the school context as a real subject. of the training process. This will help narrow the gap between the output competencies of teacher education institutions graduates and the teacher's ability to meet professional standards. To further strengthen the relationship between the

teacher education institutions with the schools, there is a separate regime for schools that accept intern students, so that experienced school teachers participate in training at teacher education institutions.

The practice-oriented learning outcomes in teacher education programs require future teachers to learn together in groups and projects, as well as in theoretical self-study, individual practice, placements, and assignments. Therefore, future teachers should be supported to develop a learning style, characterized by "learning by doing". In the first year, future teachers who go to schools contact teachers and get acquainted with general education as a formal teacher such as understanding the educational environment, observing teachers, study age psychology and student profiles, do educational research exercises. In the second year, future teachers continue to go to practical schools with content such as understanding the work of homeroom class, participating in professional group activities, attending time to learn teaching hours, helping students to study, apply theory to practice, and participate in other educational activities. In the third year, future teachers go to schools to do homeroom work, organize collective activities, practice skills in handling pedagogical situations, attend time and prepare test lessons, contact practical subject knowledge, analysing the method of teaching organization, participating in volunteering and organizing events. In the fourth year, future teachers go to schools to practice teaching and educational practice, professional group activities and lesson research, teaching assistants, helping underperformed students, and fostering excellent students. By this stage, future teachers have been trained in professional skills, career manipulation, teaching, and educational skills from the practical phase of the subject from the first year. This model allows future teachers to be more acquainted with the work of the teaching profession, the relationship between knowledge in the school and knowledge at the university, have the conditions to experiment and apply what accumulated in university to specific teaching activities. Therefore, it is necessary to have the connection, linking the curriculum of the teacher education institutions and the reality of teaching in schools, both in theory and practice.

For teacher education institutions, the MoET is currently studying to replan the network of teacher education institutions. In this process, it is necessary to carefully consider the model of a university specializing in teacher education and the model of a university with multidisciplinary training of teachers. Moreover, it is crucial to establish a network of schools to participate in teacher education as well as teacher education centres in multidisciplinary universities specializing in teacher education modules, which helps to professionally train teacher careers.

For continuous professional development of teachers, the need for training new teachers in Vietnam is not urgent, but the need for retraining is very necessary. Therefore, the upcoming teacher education will be one of the most important tasks of teacher education institutions. By building practical topics, both associated with the renovation of general education to foster teachers, while enhancing the potential of teachers as professional educators.

For teacher education management, an important orientation of the MoET in recent years is to research, formulate and promulgate legal documents to promulgate professional standards for teachers at all levels. It is required to have the central

management of the State over the annual teacher education quotas to ensure the supply to meet the social needs. Therefore, every year the MoET should control the allocation of quotas for teacher education institutions based on the capacity and conditions of the region.

At a system level, the MoET is responsible for issuing the relevant policies to support the development of teacher education programs in Vietnam as well as provide competence standards for future teachers. It is also essential to follow all steps in a curriculum development cycle, in particular program evaluation, and the involvement of WoW's in the curriculum development process. Besides, it is crucial to build up a long-term strategy and planning for cooperation of the WoW and invest in teaching facilities and materials, capacity building for lecturers according to pedagogical lecturers' competence standards. Further, enhancing to carry out a comprehensive evaluation of teacher education exiting programs in combination with recently revised competence profiles for curriculum improvement.

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References

Berliner, D. C., & Calfee, R. C. (1996). *Handbook of educational psychology*. Macmillian Library Reference.

Chen, Y., & Zhu, Y. (2003). *Teacher education research.* East China Normal University Press.

Donald, B. H. (2003). The secondary school curriculum question in Vietnam: What should be taught? *Prospects: A Quarterly Review of Comparative Education, XXXIII* (3/127), 339–352.

Eva, R. C., & Yoko, M. (2015). *Initial teacher education in Japan and Spain: A Comparative Study.* Eva Ramírez Carpeño - Yoko Mekochi.

Feldman, R. S. (2003). *Development across the life span.* Prentice-Hall.

Gail, B., Glenda, L., & Funda, G. (2015). Curriculum and the role of research. In *Proceedings of the 12th International Congress on Mathematics Education*, pp. 247–263.

Good, C. V. (1945). *Dictionary of education.* McGraw-Hill Book Company. https://doi.org/10.1002/sce.3730300256

Goodlad, J. (1994). Curriculum as a field of study. In T. Husén & T. Poslethwaite (Eds.), *The international Encyclopedia of education* (pp. 1262–1276). Pergamon Press.

Iwata, Y. (2004). *Recent trends on teacher education reform in Japan.* Tokyo Gakugei University.

Jeanne, E. O. (2006). *Educational psychology: Developing learners.* Prentice-Hall.

Le, T. H., & Nguyen, D. N. (2019). Teacher's competence of integrated teaching at primary schools. *Journal of Physics: Conference Series, 1340*, 012023. https://doi.org/10.1088/1742-6596/1340/1/012023

Nguyen, D. N., & Dang, C. V. (2017). Teacher training curriculum development: A profession-oriented approach in Vietnamese teacher training universities. In *Proceedings of the International Conference on Teachers and Educational Administrators' Competence in the Context of Globalisation* (pp. 76–85) Vietnam National University Press.

Pham, H. Q., & Nguyen, D. N. (2020). Restructuring the teacher education system in Vietnam. *International Journal of Learning, Teaching and Educational Research, 19*(4), 29–43. https://doi.org/10.26803/ijlter.19.4.3

Pham, H. Q. (2013). *Teacher education curriculum development: Theory and practice*. Thai Nguyen University Publishing House.

Pinar, W., Reynolds, W., Slattery, P., & Taubman, P. (1995). *Understanding curriculum: An introduction to the study of historical and contemporary curriculum discourses*. Peter Lang.

Ramesh, K. (1977). Curriculum development: Practice and theory. *Educational Studies in Mathematics, 8*, 199–210.

Ries, F., Yanes Cabrera, C., & González Carriedo, R. (2016). A study of teacher training in the United States and Europe. *The European Journal of Social and Behavioural Sciences, XVI*, 2029–2054. https://doi.org/10.15405/ejsbs.184

Taba, H. (1962). *Curriculum development: Theory and practice*. Harcourt, Brace, Jovanovich.

Tim, L. W., & Kah, K. L. (1993). *Planning for effective training: A guide to curriculum development*. Food and Agriculture Organization of the United Nations.

Tran, B. H. (2006). *Teacher education: Theory and practice*. University of Education Publishing House.

Tran, K. D. (2010). *Education and human resource development*. Education Publishing House.

Tyler, R. W. (1949). *Basic principles of curriculum and instruction*. University of Chicago.

Valerie, H.-J., & Chance, W. L. (2010). *Transforming teacher education*. Stylus Publishing.

Vu, Q. C. et al. (2012). *Introduction to teacher education models in some countries: Lesson for Vietnam*. Vietnam Education Publishing House.

Walker, D. (1990). *Fundamentals of curriculum*. Harcourt, Brace, Jovanovich.

Wang, J. (2007). School-based teacher professional development system: One elementary school's practice and its theoretical significance. In N. Z. Zhou (Ed.), *Teacher education reform and teacher professional development: International vision and local practice*. East China Normal University Press.

Zhu, Y., & Fang, Y. P. (2011). Characterizing reform and change of teacher education in China in the new era. *Journal of Research, Policy, and Practice of Teachers and Teacher Education, 1*(1), 30–44.

Zhu, X., & Han, X. (2006). Reconstruction of the teacher education system in China. *International Education Journal, 7*(1), 66–73.

Chapter 32
The Quest for Teacher Education Quality in Indonesia: The Long and Winding Road

Pipit Novita

Abstract Teacher education in Indonesia graduates a large number of teacher candidates every year. However, due to discrepancies in the quality of the institutions, the preparedness and the quality of graduates remain a concern. The quality of teacher education in Indonesia is affected by several contextual factors such as policies, socio-economic, educational system and geographical challenges. This chapter provides an account to understand teacher education in Indonesia including historical background, concerns from the literature and some findings from a recent study exploring quality of teacher education which involve multiple stakeholders. The views of stakeholders including the Dean of Faculty Education, Head of Department, educators and student teachers were taken into account to get a balanced perspective regarding their concerns about education or teacher education in Indonesia. The findings show a variety of complex and complicated issues in teacher education as the result of challenges in the context, policies and educational system. The findings recommend evaluation on the effectiveness of teacher education and teacher professionalism training program and getting feedback from the stakeholders. The findings also indicate the importance of the pursuit of quality over the negotiation or compromise for political or economic purposes.

Keywords Teacher education quality · Indonesia · Teacher quality · PPG · Stakeholders

Introduction

The quality of teacher education is crucial to improve educational quality in many countries, particularly in Indonesia. The number of teachers who graduate from teacher education (also called Faculty of Education) in Indonesia is growing every year. For example, between 2005 and 2010, the World Bank reported a fivefold increase in the number of students enrolled in teacher training programs, from two

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hundred thousand students in 2005 to over one million in 2010 (Negara & Benveniste, 2014). However, alongside that growth, pre-service teacher education graduates' quality is questionable due to the discrepancy in teacher education quality. Additionally, the geographical background is also one of the challenges and factors in the disperse of quality education. Indonesia is the fourth most populated country in the world, with a population of over 273 million by 2022, based on the latest data from the *United Nations Population Division* (Worldometer, 2022). Indonesia is an archipelago, a nation that is geographically comprised of 13.466 islands, 922 inhabited with more than 300 ethnic groups and 700 languages and dialects (Central Intelligence Agency, 2021). Hence, Indonesia faces amount of challenges to provide the equity and good quality of education for large number of people in thousands of islands that are randomly distributed in urban, rural, and remote areas. Indonesia's geographical background leads to other societal factors and challenges that need to be considered before adopting other countries' policy or system to Indonesia. For that reason, before comparing Indonesia with high-performing countries such as Singapore or Finland with around five million population, the differences in demography, socio, economy, and educational system need also to be taken into account.

What similar among Indonesia and those high-performing countries and other countries globally is the effort to provide good quality of education for their citizens. However, every country has a varied historical background. For instance, Indonesia gained Independence Day in 1945. The same year when Japan lost the war and destroyed by Hiroshima and Nagasaki bombing. Malaysia, the neighbour country, gained its Independence 18 years later, in 1963. What happens seven decades later for these three countries are different stories. In Indonesia, education quality has been a serious issue as PISA results show students' poor performance for two decades (OECD, 2013, 2016, 2019). For instance, in 2012, a shocking PISA result placed Indonesia 64 out of 65, second from the bottom of the list. Even when PISA result was compared with other neighbouring countries in ASEAN with a similar economic background as developing countries, Indonesia was still at the bottom of the list (OECD, 2014). Despite its controversy, PISA can be viewed as a wake-up call to improve Indonesia's education quality. The reviews of national policies for education show that teachers' poor quality mainly causes Indonesia's low education level. Therefore, there is an urgent need to improve teacher education quality (OECD, 2015). To understand the challenges that teacher education face in the pursuit of quality, this chapter provides historical background and contemporary issues from the literature. Besides that, the empirical findings from a recent study about the quality of teacher education involving multiple perspectives will also be presented to understand how stakeholders perceived the current issues related to teacher education quality in Indonesia.

Historical Background of Teacher Education

Teacher education in Indonesia has gone through a long and winding road to pursue quality and teacher standard competencies (for details see Bjork, 2013; Buchori, 2009; Djojonegoro, 1996; Fahriany, 2014; Nielsen, 2003; Novita, 2019; Raihani & Sumintono, 2010; Soeratman, 1985; World Bank, 1998). Teacher education has evolved several times to adapt the demand and meet the challenges, starting from undemocratic education in the colonial era, increasing oil revenue in the old era, political issues, until policy changes, such as the policy of "Freedom of Learning" that has been launched recently.

From Colonial Era to Independence Day in 1945

Before Indonesia declared Independence Day on 17 August 1945, education was privileged for the aristocracy and the Dutch colonials. Ki Hajar Dewantara, a pioneer of education for native Indonesians, founded Taman Siswa School as an institution for indigenous commoners in 1922. Ki Hajar Dewantara was famous for his educational ideals. One of his famous sayings had become the principal in his school and his description of ideal teachers, a teacher who can become a role model, give support and encouragement in the learning process. He said (in Javanese) "*Ing ngarso sung tulodo, ing madyo mangun karso, tut wuri handayani*", which translates: "(for those) in front should set an example, (for those) in the middle should raise the spirit, and (for those) from behind should give encouragement". Today, *Tut Wuri Handayani* is used as the motto of the Indonesian Ministry of Education. Ki Hajar Dewantara was honoured as the National Hero of Indonesia. He was a prominent figure and regarded as the founding father of education in Indonesia. Before 1942, the education system was stratified, European School was for the Dutch, Europeans and Indonesian aristocrats, Dutch Native School for government officials' children, Village School and Continuing School for indigenous commoners. Teacher education was also stratified. Courses for People Education (CVO) was a two-year education for teachers to teach at village schools (three-year education with local characters and language, Javanese writing and language). Normal School was a four-year education for teachers to teach at continuing schools (a two-year extension of village school using Latin character and Indonesian language). The stratified system of education was abolished during the Japanese occupation. Since Independence in 1945, Indonesia adopted a democratic educational system that was available for all citizens, which also changed the teacher education system.

From Independence Day in 1945 to Teacher Law in 2005

Seven decades after Indonesia declared Independence Day, teacher education has gone through several evolutions on its system, impacting the quality of teacher education as an institution and its graduates. In 1954, Indonesia formed the first formal teacher education system at tertiary education. Teacher College offered a three-year bachelor degree program to supply teachers at junior and secondary schools. In 1963, Teacher College changed its name into Institutes of Teacher Education. Nonetheless, since 1963 high achievers lost interest in studying at the Institute of Teacher Education as they were not supplied with funding and no longer guaranteed to become civil servants after graduation. In the 1970s, oil revenue was increased, and Indonesia rapidly expanded education access by building more than sixty-one thousand schools all over Indonesia. The government rushed to make a shortcut by recruiting thousands of primary teachers who were not carefully selected in the crash program, Teacher Training High School. As a result, teacher competency was reduced, as there was no quality control. Ministry of Education's study showed a shocking result because only less than half of a random sample of trained teachers could pass the science test given to the primary school completers. In the 1980s, rather than focusing on the Institute of Teacher Education's improvement to produce competent teachers, the government made another crash program, three-year university education (Diploma III), to anticipate higher schooling due to the expansion of primary schools in the 1970s. However, in 1999, the government mandated the upgrading of primary teachers graduating from Teacher Training High School to have a two-year university education (Diploma II) which was proven ineffective because only focusing on the upgrading qualification but not focusing on the quality of teachers. In 1999, Presidential decree 93/1999 changed the Institutes of Teacher Education into Universities of Education. The change of the status attracted more students to enrol, since studying at universities were considered prestigious. Nevertheless, no studies found confirming that the increase in enrolment improved the quality of graduates.

From Teacher Law in 2005 to Freedom to Learn Policy in 2020

In 2005, the government implemented Teacher Law 14/2005, requiring teachers to have a four-year university education (Bachelor Degree) to teach at school (Chang et al., 2014). Consequently, all school teachers with a previous educational background (Teacher Training High School, Diploma II and Diploma III) were suggested to upgrade their standard qualification. As a result, qualification of teachers with the minimum bachelor's degree increased from 37% in 2003 to 90% in 2016 (World Bank, 2018). However, it takes more than qualification to improve teacher quality. A video observation study from Ministry of Education and Culture found that Indonesian teacher still lack of content and pedagogical knowledge as shown by teachers

who did not pose open-ended or complex questions to elicit critical thinking or elaboration of students' answer, nearly 90% of the students observed responded teacher question using only one word (Ragatz, 2015). Following up Teacher Law regulation, teacher certification program was implemented in 2006 to certify teachers who had fulfilled the standard competency: professional, pedagogical, social and personal competencies (Jalal et al., 2009). The certified teachers receive certificates and professional salaries and incentives, and career promotion opportunities (Haryanto et al., 2016). Nonetheless, even though certification improved certified teachers' welfare, numerous studies suggest that certification program is not correlated with the improvement of teacher performance or student achievement (de Ree et al., 2018; Fahmi et al., 2011; Kusumawardhani, 2017; Triyanto, 2012). Certification policy increased the enrolment to teacher education from two hundred thousand students in 2005 to over one million in 2010 (Negara & Benveniste, 2014). Nevertheless, without tight selection on the admission process, the graduates' quality becomes a concern due to the fact that the graduates come from candidates with a diverse level of abilities from a different level of accreditation of the institution.

In 2013, the government improved the certification process by implementing Teacher Professionalism Training Program (Pendidikan Profesi Guru/PPG). There are two kinds of PPG. The first PPG is designed for existing teachers (in-service training) which typically last 6 months. The later program is for future teachers (pre-service training), which typically requires one year of training. The participants are the graduate of teacher education program and the graduates of non-teacher education program (Chang et al., 2014). Model of pre-service PPG is illustrated in Fig. 32.1 (adapted from Gufron, 2010; Pangestika & Alfarisa, 2015).

This regulation has been controversy. This training could be seen as a shortcut for non-teacher education graduates to become professional teachers. This regulation impacts teacher education and graduates as the teaching opportunities are no longer solely for teacher education graduates. In the early 2020, the Minister of Education and Culture issued a policy called "Merdeka Belajar-Kampus Merdeka", which is translated into "Freedom to Learn-Independent Campus" (Nizam, 2020). The essence of this policy is to unlock students' potential by giving them opportunity to follow interest in learning and innovation. Accordingly, based on the regulation No. 3/2020, this policy provides opportunities for university students to spend two semesters to follow their interest to learn in the same or different program outside their university. For student teachers who follow the passion to study for one year outside teacher preparation context, it might have impact with their competency development as a teacher. As Kosnik and Beck (2008) argued that there should be priorities to certain critical aspects of teaching because so much material and lack of focus and "cohesion" across the various components of teacher education leads to feelings of being unprepared. The summary of events in the history of teacher education is illustrated in Fig. 32.2.

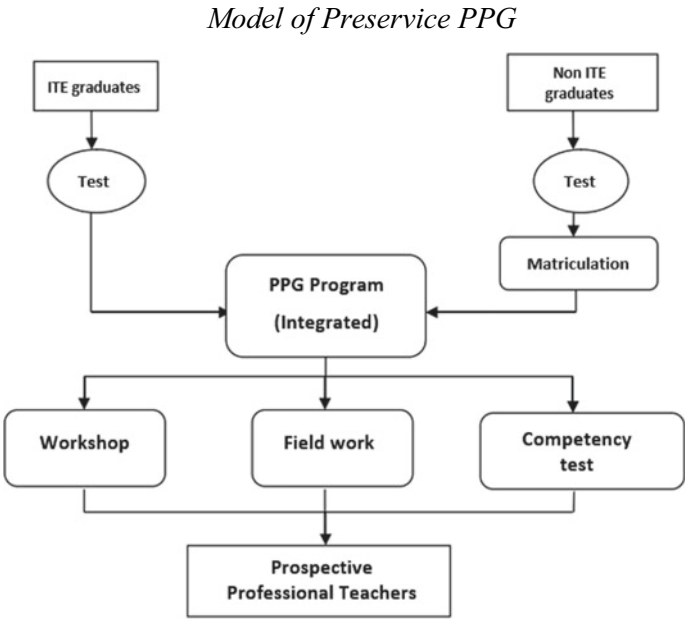

Fig. 32.1 Model of pre-service PPG

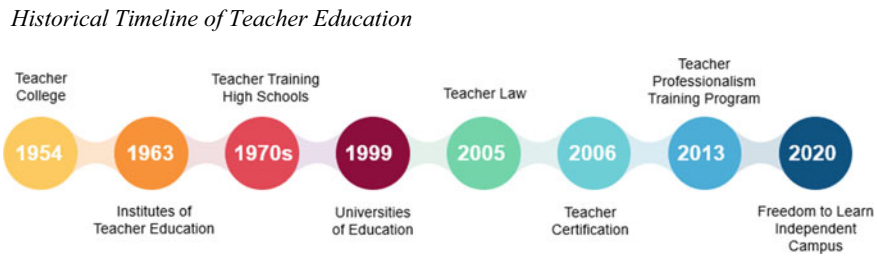

Fig. 32.2 Historical timeline of teacher education

Structure of Pre-service Teacher Education Program

Pre-service teacher education in Indonesia is a four-year undergraduate degree program for teacher preparation which consist of coursework and fieldwork. As part of the program, student teachers need to produce a mini thesis based on a practitioner research as one of the requirements to graduate. Teacher education curriculum is based on the Indonesian Qualification Framework as the nationwide framework qualification, competence and the standardization of learning outcome based on Presidential Decree No 8/2012 (Insani et al., 2017). The level of educational system and expected learning outcome from a bachelor degree program is displayed in Fig. 32.3

Indonesian Qualification Framework Learning Outcome

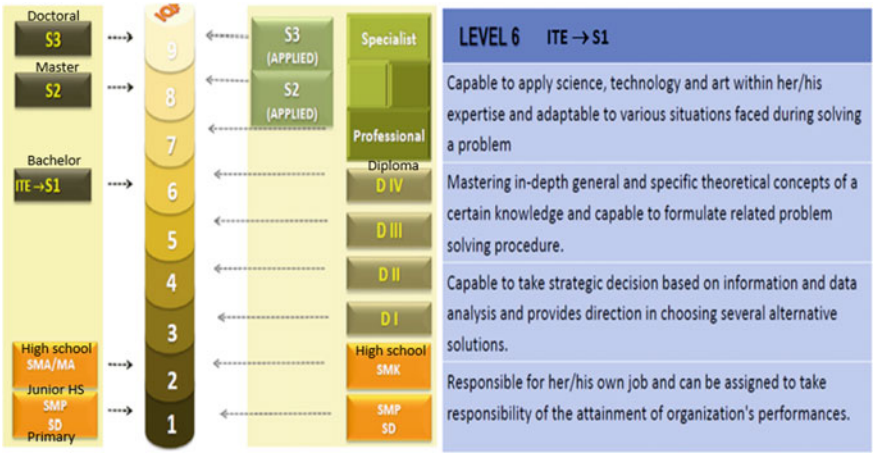

Fig. 32.3 Indonesian qualification framework learning outcome

(Moeliodihardjo et al., 2016; Susilo, 2015).

Nevertheless, the microelements of the documented curriculum, including the content of the curriculum for courses are designed by each individual university (Latif, 2017; Rohmah, 2017; Susilo, 2015; Wahyuningrum, 2017). It means that every teacher education has a variety different courses, length and structure of the program and the assessment procedure. The length and structure of field work such as observation and practicum teaching also depends on the policies of each institution (Azkiyah & Mukminin, 2017). Research training is very limited in scope. It is mainly research method courses for preparing students writing their mini final thesis rather than giving then fundamental foundations to make a research for their professional development in the teaching profession. Teacher education is supposed to become an institution to prepare skills and knowledge of future teachers, but teacher educations in Indonesia face several challenges and need to tackle some problems to achieve the mission.

Concern for Pre-service Teacher Education in Indonesia

Student Teachers' Motivation and Career Intention

Admission process in pre-service teacher education is relatively easy. As a result, besides candidates' diverse abilities, low-stake screening test may allow the candidates who may not be motivated to become teachers to enter teacher education since it is uncompetitive. Students might choose teacher education as a last

resort to continue education to universities as a result of not being accepted in their desired faculty. The finding of a recent study revealed that "no other choice" as a popular choice for students motivation to join teacher education (Masbirorotni et al., 2020). Student teachers who are motivated to become teachers may choose the teaching profession due to altruistic, intrinsic, or extrinsic motives (Abotsi et al., 2020; Giersch, 2021; Mukminin et al., 2017). However, some students who might not be motivated to become teachers cannot be generalized into that group. A recent study investigated student teachers motivation (integrative vs instrumental) found a considerably high proportion of students, 145 out of 328 (44%), who did not have a genuine motive to enrol in a teacher education programme and commit to becoming a teacher (Suralaga et al., 2020). The fact that some student teachers are not motivated to become teachers should not be overlooked. Taking for granted that all student teachers joining teacher education want to become teachers seem like turning a blind eye to the phenomenon. A vast literature has emphasized the importance of taking motivation and passion for teaching as consideration for teacher candidates (Flores & Niklasson, 2014), nevertheless, motivation is still regarded as "the missing ingredient in teacher education" (Lamb & Wyatt, 2019).

Students lack of motivation and interest might affect their career intention. Consequently, a lesser portion of student teachers prioritizes teacher as their choice. This phenomenon showed in a study conducted to measure student teachers' motivation with Factors Influencing Teaching (FIT) (Suryani, 2017, 2020; Suryani et al., 2016). FIT has been used widely as a valid instrument in diverse settings, including Australia ((Watt & Richardson, 2007; Watt et al., 2012), Netherland (Fokkens-Bruinsma & Canrinus, 2012), Germany (König & Rothland, 2012), Ghana (Abonyi et al., 2021) and Nigeria (Akpochafo, 2020). Interestingly, the study finding also showed that out of 657 student teachers who planned to become teachers, 636 of them (79.30%) planned to have a second job, with 530 students (66.08%) planned to have a job at the same time, indicating being a teacher is not a priority but only as the option. Additionally, the result showed that only a small group of 109 students (13.59%) intended to focus on teaching without having a second job. Similarly, the study by Suralaga et al., (2020) adds to this point as it also showed less than half of respondents, 145 (44.2%) out of 328 students who fully committed to becoming teachers.

Socio-economic, political, and financial concerns play an essential role in this tendency, a dilemmatic situation. When a teacher is perceived as an "easy going" job that could be juggled with other duties and interests, the effectiveness of teachers' performance is questionable. But, asking teachers to focus on a single teaching job when they have financial constraints seem unfair. Moreover, student teachers are aware that teachers are oversupplied and being a certified teacher is not solely for them as they need to compete with non-teacher education graduates. In this context, a plan to have a second job for student teachers could be seen as a strategic plan to survive besides the motivation factor. Having said that, measuring all student teacher's motivation using a scale without mapping the career intention might not portray the accurate portrait of student teachers' motivation to join the teaching profession. Considering challenges in the Indonesia context, the sweeping generalization ignores the facts that in Indonesia, student teachers join teacher education

might not necessarily mean they want to become teachers. Perception of the teaching profession might not reflect the career intention. However, it is important to note that motivation and intention are not static and likely to change as the learning experience in teacher education could also influence their decision to become teachers.

Role of Teacher Education

PPG's implementation raises a concern on pre-service teacher education as a teacher preparation institution and teacher education graduates' job market. Teachers are oversupplied. The problem relies on teachers' distribution, especially for the frontier, outermost, and least developed regions program in Indonesia (Marmoah et al., 2021). In anticipation of a possible oversupply of newly graduated teachers, the government has set an annual quota of 40,000 teacher candidates to enrol in teacher education (Chang et al., 2014). PPG allows every university graduate who is talented and interested in becoming a teacher to join the training and become professional teachers. The purpose of this program to meet the supply demand is questioned considering the oversupply of teacher education graduates, approximately only half of teacher education graduates have opportunities to enter the teaching workforce (World Bank, 2010). This policy raises an issue on how the quality of teacher education graduates perceived. Even though PPG program is believed to contain high-quality material, problems may arise due to the short period of time for participants to engage and interact with the material, particularly for students who are not from pre-service teacher education, as they might have limited pedagogical knowledge and teaching practice. Teachers are the pillars of the education system and front liners for educating the young generation. The notion of professionalism may vary in concept or contexts (Brante, 2011; Dodillet et al., 2019). Still, there is a great sense of unity concerning the importance of teachers' professionalism. A certain amount of time, process, and practices must be appropriately allocated to achieve knowledge and skills as a professional teacher to avoid quality conundrum in teacher education (Brooks, 2021).

Contemporary Issues: Multiple Perspectives

This empirical section is part of the study conducted in 2020 regarding teacher education quality in Indonesia. The study's objective is to explore how stakeholders perceive teacher education quality in Indonesia regarding the influential aspects to offer insights into teacher education improvement. In the study, each stakeholder category was asked specific questions related to teacher education's influential aspects. Besides that, one overarching, open-ended question was asked to all types of stakeholders regarding concern in education or teacher education. The purpose of this one open-ended question at the end of the interview was to capture any issues that might not be covered in the questions concerning the influential aspects. Furthermore, this

open-ended question gives all stakeholders space and voices to raise concerns that they think are essential without any leading questions or prompts. These findings' input may give new insight and a better understanding of issues and contextual factors that affect the quality of education or teacher education in Indonesia. The findings from the open-ended question from all stakeholders are reported in this section.

Context of the Study

The study was conducted in the English Department of two different university types in Indonesia, private and state. Both universities are located in urban areas and categorized with an excellent level of accreditation. The same level of accreditation is chosen to avoid the discrepancy in quality. In addition, these universities were chosen as resources to learn more about the best practices that have proven effective to improve teacher education quality. The example of the best practices will be a valuable input for other teacher education in Indonesia concerning the extent of similarities in terms of context.

Research Methodology

The research design used the interview to collect qualitative data from stakeholders. Such an approach is necessary here to provide a deep insight into contemporary issues from different perspectives. In the interview, the stakeholders were asked one open-ended question regarding issues in education or teacher education. The study set out to answer the following question: What is your concern about the quality of education or teacher education in Indonesia?

Sample

Purposive sampling was used in selecting participants for the sample. The sample consists of 26 stakeholders, including four types of stakeholders: student teachers, Deans of Faculty of education, Heads of English Department and educators. The numbers of students were the representation of third- and fourth-year students in each university. The selection of these participants was vital because they represented different stakeholders who could provide insightful and valuable information from different angles. The participants are identified using numbers to protect their identities. The demographic of all participants is provided in Table 32.1.

Table 32.1 Demographic of interview participants

Category	Participant		Total	Gender		Age range
	Private	State		Male	Female	
Student teacher	8	6	14	2	12	20–24
Educator	4	4	8	2	6	35–50
Head of English Department	1	1	2	1	1	40–45
Dean of Faculty of Education	1	1	2	1	1	50–58
Total	14	12	26	6	20	

Data Collection

The research data was collected in January and February 2020 through interviews. The participant was given a consent form and details about the research information, including their rights, anonymity, and data confidentiality. Each participant was interviewed once. The interview lasted for about one to one and a half hours, including the interview section, which focused on teacher education's influential aspects and the overarching question.

Data Analysis

After member checking, the data were analysed using an inductive approach and reflexive thematical data analysis. Considering there are four types of stakeholders with different roles, the data is categorized, compared and contrasted in the same type of stakeholders. Because the open-ended question data is less structured, there is notable overlapping themes expressed by each stakeholder type.

Findings

In this section, the findings from faculty members (Deans Faculty of Education, Heads of English Department and educators) are presented first, followed by student teachers' findings. While the main focus is on comparing concerns among stakeholders, it is interesting to consider the difference in the university context may have affected their concern in accordance with their responses. This issue is an inductive area of interest that have arisen through the data. Some findings presented here are the selected key findings from various topics in each type of stakeholders and the overlapping theme finding across different stakeholders.

Table 32.2 Deans' responses

Dean	What are your concerns on the quality of education or teacher education in Indonesia?
1	Teachers who inspire and become an example, our hope, having characteristics to be able to exist, survive anywhere, giving meaning, wherever they are, giving blessings
2	Soft skills and hard skills must be emphasized as the outcome or output provided by students. There is a process that refers to be qualified teachers who have skills and integrity

Deans' Comments on the Quality of the Output

The responses show similar concern on the output quality from the Deans of the Faculty of Education. Dean 1 explained that the expected output is qualified teachers who are competent intellectually and technology savvy. She further added that teachers are supposed to be equipped with social, personal and spiritual competencies. These teachers are expected to teach, educate, inspire students. Similarly, Dean 2 categorized important competencies into hard skill and soft skills. He described that the quality of education in one country is supported by teachers whose majority have been trained in teacher education. So, when the quality of education is low, what is typically blamed is teachers' quality. In fact, teachers' quality is highly affected by the training they received in teacher education as the institution where they learn the skills and knowledge to teach. In a nutshell, he pointed out that the logical consequence of improving education is teacher education's improvement, as the essence of teacher quality improvement. A summary of the Deans' responses is presented in Table 32.2.

Heads of Department's Comments on Teacher Education and Online Learning

In the interview, HoDs responded differently to the question. HoD 1 concerned about the role of teacher education which has been overlooked. He argued that everybody could be successful because of the contribution of a teacher who is mainly prepared for their teaching career in teacher education. Thus, he inferred that teacher education has contributed to everybody's success. Meanwhile, HoD 2 raised concerns on overreliance on technology (The interview took place before the pandemic when all learning platforms moved into online mode). She further criticized the overuse of online learning for replacing face-to-face meeting. She argued that technology is just a tool to teach as part of the learning process, but it is not supposed to replace teachers. Teachers are still expected to explain, educate, facilitate discussion, interact with students rather than just giving away the material, or provide time-consuming games which have nothing to do with the learning outcome achievement. A summary of the Heads of the English Department's responses is shown in Table 32.3.

Table 32.3 Heads of English Department's responses

HOD	What are your concerns on the quality of education or teacher education in Indonesia?
1	Sometimes the role of teacher education is overlooked. It is one of "the spearheads" of education. All successful people are educated by teachers and teachers are trained mostly from teacher education
2	Online learning is good, but tools cannot replace human education. Technology cannot replace you as a teacher. It is different from other majors. In education, human education is important

Educators' Comments on PPG and Student Teachers

Responses reveal that educators perceived PPG as a controversial topic. Edu 1 suggested that this policy has made the gap in teacher education graduates' quality even further by "creating" a new teacher training platform rather than "fixing" the pre-service teacher education problem. She further commented that this policy doubles the quality concern into twofold: quality of pre-service teacher education and its graduates and quality of PPG and its graduates. Edu 2 expressed her worries regarding pre-service teacher education graduates' prospect as they are considered "prospective but not professional yet". In PPG, student teachers will have to compete with non-teacher education graduates who might have strong content knowledge as they are majoring in a specific subject such as Science, Mathematics, or English. Moreover, Edu 3, an educator in the PPG program, identified areas of concern regarding PPG graduates' quality. He further revealed that the graduates' competence of pre-service PPG, which allows non-teacher education graduates to join, might be questioned as they lack the foundation of pedagogical knowledge, teaching practices or teaching experience. The graduates' competence of in-service PPG, which provided for teachers who have been teaching, could also be questioned, particularly for those from rural and remote areas. Typically, because they are not permanent teachers yet, they have other jobs to meet their needs as part-timers' income might not be adequate. As a result, they have little time to improve their professional development. Besides that, the geographical challenge might affect the limitation of school facilities, internet access and technology. Many might not have laptops yet. As a result, their quality is low, and it is very challenging for educators to train them. For those teachers, the certification has been a hope to have a better income. Edu 4 felt this phenomenon causes a dilemmatic position for him as an educator. If he has to fail them, it feels inhumane as they have contributed to educating the young generation. They deserve good welfare, but passing them and certifying them as "professional teachers" seems unsuitable as the quality is low.

The interview findings show that educators raised several issues with student teachers, especially concerning motivation. Edu 5 commented that one of the underlying problems is from the internal student teacher's motivation. Many of them join teacher education because they are not accepted at their desired faculty, not because they want to become teachers. Edu 7 added to this point by giving an example of her class. She found out that the portion of students who intend to become teachers after

graduating is low. Similar to her colleagues, Edu 8 explained that motivation and career intention might also affect student teachers' teaching skills and knowledge. She noticed that students who only consider teacher education as higher education institutions to continue studying might not take the lessons in teacher preparation seriously. As a result, their beginner teacher's skills and knowledge are also not satisfactory. Furthermore, Edu 6 explained that simply adopting other countries' policy and educational system without fully aware of Indonesia's challenges seems far from feasible. She argued that recruiting the best and motivated students in the country to become teachers without them knowing if they will be certified or having prospective jobs after graduation seems difficult and unattractive for them. The summary of educators' responses is presented in Table 32.4.

Table 32.4 Educators' responses

Edu	What are your concerns about the quality of education or teacher education in Indonesia?
1	I don't understand what PPG is doing. Why don't we just improve the quality of teacher education? I've been sceptical about this policy issue because not all student teachers go to PPG
2	Many teacher education graduates are not good at content knowledge and even teaching skills. Their positions are threatened because of PPG. When graduates from the Mathematics department join PPG, we are lost in terms of content knowledge. Then where are our teacher graduates going?
3	I happen to teach at in-service PPG for certification. The quality of teachers who join the training is very worrying, in my opinion. They never get training. They have been busy struggling with their minimum welfare. Even to use a laptop, only a few can do, they are even struggling to make PPT, how can they study in this poor condition?
4	With the PPG program, we can't prepare them to become teachers but only prospective teachers. Well, that leaves the students feeling confused. I think the government is not ready with the PPG program. I have also taught PPG. Even if they pass, because of what grades? I just let them pass
5	I think it's a complex issue. First, in terms of those who want to be teachers, maybe they do not want to be teachers. So, teacher or teacher education becomes the last option. If we ask students why they join teacher education, the answer probably majority because they are not accepted anywhere
6	We have a lot of rules to be a teacher. We must go through PPG. That's what might make the interest is decreased. We are still proud of adopting education from other countries, but we have not thought about how our students' character is like, education that works for us. And that's compounded by the ever-changing policies
7	In my class, less than 30% out of 75 students wanted to be teachers. That's why I said I'm not sure there are many potentials, just how we make sure they are interested. Because a lot of them still haven't decided yet. We just need to convince them that being a teacher is a great idea
8	We still need to match what is needed in school with our curriculum. For example, one thing we still lack, in my opinion, is from the side of our students' skills in making a lesson plan, it is not very good, and it is a very practical, much-needed ability as a teacher

Student Teachers' Comments on Teachers and Teacher Preparation

In response to the question, several students commented on various aspects of teachers. Stu 1 expressed her concern about how people underestimate teacher as a profession. She asserted that the teaching job is not only full of responsibilities but also complex and complicated. Stu 8 supported this idea by explaining Indonesian teachers' challenges who sometimes have to deal with a large number of classes (30–40 students) consisting of students with diverse backgrounds. Stu 6 and 13 also explained that Indonesian teachers face other challenges in terms of the curriculum, which is often changed combined with administrative burden, school demands and low payment. Likewise, Stu 3 showed sympathy concerning teachers' welfare, specifically for those in rural and remote areas, as she saw herself in their condition. She said that the financial constraint limits their capacity to become qualified teacher. Being a civil servant is one possible solution for teachers to have a better and permanent income. However, Stu 14 felt that the teacher recruitment process to become a civil servant is problematic as it is only based on the period of teaching rather than performance, so the quality of recruited teachers is questionable. Stu 7 also raised a concern on the difficulties to control the quality of civil servants who are distributed in thousands of islands in Indonesia.

The interview findings also show that student teachers raised concern about some aspects of teacher preparation. A long-standing issue in teacher education about the gap between theory and practice is one of them. Stu 1 said that she would feel ambiguous if she only learned theory without practice. In line with her statement, Stu 5 also pointed out the importance of practice in the real context. She expressed her worries, confusion and burden if she had never been practised in a real context as she might not understand what to do. Her response is similar to the concern expressed by Stu 12, who argued that the longer exposure is, the better as students might be able to anticipate the problems that may arise, such as the diversities of student's characters in Indonesia. However, exposure to the teaching field can "make or break" student teachers' intention to become teacher, as managing children in the actual classroom might not always be easy. Additionally, Stu 10 suggested that student teachers become strong and not feel down easily and accept it as the nature of the teaching job. In this case, the teacher educator plays a vital role to guide them through the learning process. Stu 2 also showed her expectation for educators to have global knowledge and experience to make them aware of the global context's current issues.

Apart from the theory into practice, two students raised a concern about their status as student teachers. Stu 9 questioned how people perceived education as a less prestigious major. He mentioned that he experienced different reactions from his families when he and his cousin majored in engineering, telling them about their subjects. He expressed his upset feeling by emphasizing that even every engineer used to be taught by a teacher. So, majoring in education should not be underestimated. On a different note, Stu 4 showed her confusion on joining teacher education if,

after graduation, she has to compete with non-teacher education graduates to be a professional teacher in PPG. However, she said that she was not worried about her chance to become teachers, but she raised her concerns with her friends who did not take the teacher preparation subjects seriously as they might not be sure about their career intention. The summary of student teachers' responses is shown in Table 32.5.

The findings show that the faculty members' responses went into more detail and focused than student teachers when answering the same question. The faculty member discussed more issues in teacher education, while student teachers' responses had more various concerns related to teacher and their preparation in teacher education.

Discussion

There is a notable divergence in the stakeholders' opinions concerning education or teacher education in Indonesia. Data finding from the Deans suggests that teacher education's output is expected to have the content knowledge and soft skills. This finding also points to the role of teachers as an inspirator more than just delivering a lesson. The Head of Department's finding of the perceived role of teacher education indicates the visibility of this social phenomenon. This finding is supported by Stu 9 when explaining how he was compared and treated differently as a student teacher from teacher education.

The educators' concern for student teachers' input quality and motivation indicates that this problem is significant. They are considered the underlying problems which affect the quality of teacher education graduates. One possible explanation is because of the admission process. High reputable universities may have better student intake as the places are limited, and the students can be selected. Nevertheless, the institutions with more available spaces than the students who apply may recruit students without a tight selection process. As an illustration, by 2020, out of 425 teacher education institutions, there are only less than 10% of teacher education with high accreditation, and around 90% of them have varied accreditation levels (National Accreditation Board, 2021). The vast number of teacher education with varied quality causes a considerable discrepancy of quality in teacher education. Low-stake screening test to enter teacher education lower the quality of input in talents as candidates come from diverse abilities. Consequently, teacher educators face more challenges in training their candidates to become qualified teachers as students might struggle with basic content knowledge. For example, the English teacher education department might recruit low proficiency students in English to become English teachers. In the long run, student teachers' lack of content knowledge mastery might affect their pedagogical practice or classroom management as they are not confident with their competence. The incompetent feeling could influence students' career intention to join the teaching profession besides the lack of motivation or teaching passion.

Table 32.5 Student teachers' responses

Stu	What are your concerns on the quality of education or teacher education in Indonesia?
1	People sometimes underestimate the profession of a teacher because people think it is easy. A teacher should not be underestimated because a teacher has a big responsibility
2	Educators should have more insightful knowledge. They do not only study in Indonesia, so they have a richer experience. The feedback to the students will make them more curious to learn and motivated
3	I have not seen the welfare of the teachers yet. Education has not been evenly distributed in Indonesia. Teachers in the village are not the same as teachers in Jakarta. The government should prioritize teacher preparation
4	PPG allows everybody to teach, then why does teacher education exist? I don't worry. It's just a little bit strange. Many student teachers don't realize that they will be educators who teach humans. They are not serious to study
5	We need to be prepared for the real context so that we won't be surprised. When there is no preparation, we only know theories. When we go to the field, we question many things. I feel burdened because I don't understand
6	In general, teachers lack in the curriculum, as it is often changed. We have not understood it yet. It is replaced again. I saw confusion in teaching, the demands of the curriculum, the other deadlines and so forth
7	I think Indonesian education is good. The problem lies in control. Perhaps due to some aspects such as large areas, thousands of islands, so the central government is a bit difficult to control some remote parts of our country
8	It is a challenge for teachers to manage students with different characters. Teachers need to be more creative and adjust and update the teaching. It is not fair for students if they are taught in the old ways
9	Why is an education major always considered less prestigious? Behind people majoring in engineering, there is a teacher's contribution there. Why don't they appreciate that?
10	Student teachers should not feel down so quickly. Many students initially want to be teachers but, in the process, feeling down when facing the children. Teaching is not difficult but also not that simple
11	Student teachers would be better having more practice than theory. Suppose we learn a theory, but we will just practice it in the sixth semester. We feel ambiguous if the theory is valid
12	Teacher education should emphasize more in practice. The longer and the more we get a lot of exposure from the field, the different characters of students, the better I think
13	Low payment factor limits our intention to become a teacher. Sometimes teachers are busy with administration. They just want to finish the syllabus without caring whether the students understand or not, remember or not
14	I don't know why civil servant registration for teacher has the same examination as others, no microteaching, no PPG, just two-year teaching experience. We don't know about the quality, whether for two years they perform well or not

The quality of student intake and lack of motivation are long-standing, fundamental issues that have been compromised for a long time. If they were considered minor symptoms of a disease in a body, they were ignored, and as time goes by, these symptoms become chronic and acute and lead to a more severe illness and have a lot of complications. In this case, low-quality of student intake and lack of motivation in student teachers may lead to low quality of graduates and a low portion of student teachers in the teaching profession. If it keeps going on like this, the teaching profession will be filled in with people who might not have a passion for teaching and this phenomenon results in low quality of teachers. The other implication is a curriculum issue in teacher education. Student teachers might be provided with more subjects that do not focus on teacher preparation to accommodate students' needs and adjust the low interest in the teaching profession. In the long run, this phenomenon could shift teacher education as teacher preparation into merely a higher education institution besides the decrease in teacher education graduates' quality.

PPG is identified as a common concern between educators and student teachers in the data. The findings show that PPG implementation raises a concern regarding the input, process, output, and impact. The literature about the history of teacher education in Indonesia has given evidence regarding crash program conducted in the 1970s and 1980s due to the increased oil revenue (Bjork, 2013; Djojonegoro, 1996; Raihani & Sumintono, 2010). The history revealed that rushing effort to provide teacher training in a short time resulted in poor quality of teachers as the consequence of inadequate training in the crash program. If PPG is argued to supply the demand of teachers who will be retired, Indonesia has the oversupply of teachers in urban areas and teacher graduates from teacher education. A system might need to be developed to manage the distribution. Moreover, not all PPG pre-service graduates are allocated to teaching professions yet. Suppose the quality of pre-service teacher education graduates who have been prepared to become teachers for four years are questioned after 4 years of training. In that case, the quality of non-teacher education graduates who have a year of preparation without fundamental knowledge about teacher preparation, limited pedagogical knowledge, practice and teaching experience could also be more questionable.

Implication

The findings of the study indicate an urgent need to improve the quality of teacher education graduates. One possible solution is by making a mechanism in the admission process to filter the students who are talented and motivated. Besides that, the findings also bring implication for PPG. It is suggested to embed the PPG program in pre-service teacher education as a postgraduate level of teacher education. One possible reason is that matriculation in PPG might not be adequate to replace four-year teacher preparation. Additionally, student teachers who join PPG do not need to encounter the similar material they have in pre-service teacher education. PPG will focus more on practising teaching skills and innovative teaching methods. Students

are also equipped with the awareness of local and global issues in education and subject-specific knowledge. More importantly, PPG will emphasize the importance of the mind set and values to become dedicated teachers who are professionals, explorative and adaptive to the dynamic of the teaching profession and changing world. Furthermore, research skills are also vital and need to be developed for candidates to become critical, innovative and responsive to the problem they face in their classroom teaching based on scientific evidence. Motivated and talented non-teacher education graduates interested in becoming teachers are welcome to join. Besides that, other issues regarding teachers' motivation, dedication and distribution also need to be addressed.

A system might need to be developed to distribute teachers and sustain a good quality of education in rural and remote areas. The government effort to give scholarship for the bright students from those areas needs to be increased and supported, especially for those who want to become teachers by giving a civil servant status for them to come back to their hometown and contribute there. The distribution of good quality teachers could also be possible from PPG graduates as civil servants in those areas. So, the exposure to good quality teachers does not rely on a short period of visiting teachers or NGO project or practicum teaching of student teachers. Finally, the findings suggest quality control and evaluation for the effectiveness of teacher education and teacher professionalism training program, which involve the multiple stakeholders' feedback towards the program as quality could be seen as a stakeholders-related concept (Harvey & Green, 1993).

Conclusion

Teacher education in Indonesia has experienced a long and winding road to prepare qualified teachers for the country. The challenges are rooted in the historical background of teacher education's evolving system, perceived teacher status, combined with socio-economic and geographical challenges, tangled with changing policies, changing curriculum, and implementing one crash program to another with an intention to prepare professional teachers. Extensive literature in the broader and Indonesia context have suggested the importance of choosing the bright students with a passion for teaching to be recruited to become teachers from the beginning. High performing countries have also given similar recommendation to improve the quality of teacher education. The voice of this argument is echoed, loud and clear. In the light of this, supportive educational system might need to be developed to apply this approach, as changes could not be made with a wish. Different results might be unlikely to happen when using the same approach or doing the same thing repeatedly. The Indonesian government has made a lot of efforts to provide a good quality of education. Never-

theless, feedback from stakeholders and regular evaluation of the program's effectiveness must be taken into account for constant improvement because the quality needs to be pursued, not compromised.

References

Abonyi, U. K., Awhireng, D., & Luguterah, A. W. (2021). Motivations of pre-service teachers in the colleges of education in Ghana for choosing teaching as a career. *Cogent Education, 8*(1), 1870803. https://doi.org/10.1080/2331186x.2020.1870803

Abotsi, A. K., Dsane, C. F., Babah, P. A., & Kwarteng, P. (2020). Factors influencing the choice of teaching as a career: an empirical study of students in colleges of education in Ghana. *Contemporary Social Science*, *15*(4), 446–460. https://doi.org/10.1080/21582041.2019.1675092

Akpochafo, G. O. (2020). Factors influencing undergraduates' choice of teaching as a career (Fit-choice) in Nigeria. *International Journal of Education and Practice*, *8*(1), 121–133. https://doi.org/10.18488/journal.61.2020.81.121.133

Azkiyah, S. N., & Mukminin, A. (2017). In search of teaching quality of EFL student teachers through teaching practicum: Lessons from a teacher education program. *Center for Educational Policy Studies Journal, 7*(4), 105–124.

Bjork, C. (2013). Teacher training, school norms and teacher effectiveness in Indonesia. In D. Suryadarma & G. W. Jones (Eds.), *Education in Indonesia* (pp. 53–67). ISEAS–Yusof Ishak Institute.

Brante, T. (2011). Professions as science-based occupations. *Professions and Professionalism, 1*(1), 4–20. https://doi.org/10.7577/pp.v1i1.147

Brooks, C. (2021). *Quality conundrums in initial teacher education.* Routledge.

Buchori, M. (2009). *Evolusi pendidikan di Indonesia dari Kweekschool sampai IKIP: 1852–1998 (Evolution of education in Indonesia from Kweekschool to IKIP)* (2nd.). INSIST Press.

Central Intelligence Agency. (2021). *Indonesia.* The World Factbook. https://www.cia.gov/the-world-factbook/countries/indonesia/#geography

Chang, M. C., Shaeffer, S., Al Samarrai, S., Ragatz, A. B., de Ree, J., & Stevenson, R. (2014). *Teacher reform in Indonesia: The role of politics and evidence in policy making.*

de Ree, J., Muralidharan, K., Pradhan, M., & Rogers, H. (2018). Double for nothing? Experimental evidence on an unconditional teacher salary increase in Indonesia. *The Quarterly Journal of Economics, 133*(2), 993–1039. https://doi.org/10.1093/qje/qjx040

Djojonegoro, W. (1996). *Lima puluh tahun pembangunan pendidikan Indonesia (Fifty years Indonesia education and development).* Department Pendidikan & Kebudayaan.

Dodillet, S., Lundin, S., & Krüger, J. O. (2019). Constructing professionalism in teacher education. Analytical tools from a comparative study. *Education Inquiry*, *10*(3), 208–225. https://doi.org/10.1080/20004508.2018.1529527

Fahmi, M., Maulana, A., & Yusuf, A. A. (2011). Teacher certification in Indonesia: A confusion of means and ends. *Center for Economics and Development Studies (CEDS) Padjadjaran University*, *3*(April), 1–18.

Fahriany. (2014). Teacher education in Indonesia. *Tarbiya*, *1*(1), 1–12.

Flores, M. A., & Niklasson, L. (2014). Why do student teachers enrol for a teaching degree? A study of teacher recruitment in Portugal and Sweden. *Journal of Education for Teaching, 40*(4), 328–343. https://doi.org/10.1080/02607476.2014.929883

Fokkens-Bruinsma, M., & Canrinus, E. T. (2012). The factors influencing teaching (FIT)-choice scale in a Dutch teacher education program. *Asia-Pacific Journal of Teacher Education, 40*(3), 249–269. https://doi.org/10.1080/1359866X.2012.700043

Giersch, J. (2021). Motivations to enter teaching: An investigation with non-education university students. *Journal of Education for Teaching*, *00*(00), 1–14. https://doi.org/10.1080/02607476.2021.1880870

Gufron, A. (2010). *Pengembangan kurikulum pendidikan profesi guru (Development of a teacher professional education curriculum)*. UNY.

Harvey, L., & Green, D. (1993). Defining quality. *Assessment and Evaluation in Higher Education, 18*(1), 9–34.

Haryanto, E., Mukminin, A., Murboyono, R., Muazza, M., & Ekatina, M. (2016). Teacher certification policy in Indonesia: Evidence from certified English teachers at one public high school. *Turkish Online Journal of Qualitative Inquiry*, *7*(3), 224–244. https://doi.org/10.17569/tojqi.31703

Insani, P. I. H., Irwan, N., & Indah, M. L. (2017). The implementation of Indonesian National Qualification framework curriculum in higher education institution. *Russian Journal of Agricultural and Socio-Economic Sciences, 8*(68), 125–130.

Jalal, F., Samani, M., Chang, M. C., Stevenson, R., Ragatz, A. B., & Negara, S. D. (2009). *Teacher certification in Indonesia: A strategy for teacher quality improvement*. Ministry of National Education.

König, J., & Rothland, M. (2012). Motivations for choosing teaching as a career: Effects on general pedagogical knowledge during initial teacher education. *Asia-Pacific Journal of Teacher Education, 40*(3), 289–315. https://doi.org/10.1080/1359866X.2012.700045

Kosnik, C., & Beck, C. (2008). We taught them about literacy but what did they learn? The impact of a preservice teacher education program on the practices of beginning teachers. *Studying Teacher Education, 4*(2), 115–128. https://doi.org/10.1080/17425960802433603

Kusumawardhani, P. N. (2017). Does teacher certification program lead to better quality teachers? Evidence from Indonesia. *Education Economics*, *25*(6), 590–618. https://doi.org/10.1080/09645292.2017.1329405

Lamb, M., & Wyatt, M. (2019). Teacher motivation: The missing ingredient in teacher education. *The Routledge Handbook of English Language Teacher Education*, 522–535.

Latif, A. (2017). Developing curriculum of bachelor in ELT program based on the Indonesian Qualification Framework (KKNI). *Premise Journal of English Education, 6*(1), 85–101.

Marmoah, S., Aurora, A. C., & Duca, D. S. (2021). Defining problems and solutions of education for frontier, outermost, and least developed regions program in Indonesia. *Elementary Education Online*, *1*, 36–52. https://doi.org/10.17051/ilkonline.2021.01.013

Mukminin, M., Muhaimin, A., Habibi, A., Haryanto, E., Hidayat, M., Marzulina, L., Harto, K., Erlina, D., & Kamil, D. (2020). Why student teachers major in english education: An analysis of motives for becoming future teachers. *Journal of Elementary Education*, *13*(4), 429–451. https://doi.org/10.18690/rei.13.4.429-452.2020

Moeliodihardjo, B. Y., Santoso, M., Putra, I.A., Abdurahman, S. F., Agustina, A., Bateman, A., Doolette, A., & Slowey, M. (2016). *Support to the development of the Indonesian Qualification Framework*. Education Sector Analytical and Capacity Development Partnership.

Mukminin, A., Rohayati, T., Putra, H. A., Habibi, A., & Aina, M. (2017). The long walk to quality teacher education in Indonesia: EFL student teachers' motives to become a teacher and policy implications. *Elementary Education Online*, *16*(1), 35–59. https://doi.org/10.17051/io.2017.16366

National Accreditation Board. (2021). *Directory of study program accreditation*. https://www.banpt.or.id/

Negara, S., & Benveniste, L. (2014). *Indonesia's higher education System: How responsive is it to the labor market?* https://openknowledge.worldbank.org/bitstream/handle/10986/20017/893000WP0P12940arket0Paper0June2014.pdf?sequence=1&isAllowed=y

Nielsen, H. D. (2003). Reforms to teacher education in Indonesia: Does more mean better? In E. R. Beauchamp (Ed.), *Comparative Education Reader* (Vol. 18, Issue 2, pp. 391–410). Routledge Falmer. https://doi.org/10.1080/0218879980180203

Nizam. (2020). *Buku panduan merdeka belajar - kampus merdeka (guidance book freedom to learn-independent campus)*. https://doi.org/10.31219/osf.io/ujmte

Novita, P. (2019). What happened to initial teacher education in Indonesia ? A review of the literature. *European Journal of Social Science Education and Research, 9563*(December), 88–103.

OECD. (2013). *PISA 2012 Results in Focus: What 15-year-olds know and what they can do with what they know*. https://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf

OECD. (2014). PISA 2012 results in focus. *Programme for International Student Assessment*, 1–44. https://doi.org/10.1787/9789264208070-en

OECD. (2015). *Education in Indonesia: Rising to the challenge, reviews of national policies for education*. OECD Publishing. https://doi.org/10.1787/9789264230750-en

OECD. (2016). *PISA 2015 results (Volume I): Excellence and equity in education*. https://doi.org/10.1787/9789264266490-en

OECD. (2019). *PISA 2018 results (Volume 1): What student know and can do*. https://doi.org/10.1787/5f07c754-en

Pangestika, R. R., & Alfarisa, F. (2015). Pendidikan Profesi Guru (PPG): Strategi pengembangan profesionalitas guru dan peningkatan mutu pendidikan di Indonesia (Teacher Professional Education (PPG): Strategy for developing teacher professionalism and improving the quality of education in Indones. *Makalah Prosiding Seminar Nasional, 1995*, 671–683.

Ragatz, A. B. (2015). *Indonesia-A video study of teaching practices in TIMSS eighth grade mathematics classrooms: Understanding what teaching practices are used, why they are used and how they relate to student learning*. World Bank.

Raihani, R., & Sumintono, B. (2010). Teacher education in Indonesia : Development and challenges. In K. Karras & C. Wolhuter (Eds.), *International handbook of teacher education world-wide*. Athens-Atrapos Editions.

Rohmah, I. I. T. (2017). Philosophical foundation in English education curriculum renewal based on indonesian qualification framework (KKNI). *Jurnal Pendidikan Edutama*, *4*(2), 41–50. https://doaj.org/article/b6e4ae76718a4186972556224a00b14d

Soeratman, D. (1985). *Ki Hajar Dewantara*. Departemen Pendidikan dan Kebudayaan.

Suralaga, F., Azkiyah, S. N., Rumtini, R., Rahmawati, Y., & Nisa, Y. F. (2020). Motivation and commitment of English student teachers of some universities in Indonesia. *Cypriot Journal of Educational Sciences*, *15*(6), 1642–1658. https://doi.org/10.18844/cjes.v15i6.5323

Suryani, A., Watt, H. M. G., & Richardson, P. W. (2016). Students' motivations to become teachers: FIT-choice findings from Indonesia. *International Journal of Quantitative Research in Education, 3*(3), 179. https://doi.org/10.1504/ijqre.2016.077802

Suryani, A. (2017). Motivations and aspirations of teacher education students in Indonesia. In H. M. G. Watt, K. Smith, & P. W. Richardson (Eds.), *Global perspectives on teacher motivation* (pp. 248–296). Cambridge University Press. https://doi.org/10.1017/9781316225202.010

Suryani, A. (2020). "I chose teacher education because…": A look into Indonesian future teachers. *Asia Pacific Journal of Education*, *00*(00), 1–19. https://doi.org/10.1080/02188791.2020.1783202

Susilo, S. (2015). Curriculum of EFL teacher education and Indonesian qualification framework: A Blip of the future direction. *Dinamika Ilmu*, *15*(1), 11–24. https://doi.org/10.21093/di.v15i1.98

Triyanto. (2012). Improving teacher profesionalism through certification program: An Indonesia case study. *International Journal of Educational and Pedagogical Sciences*, *6*(7), 864–868.

Wahyuningrum. (2017). Evaluation of Indonesian National Qualification Framework-based learning process in Faculty of Education Universitas Negeri Yogyakarta. *Advances in Social Science, Education and Humanities Research*, *66*, 260–265. https://doi.org/10.2991/yicemap-17.2017.44

Watt, H. M. G., & Richardson, P. W. (2007). Motivational factors influencing teaching as a career choice: Development and validation of the FIT-choice scale. *Journal of Experimental Education, 75*(3), 167–202. https://doi.org/10.3200/JEXE.75.3.167-202

Watt, H. M. G., Richardson, P. W., Klusmann, U., Kunter, M., Beyer, B., Trautwein, U., & Baumert, J. (2012). Motivations for choosing teaching as a career: An international comparison using the

FIT-Choice scale. *Teaching and Teacher Education, 28*(6), 791–805. https://doi.org/10.1016/j.tate.2012.03.003

World Bank. (1998). *Education in Indonesia: From crisis to recovery* (Issue 18651). http://documents.worldbank.org/curated/en/558971468752104023/Indonesia-Education-in-Indonesia-from-crisis-to-recovery

World Bank. (2010). *Transforming Indonesia ' s teaching force. Volume I: Executive summary: Vol. I*. https://doi.org/10.1007/s00018-008-8564-6

World Bank. (2018). Learning more, growing faster. In *Indonesia Economic Quarterly* (Issue June). https://openknowledge.worldbank.org/handle/10986/29921

Worldometer. (2022). *Indonesia population.* http://www.worldometers.info/world-population/indonesia-population/

Part IV
Teacher Education Reforms

Chapter 33
Teacher Education Reform in Japan

Yuko Fujimura and Mistilina Sato

Abstract In Japan, the imbalance of generations in schools due to the retirement of the baby boomer generation and the decrease in the number of teacher applicants are serious issue. In response, teacher education reforms have been promoted rapidly. One of the characteristics of the reform is the establishment of teaching standards and the reform of teacher education programs based on them. In addition to undergraduate education, teacher training programs have been implemented in various places such as graduate schools and educational administration institutions. This chapter introduces these new trends in Japanese teacher education reform based on professional teaching standards and teacher training.

Keywords Teacher education · Reform · Japan · Policy trends · Teaching standards

Introduction: The Teaching Profession in Japan

Interest in teacher education is growing in Japan, given how teachers are considered a critical factor in the overall education system. Policymakers are particularly interested in how to prepare teachers, hire new teachers, and implement continuous professional learning for teachers. In Japan, a public school teacher is a civil servant. The working conditions of civil servants enshrined in the law (such as wages, workplace conditions, and management arrangements) apply to the teaching profession. Japanese teachers are paid for 12 months, in contrast to the practice in other nations that pay teacher salaries for only nine months of the year. Teachers are involved in not only teaching but also in a wide range of tasks, such as school affairs, committee activities, club activity guidance, and participation in professional development, even

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when schools are on vacation. As civil servants, public school teachers have an established social status and guaranteed working conditions. These perks make teaching an attractive profession; Japan does not have a serious shortage of teachers.

Japan's teaching profession has the unique distinction of attracting more men compared with other advanced countries. Regarding the sex ratio of school teachers, Japan has considerably more male teachers compared with the international average (OECD, 2019). The percentage of male teachers in primary school is 35%; in lower middle school, 60%; and in high school, 80%. These rates are the highest among OECD countries (OECD, 2019). Indeed, unlike in many other OECD countries, teaching is not a female-dominated profession.

Nonetheless, the teaching profession in Japan is facing some challenges. One is the working hours of teachers. According to a 2018 OECD survey (OECD, 2019), Japanese junior high school teachers have the longest average working hours compared with their peers in 48 OECD countries and regions (OECD, 2019), working 56 hours per week on average compared with an overall average of 38.3 hours a week for other jurisdictions. Similarly, Japanese primary school teachers work, on average, 54.4 hours per week, also longer than the OECD average. As mentioned earlier, Japanese teachers' duties are broad and not limited to teaching. For example, they spend time on guidance for extracurricular activities (sports and cultural), office work, and professional development. Moreover, owing to a rising trend for families to shift away from traditional intergenerational support within an extended family household, the family lifestyle in Japan is changing. The increasing number of nuclear families and families who do not live near a support network of relatives is creating a need for support for them, and the school is increasingly taking on this responsibility. Teachers are now providing educational support to their students' parents (MEXT, 2005). Recently, the attractiveness of teaching has been decreasing as the media have reported how difficult the teaching profession is, with long working hours, increasing demands for parent education, and the shifting social dynamics of students within their families and society. Japan is on the cusp of a serious shortage of teachers, prompting the government to consider new strategies to enhance the attractiveness of the teaching profession.

The second key issue for Japanese teachers is the rapid changes in the informatization and internationalization of society. Japan is undergoing school curriculum changes, such as strengthening information and communication technology (ICT) education, English as a second language (ESL), and science/technology/engineering/arts/mathematics (STEAM) education. School curriculum needs are constantly undergoing changes, and teachers are expected to also be flexible in responding to these changes. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) determines the Course of Study as a broad standard for all schools, from kindergarten to upper secondary schools, to organize their programs, and to ensure a minimum standard of education across the country. The Course of Study has generally been revised once every 10 years. In short, teachers need to update their knowledge and introduce new teaching approaches every ten years (MEXT, n.d.).

To produce high-quality teachers who can respond to the new era of education, the MEXT must steadily implement integrated reforms in teacher preparation, employment, and ongoing professional learning to support teachers in continuing to learn throughout their career. Given the high interest and expectations of society towards school education, reforms in school and teacher education are required. Therefore, in this chapter, we focus on the following questions: (1) What do policy reforms for teacher education in Japan look like? (2) What are the challenges of reforming teacher education in Japan? We describe the policy reforms that are currently taking place, explaining the impetus behind these reforms, as well as some of the challenges that Japan is facing in implementing these changes to the teacher education system.

Japanese Education System

In Japan, compulsory education is from 7 to 16 years of age and is divided into primary school (grades 1–6) and junior high school (grades 7–9). Additionally, high school, which is not compulsory, has three years (grades 10–12). Educational administration is a centrally controlled system, whereas educational administration is operated at both the central (national) and local (prefectural/municipal) levels (National Institute for Education Policy Research, n.d.). The MEXT, which is one of the ministries that comprise the executive branch of the central government, is responsible for the national educational administration. The MEXT has two types of departments: education departments and sports and cultural departments. Local educational administration is performed by the prefectural/municipal Board of Education. The primary policy and governing roles sit within the MEXT at the central level and with the Boards of Education at the local level. The MEXT is not the only entity involved in educational administration; in some cases, the Prime Minister sets educational administration policies as well.

Within the MEXT, the Central Council for Education carries out research and deliberations on important matters related to the promotion of education in response to requests from the MEXT. The Council provides opinions to the Minister of the MEXT, and reports submitted by the Council serve as the foundation for the promotion of educational policies and reforms. Generally, education-related legislation is promoted based on these reports. Boards of Education have the primary role of operating educational administration in local municipalities, social education, sports, and culture and serve as important policy bodies through the local program implementation of national policy and guidelines.

Education system is centralized, and the Course of Study mentioned above is based on national curriculum standards. The Course of Study is the minimum standard for education and must be met at all schools, including private schools. In March 2017, the Course of Study for elementary and lower secondary schools was revised, and those for high schools and schools for special needs education were revised in March 2018. One of the four main points proposed by the latest Course of Study is the implementation of a new teaching approach that encourages "students'

independent, interactive, and deep learning". To achieve these bold learning goals, teachers need to learn new teaching approaches. Specifically, teachers are expected to (1) design learning activities that require students to *use* knowledge, skills, and language; (2) use experiential learning and problem-solving-oriented learning activities; (3) incorporate the use of information technology through the use of computers and communications networks; and (4) strengthen collaborative relationships with pupils' homes and the local community (MEXT, 2017).

Japanese Teacher Education System

The teacher preparation system was rebuilt after World War II based on the reflection and criticism of the pre-war "closed" teacher training centred on a normal school model. With Japan's defeat in the war, the country drastically reformed its entire pre-war education system. The current system was designed based on two principles: an *open system* and *teacher training at the university level*. Teachers must obtain a license to become a teacher at a national, public, or private school (Nasukawa & Watanabe, 2014).

An *open system* means that all qualified institutions can certify and provide various kinds of teachers' licenses, and all the institutions are treated as equal under the Education Personnel Certification Law (1949). The purpose of this system is to bring diverse human resources who have wide perspectives and deep specialized knowledge in the teaching profession. Before the war, the training of primary school teachers was conducted at normal schools, which were a form of secondary education institution. Additionally, secondary school teachers were able to teach at school with little formal understanding of teaching and learning practices if they graduated from university. Today, both primary and secondary teachers are prepared through teacher education at the university level and require a bachelor's degree. Teacher training can be provided by national, public, or private universities and can be delivered by faculties of university. This policy expects that teachers acquire liberal arts education and learn broad and deep perspectives on teaching and learning (Fujimura & Horiuchi, 2018).

However, problems have been identified in the current system. First, the supply and demand of teachers do not align. Under the open system, graduates who complete the coursework required by law are awarded a teaching license from a prefectural Board of Education, regardless of their university or field of study. Approximately, 200,000 teaching licenses are issued each year, and each of these requires professional field placements in schools. Only about 30,000 new teachers are employed among these newly licensed teachers. While the open system of teacher education has increased the teacher recruitment rate, it has also increased the burden on schools to carry out teaching professional field practice required for teacher training (Fujimura & Horiuchi, 2018).

Another issue that teacher education facesis that professional teaching practice hours are minimal. This is related to the first issue described above, given the large

number of university students in teacher education programs. Professional teaching practice for kindergarten, elementary, and junior high school teacher licenses lasts about four weeks, and for a high school teacher license, the duration is about two weeks. Many school leaders report that novice teachers lack the practical skills for teaching when they begin their first job as a teacher owing to the insufficient professional practice in university teacher education programs (Fujimura & Sato, 2020).

To address these problems, the Central Council for Education proposed the advancement of a teacher training system in 2006 (MEXT, 2006). In their report, the main reform theme was the establishment of professional graduate schools for teachers. Traditional graduate schools for education have focused on improving research competencies; they have not provided programs that educate teaching experts or school administrators. New professional graduate schools were designed to train and foster teaching experts. In 2009, the government proposed a six-year system for teacher preparation that has already been implemented in various countries, and graduate schools would become the centre of the teacher preparation system. When the administration changed from the Democratic Party to the Liberal Democratic Party in 2012, the shift to the six-year system for teacher preparation was cancelled. The government said that the plan was put on the shelf because the extension of the teacher preparation term from a four-year undergraduate degree to a six-year graduate degree would have resulted in an increase in teacher salaries, as new teachers would enter the profession with a graduate-level qualification, and it would have also created a higher tuition fee burden for student teachers. However, in reality, the scheme was cancelled for political reasons (Fujimura & Horiuchi, 2018). As will be described later, under the initiative of the cabinet of the Liberal Democratic Party, the roles of professional graduate schools have changed significantly. At the request of the national government, all national universities and faculties of education have developed professional graduate schools that will become the hub of the teacher preparation system in each prefecture.

Recent National Policy Trends in Teacher Education in Japan

In December 2015, the Central Council for Education released the report *Improvement of the Ability of a Teacher Taking School Education in the Future: Toward Building Up a Teacher Development Community for Studying and Enhancing Together* (MEXT, 2015). This report describes future issues and prospects for teacher preparation and informs the current reform in teacher education. The report aimed to address three significant changes in the Japanese education system. The first change includes the shift in focus of teaching and learning from teacher-directed pedagogies to more student-oriented approaches characterized by active learning that fosters children's independent learning, introduction of ICT education, and enhancement of

special needs education. These changes require teachers to relearn some fundamental aspects of teaching and introduce new technologies into the classroom environment (MEXT, 2015).

Second, Japan witnessed a rapid turnover in the teaching population owing to the retirement of the baby boomer generation. With a large number of veteran teachers retiring and a large number of new teachers beginning their careers, the balance between experienced and inexperienced teachers in the schools has been disrupted. This teacher turnover issue relates to the third issue of how ongoing professional learning is supported. The use of the lesson study in schools to support ongoing teacher growth and development is a well-known practice (National Association, 2011). Lesson study is a process of supporting the professional growth of teachers through teacher-led study groups in schools. These learning communities create a systemic approach for veteran teachers to support novice teachers based on authentic professional practice in classrooms. Such systemic support in the schools for new teachers has also contributed to the design of pre-service teacher education—with shorter periods of time in professional practice learning opportunities. However, owing to the retirement of veteran teachers, this systemic approach to teachers' professional growth has collapsed, necessitating the creation of a new teacher's professional development model. The Central Council for Education based their recommendations on forward thinking to address these key issues that have affected teachers' professional preparation and their ongoing professional learning in light of the changing curriculum and pedagogical needs as well as the shifting demographics of the workforce. The recommendations are as follows.

Local Council for Teacher Development

One of the major recommendations presented in the report by the Central Council for Education is the establishment of local Councils at the prefectural level for teacher development. These Councils consist of members from the prefectural Board of Education and universities that provide teacher preparation programs. The Councils would take on the responsibility of discussing and proposing policies related to teacher preparation and professional development. All local governments have developed a local Council for teacher development. These Councils have begun to create teacher development indicators (similar to professional teaching standards) that will guide program development towards a common vision for teaching practice. Local governments are also guiding teacher preparation programs, professional development programs, and teacher license renewal systems towards adopting practices that are aligned with the new teaching standards.

The introduction of professional teaching standards is a new development in the Japanese education system. The joint formulation of these teaching standards between the local education boards and teacher preparation institutions was recommended to encourage a more seamless system between pre-service education and the ongoing professional learning of in-service teachers. Placing this responsibility in

the hands of a local government entity was recommended to allow for unique local issues to be addressed.

The previous system in Japan allowed teacher preparation, teacher recruitment into teaching positions, and teacher professional development to be conducted individually within different parts of the system, resulting in little continuity across these distinct stages in a teaching career. International policy studies in teacher education suggest that a stronger systemic approach to policies that support the teaching profession across these various stages can strengthen the education system and support stronger student outcomes (Darling-Hammond et al., 2017). Using professional teaching standards as a central organizing framework for what teachers should know and be able to do is a common feature of teacher development systems worldwide (Sato & Kemper, 2017). Commonly, the teaching standards set out the expectations for the kinds of knowledge teachers need to understand, stances on the pedagogy that are expected (e.g. for positive relationships with students, for equity-based practices to meet all students' needs, and the kinds of learning interactions that support student-centred learning), as well as the expectations for professional behaviour and ongoing professional learning. These standards can be used by university teacher preparation programs to develop curriculum and learning experiences that support the development of these knowledge, practices, and professional conduct expectations. Pre-service teachers who understand these local expectations for teachers' work should have a deeper understanding of what is expected of them when they are hired by local Boards of Education. Professional learning that then follows from the pre-service learning experience should continue to reinforce and deepen teachers' knowledge and practice within the same teaching standards framework. In this way, Japan has created a process to rebuild teachers' professional development systems with teaching standards at the core of professional expectations.

Efforts to establish a local Council for teacher development and to create a consistent system for teacher professional development can be regarded as a policy for promoting the professional development of teachers in collaboration with prefectural Boards of Education and universities. However, this policy is arguably an expansion of the influence of the national and educational administration on teacher education and, in turn, a reduction in the influence of universities on teacher education. For example, regarding the development of local teaching standards, the national government (MEXT) presents guidelines for formulating teaching standards. The guidelines indicate that the Boards of Education have a common understanding with the university and formulate teaching standards that clarify the responsibilities of teachers as highly specialized professionals and the qualities that teachers should acquire. The standards can be formulated to align with teaching experience and be designed to address appropriate local strengths, issues, and needs. Even with this flexibility, however, the nationalized approach to shaping what is taught in universities can be viewed as the beginning of a hegemonic approach to university curricula by national authorities (Education Policy Bureau, 2019).

National Institute for School Teachers and Professional Graduate Schools for Teachers

Following the report of the Central Council for Education, the administrative law on the National Teacher Development Centre (NTDC) was replaced by the National Institute for School Teachers and Staff Development (NIST), as the body that provides a comprehensive professional development approach for school teachers and support personnel. The NTDC was primarily responsible for providing professional development programs to teachers who were nominated to attend these programs by local Boards of Education. The NIST continues to be responsible for delivering quality professional development programs (NIST, n.d.). It serves as a bridging organization among teacher preparation, teacher hiring, and teacher professional development. The NIST develops and shares more structured professional development opportunities, both directly and indirectly. The NIST develops and implements training programs at the national level and provides advice to local Boards of Education regarding their professional development programs. Additionally, the NIST provides more accessible professional development programs for teachers. The creation of the NIST demonstrates the strong involvement of the national educational administration in teacher education (NIST, n.d.).

Another new reform that emerged from the Central Council is the development of professional graduate schools for teachers. Professional graduate schools collaborate with undergraduate programs and the prefectural Boards of Education and are expected to become institutional hubs for networks between universities, Boards of Education, and schools. At the time of their establishment, professional graduate schools were expected to have two functions: training of school managers and leader teachers and training of new teachers with advanced specialized knowledge. The current expectation is that professional graduate schools will fundamentally strengthen teacher education and professional learning systems, including undergraduate programs and professional development for in-service teachers. A shift in teacher training to the master's level had been discussed but was not realized in practice (NIST, n.d.).

Enhancement Teacher Preparation Practical Learning

The Central Council report also proposed a one-year school internship program for pre-service teachers. School internships are an initiative that would allow student teachers to experience educational activities, school affairs, and club activities while also providing supportive work at the school site for an entire school year. In pre-service teacher training, the short duration of practical training has long been regarded as an issue in terms of the practical knowledge about teaching that student teachers are able to gain. The decreasing function of professional development in schools, as discussed earlier, is creating a greater need to support new teachers in the school,

and this is being translated to a teacher preparation problem. The new expectation is that teacher preparation programs in universities should develop the "ready-to-work ability" of new teachers.

Elementary and junior high school pre-service teachers generally need to acquire 67 credits in their teacher education program. School internship accounts for up to two out of five credits in the student teaching portion of the teacher preparation program for elementary and junior high school teachers and one out of three credits in the case of high school teachers (Educational Personnel Certification Law Act.1-18.5.). The university decides whether to require internships. In the school internship, students participate in various school activities throughout the year and observe the work of school teachers. The fundamental premise of these internship programs is that a more continuous learning experience in schools over a longer period will foster a deeper understanding of the school site and the development of practical skills for teaching. These internships can also create meaningful opportunities for teacher education students to understand the qualities required of future teachers and to make informed choices about their careers in teaching. For the schools receiving interns, internships by university students can help secure local human resources to support the various school activities.

The national report also resulted in many Boards of Education creating *Kyoshi-juku* for pre-service teachers. The creation of Kyoshi-juku was recommended to build stronger partnerships between teacher preparation and local Boards of Education. The intent of the programs is to provide a professional learning program primarily for teacher candidates who are finishing their university teacher preparation program (Fujimura & Sato, 2020). In other words, Kyoshi-juku is not an alternative teacher preparation route that replaces university preparation. Traditional teacher preparation remains largely under the auspices of institutions of higher education in programs accredited by the Japan Institution for Higher Education Evaluation (JIHEE) (Fujimura & Sato, 2020). Kyoshi-juku therefore plays the role of complementing traditional teacher preparation programs. These programs are offered by the Boards of Education and provide their own curriculum for preparing teachers specifically for the local context through a range of classroom observational experiences within the local schools and specific information about working in the local school contexts (Fujimura & Sato, 2020). Boards of Education offer these programs to support local recruitment and the selection of teachers and to provide new teachers with more localized teaching knowledge and experiences prior to being hired in local schools (Fujimura & Sato, 2020).

Conclusion: Policy Reform in Teacher Education in Japan

Following the global trend, Japan has created professional standards in teaching and redeveloped its teacher education system in line with these professional standards. Stakeholders have recognized the need for continuous professional development for teachers through systemic efforts. The current reforms are in response to the fact

that the traditional Japanese professional development model can no longer be maintained. The Japanese approach of providing a minimum qualification through teacher preparation and then fostering professional development at the school site from the beginning of the teaching career relied on a professional development model centred on schools. However, the changing demographics and changing school curricula have called for the need to strengthen teacher preparation and promote professional development in collaboration with universities. In addition, these teacher education reforms are being implemented under a strong national initiative that is shifting the role of universities. Universities are expected to be involved not only in teacher preparation but also in teacher professional development.

These reforms take place within a political context that is strongly led by the national government. Education reform in Japan is often interpreted as a political issue. When the administration changed from the Democratic Party to the Liberal Democratic Party in 2012, the implementation of the six-year system for teacher preparation was cancelled. Under the Democratic Party, the six-year system for teacher preparation and the establishment of professional graduate schools for teachers were designed as the two wheels of teacher education reform, aimed at advancing the teaching profession. However, the Liberal Democratic Party abandoned this policy while also significantly changing the role of professional graduate schools, causing confusion in graduate school education.

Stakeholders have voiced dissatisfactions and criticisms about students not acquiring sufficient practical teaching skills while completing teacher preparation programs at universities and colleges. These criticisms have resulted in the intervention of the national educational administration in teacher preparation. Teacher preparation at universities has been designed based on the expectation that teacher candidates should acquire broad perspectives through the study of educational theory and social science foundational knowledge through university education. However, the rhetoric on the perceived need for new teachers to begin their careers with immediate capabilities is increasing. Practical skills are considered to be more important than broad perspectives on educational issues and a deep understanding of learning. Operationalizing such a view may lead to the training of teachers with a narrow vision about their roles and responsibilities. We are concerned that this series of teacher education reforms could lead to universities prioritizing the development of practical skills over philosophical learning, which will lead to a vocationalization of the universities. In such a phenomenon, universities would merely implement training for teachers rather than adopt a liberal educational approach. The consequences include a major difference in the qualities being valued by teachers entering the profession. Policymakers ought to consider not only the competencies that teachers need at the beginning of their career but also the mindset and understanding that will allow them to grow as critical and caring professionals throughout their career.

References

Darling-Hammond, L., Burns, D., Campbell, C., Goodwin, A. L., Hammerness, K., Low, E. L., McIntyre, A., Sato, M., & Zeichner, K. (2017). *Empowered educators: How high-performing systems shape teaching quality around the world*. Jossey-Bass.

Education Policy Bureau. (2019). Reference materials for improving teachers' qualifications. Accessed 18 Apr. 2021. https://www.mext.go.jp/content/1413324_009.pdf

Fujimura, Y., & Horiuchi, T. (2018). Comparative study on teacher education focused on system and curriculum of graduate programs in 10 countries. JSPS KAKENHI Grant Number 26301041.

Fujimura, Y., & Sato, M. (2020). How Japanese education boards frame teacher education as a training, learning, and policy problem. *Journal of Education for Teaching: International Research and Pedagogy, 46*(4), 1–16.

MEXT. (2005). *Environments surrounding school teachers.* The Interim Report of the Central Council for Education. Accessed April 18, 2021. https://www.mext.go.jp/b_menu/shingi/chukyo/chukyo0/toushin/attach/1396634.htm

MEXT. (2006). *About the future teacher training/license system.* Report of the Central Council for Education. Accessed April 18, 2021. https://www.mext.go.jp/b_menu/shingi/chukyo/chukyo0/toushin/attach/1336998.htm

MEXT. (2015). *Improvement of the ability of a teacher taking school education in the future: Toward building up a teacher development community for studying and enhancing together*. Report of the Central Council for Education.

MEXT. (2017). *Course of study for elementary schools.* Accessed April 18, 2021. https://www.mext.go.jp/content/20201008-mxt_kyoiku02-000005241_1.pdf

MEXT. (n.d.). 2. Current status and issues of education in Japan. Accessed November 10, 2021. https://www.mext.go.jp/en/policy/education/lawandplan/title01/detail01/sdetail01/1373809.htm

Nasukawa, T., & Watanabe, T. (2014). *Teacher training and sophistication of training.* THE EARTH KYOIKUSHINSHA Co.

National Association. (2011). *Lesson study in Japan.* Keisuisha Co.

National Institute for Educational Policy Research. (n.d.). *Educational Administration in Japan.* Accessed April 18, 2021. https://www.nier.go.jp/English/educationjapan/index.html

NIST. (n.d.). *Institute history, missions and functions.* Accessed April 18, 2021. https://www.nits.go.jp/en/about/mission.html

OECD. (2019). *TALIS 2018 Results (volume I): Teachers and school leaders as lifelong learners, TALIS*. OECD Publishing. https://doi.org/10.1787/1d0bc92a-en

Sato, M., & Kemper, S. (2017). Teacher assessment from pre-service through in-service teaching. In J. Clandinin & J. Husu (Eds.), *SAGE handbook of research on teacher education.* Sage Publications.

Chapter 34
Implications for Teacher Education in a Time of Rapid Reform: Lessons from Myanmar

Anna Dabrowski, Pauline Taylor-Guy, and Michelle Lasen

Abstract Over previous years, Myanmar has made significant efforts to improve the quality and equity of its education system. Rapid educational reform is now underway across the Union, in the form of revisions to schooling structures, curricula and assessment processes, monitoring of school improvement mechanisms, and teacher education programs, underpinned by the introduction of teacher standards. Yet the success of standards-based reform in Myanmar is predicated on the mode of enactment, and the ways in which policy is interpreted within the education profession. Thus, in recognition of the role teachers play during major and important cycles of teaching reform, this chapter highlights the potential of standards-based education reforms in improving teacher quality in Myanmar, while also considering the key challenges policy actors and educators now face. In a time of great uncertainty for the country of Myanmar, this chapter also considers ways that comparable systems can position themselves as partners in educational reform, supporting schools and teachers as they begin to use and embed school improvement mechanisms in broader practice.

Keywords Reform · Standard-based · Policy · Challenges · Assessment

Introduction

Education systems globally are embracing standards-based educational reform to improve educational quality, equity, and outcomes. Yet standards-based reform, and the application of teaching standards in policy and practices is not without challenge, particularly in emergent education systems. In this chapter, we look at the role of teacher standards in teacher education reforms and draw on our recent experience in Myanmar to highlight both the opportunities and challenges in implementing teacher standards as a strategy to improve teacher quality.

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Standards-Based Reform

The importance of raising the quality of teaching in global education reform agendas is well-recognized. A consistent characteristic of high-performing education systems that achieve top rankings in international learning assessments is that the teacher workforce is highly qualified (Barber & Mourshed, 2007). Darling-Hammond's research in the USA (2001) found that teacher preparation and certification was the most important predictor of student learning, especially for low performing students. Typically, policy reforms to improve teacher quality focus on professional standards for teachers, attracting strong candidates into teacher education programs, robust pre-service teacher education programs and ongoing professional learning across the career span.

Teacher standards originated in the USA (Davis, 1962), where the primary objective of teacher standards was first to "upgrade the status of teaching to a profession" (Cochran-Smith & Zeichner, 2005, p. 74). Over the past seven decades, teaching standards have continued to evolve. National teacher professional standards have now been implemented in many countries around the world, including Australia, New Zealand, the Netherlands, UK, and USA (Call, 2018; Chung & Kim, 2010; Koster & Dengerink, 2008). Teacher competency standards have long been considered a way to improve learning and quality assurance in teaching (Tang et al., 2006) and are grounded in the notion that improved teaching will create better conditions to enable improvements in student learning (Danielson & McGreal, 2000; Darling-Hammond, 2001).They aim to describe the knowledge skills and attributes at different career stages from pre-service teacher education to accomplished and lead teachers (OECD, 2005; Barrett et al., 2007; Tatto et al., 2008; World Bank, 2012; Mpokosa et al., 2008).

As Darling-Hammond (1998) and Hargreaves (2009) have noted, teaching standards are not the only way to solve educational issues, a sentiment echoed by Hudson (2009) and Tuinamuana (2011). However, they are now widely used as policy mechanisms that both assess and enhance teacher quality. Professional teacher standards "seek to clarify the dimensions of effective teaching practice, detailing the competencies of accomplished teachers, and applying rubrics specifically designed to measure teacher quality" (Kleinhenz & Ingvarson, 2007; Koster & Dengerink, 2008; Mayer et al., 2005; Santoro, 2012; as cited in Clinton et al, 2015, p. 9). Teacher standards can be used prescriptively or in aspirational ways, that build capacity to augment teacher quality (Sachs, 2003; Spillane et al, 2002). In countries in such as Australia and New Zealand, teacher standards are intended to be used as a reflective mechanism rather than for accountability purposes and draw on key principles of high-quality teaching practice (AITSL, 2011; Education Council of New Zealand, 2017). They offer a framework for teacher self-reflection, professional development, and peer dialogue, supporting a process of self-assessment, transparency of practice, and professional accountability (Doecke, 2001). Importantly, teacher standards are often perceived as having the potential to raise the status of the teaching profession, assisting in the attraction, development and retention of high-quality teachers, as well as providing a

framework that recognizes and rewards professional growth (AITSL, 2011; Dinham et al., 2008).

The implementation of teacher professional standards in developed country contexts has not been without its critics. Indeed, some high-performing countries such as Japan or Finland do not have teacher standards at all. Sachs (2005) proposes that teacher standards fit into two categories; either regulatory or developmental. Regulatory standards aim to standardize professional practice but risk defining or reducing teacher practice to a set of competencies (Loughland & Ellis, 2016). Developmental standards actively seek to develop a teacher's professional judgement at the individual level, providing opportunity for a shared language and understanding of professional practice to be discussed.

Here, Ingvarson references the *National Council for Teaching of Mathematics Professional Standards for the Teaching of Mathematics* in order to propose several key principles for the development of professional teaching standards, as outlined below:

1. Profession defined teaching standards that provide direction and milestones for professional development over the long term of a career of teaching;
2. An infrastructure for professional learning whose primary purpose is to enable teachers to gain the knowledge and skill embodied in the teaching standards;
3. Staged career structures and pay systems that provide incentives and recognition for attaining these teaching standards;
4. A credible system of professional certification based on valid assessments of whether teachers have attained levels of performance defined by the standards. (1998c, p. 1009).

In some contexts, such as the USA, UK, and Australia, we can see both regulatory and developmental intent (Darling-Hammond, 1999; Elmore, 2002; Ingvarson, 1998). In others, professional standards have been imposed by governments and are used as a compliance mechanism, a regulatory framework, or form of bureaucratic controls over teachers. It is against this backdrop that we examine the use of teaching standards in the country of Myanmar.

Educational Reform in Myanmar

In common with many countries in Asia, Myanmar has made significant efforts to improve the quality and equity of its education system over a short period of time, through its *National Education Strategic Plan 2016–2021*(NESP) (2016a). The plan lays out nine areas of reform or "transformational shifts" and attendant strategies to achieve the NESP goal of "Improved teaching and learning, vocational education and training, research and innovation leading to measurable improvements in student achievement in all schools and educational institutions" (p. 27). Rapid educational reform is now underway across the Union in the form of revisions to the existing schooling structure, new curriculum and assessment policy, upgrading of pre-service

teacher education for primary and middle school teachers, the introduction and development of teacher and principal competency standards, and the implementation of system and school level self-assessment and quality assurance processes.

In addition, Myanmar is currently working to improve the quality of education, including making revisions to existing teacher education programs, curricular frameworks, gender and inclusion mechanisms (Ahmed et al, 2020), and teacher competency standards. Myanmar's National Education Strategic Plan (NESP) 2016–2021 has also identified the need for a national school-based quality assurance system as a key strategy for educational improvement, through a focus on access, quality, and inclusion (Ministry of Education, 2016a, 2016b). The authors of this chapter have had the opportunity since 2019, to work with the Ministry of Education in various aspects of implementation of the NESP, including in developing pre-service teacher education curriculum. These opportunities have afforded insights into the challenges of implementing rapid educational reform.

Myanmar has over 9 million basic education students and 360,000 teachers in more than 47,000 basic education schools. Prior to the reforms, pre-service teacher education for primary and middle school teachers (a two-year diploma) has been delivered through 25 Education Colleges (ECs) across Myanmar with around 12,000 graduates per year. The last cohort will graduate in the academic year 2020–2021. Secondary teacher preparation programs are conducted by universities. A Comprehensive Education Sector Review (CESR) process was commenced in 2012 with a vision to develop an education system that would help build a modern developed nation through education. The CESR and additional reports[1] several keys areas for improvement in the previous EC curriculum including:

1. Outdated and overcrowded curriculum which has not been comprehensively updated since 1998. The curriculum overemphasizes discipline knowledge at the expense of pedagogical content knowledge.
2. A need for primary and middle school specialization tracks enabling student teachers to become experts in teaching students in a specific age range.
3. Moving away from large-class didactic teaching approaches in favour of learner-centred pedagogies.
4. Insufficient practicum. The historical EC curriculum did not use the available time efficiently, for student teachers to practice teaching skills in the classroom.

In term of pre-service teacher education, initiatives have focussed on four important aspects:

1. Developing a policy framework for pre-service teacher education and a national Teacher Competency Standards Framework (TCSF);
2. improving ECs by restructuring and redesigning training programs of teacher education and creating good professional networks;
3. Developing institutional/management and human resource capacities of ECs;
4. Mainstreaming inclusion and equity issues in teacher education.

[1] https://www.dfat.gov.au/sites/default/files/myanmar-strengthening-pre-service-teacher-education-stem-project-review.pdf.

In relation to the pre-service teacher education program, an Education College Curriculum Framework for the four-year degree was developed, designed as a spiral curriculum across the four years providing student teachers the opportunity to build on familiar concepts, deepening their knowledge and understanding across the program. The curriculum is divided into two cycles—the first cycle (Year 1 and Year 2) is common across the Primary and Middle School with specializations occurring in the second cycle (Years 3 and 4). Years 3 and 4, student teachers have option to specialize in either primary school or middle school teaching. The EC Curriculum Framework is underpinned by the Myanmar Teacher Competency Standards Framework (TCSF) which makes explicit what teachers are expected to know and be able to do as a graduate teacher.

The first draft of the Myanmar draft Teacher Competency Standards Framework (TCSF) was developed by a team of Myanmar experts, namely the TCSF working group, in 2015–2016. In 2018, a review of international literature on the validation of teacher competency standards was undertaken (My-EQIP, 2018), and late in 2018 the design of a validation study for the TCSF for beginning teachers was developed (STEM & My-EQIP, 2018). As a result of expert input and review, revisions were made to the TCSF, and a new version of the TCSF was produced (STEM & My-EQIP, 2018; 2019).

Made up of 4 key domains, the TCSF offer an aspirational framework for teachers to build their own capacity and professional learning in the areas of professional knowledge and understanding, skills and practice, values and dispositions, and professional learning and development (Kleinhenz & Ingvarson, 2007; Sergiovanni & Starrat, 2002). The TCSF is explained in more detail below.

Domain A

This domain centres on the information that teachers should know and be able to demonstrate. It encompasses the knowledge required for teaching different ages and stages and level-appropriated subject content competency. Inherent in any focus on subject competency is the necessity to understand how students learn and how they can be effectively taught in the key learning areas. Underpinning all competency standards in this domain is knowledge of educational policy and school curricula for Myanmar, its aims and objectives and developments.

Domain B

This domain deals with what teachers are able to do. The teachers' professional knowledge and understanding is complemented by possession of a repertoire of teaching strategies for different educational contexts to meet the needs of individual students as appropriate to different subject areas and stages of schooling.

Domain C

This domain refers to the ideas, values and beliefs that teachers hold about education, teaching and learning. It is underpinned by the values expressed in the Myanmar National Education Law and reflects the mutual understanding by teachers and the community about the Myanmar teacher—Teach students to be disciplined, Teach and explain to your best, Teach everything known, Appreciate students and Stand up for students whenever needed, Teach to value the professional work of being a teacher. According to Myanmar tradition, in return, the community will respect teachers.

Domain D

This domain deals with teachers' continuing professional growth and development. It incorporates teachers' habits, motivation and actions related to their ongoing learning and professional improvement. It advocates the importance of all teachers being aware of their role as leaders within the community and highlights the need for active research to support teachers' classroom performance and continuing professional development (ACER, 2020) p. 2.

The TCSF was subsequently field tested and validated over a period of 18 months to determine whether it was fit for purpose and useful for Myanmar's education system. Readers will have already discerned that these reforms were happening contemporaneously as was the development of a new Basic Education Curriculum. Indeed, the TCSF was still in draft form when the Year 2 teacher education curriculum was being drafted and Basic Education Curriculum was only developed for certain Grade levels. The Ministry of Education and UNESCO have also made significant efforts to communicate the development of different areas of education reform by regularly consulting and engaging with stakeholders and agencies (Ministry of Education, 2016a, 2016b).

The Validation of the TCSF

The TCSF was subsequently field tested and validated over a period of 18 months to determine whether it was fit for purpose and useful for Myanmar's education system. Overall, the findings of the validation study indicate that TCSF is perceived to be a useful mechanism to support the career trajectories of Myanmar's education profession (Dabrowski & Spink, 2020). Our research indicates that teachers and student teachers understand the TCSF well, indicating that the education reforms supported by the Ministry of Education are having a significant impact on awareness of the TSCF within Myanmar. Teachers and student teachers across Myanmar

reported good levels of satisfaction with the implementation of the TSCF, indicating willingness to adapt to the changes driven by the National Education Sector Plan (NESP). Teachers and student teachers also reported feeling valued, and this is important, as a sense of autonomy over the changes to the profession can create engagement and motivation, and build a community of practitioners. Furthermore, data collected during the validation offer insights into the ways in which the TCSF is understood and beginning to be aligned to teaching practice in Myanmar. Here, teachers who participated in the validation of the TCSF exhibited much concern for their profession and for students in Myanmar, and reported a strong desire to engage in further professional development mechanisms to improve their teaching practice and understanding of the TCSF.

The Challenges of Standards-Based Reform

There is little doubt that Myanmar's NESP is extremely ambitious, focussing on significant reforms in every educational sector within a five-year time frame. As authors, we had the opportunity to work simultaneously on different aspects of these educational reforms, specifically the validation of the TCSF, the baseline study for the School Quality Assurance Standards Framework (SQASF) and in the pre-service curriculum writing for Years 2 and, currently, Years 3 and 4 Primary and Middle School specializations. Here we look at four key challenges of implementing standards-based teacher education in a time of rapid reform.

Challenge 1: Alignment

In times of rapid and multifaceted educational reform, it is difficult to achieve strong alignment between different initiatives. In the case of Myanmar, the TCSF was still being validated well into the development of the pre-service teacher education curriculum notwithstanding that a curriculum framework had been developed. Teacher educators and practising teachers did not have the opportunity to develop deep knowledge of the TCSF as the teacher education curriculum was being developed. Further, the Basic Education Curriculum was also still in development. The ability to draw on the school curricula in the teacher education curriculum is important in terms of building teachers' knowledge and skills to plan lessons effectively. It is testament to the goodwill and commitment of the Core Curriculum Teams and the UNESCO managers that every effort was made to ensure good communication between stakeholders even though these were being managed by a range of agencies. Nevertheless, ensuring strong alignment between initiatives and strategies is a key challenge even when reforms have longer time frames for implementation.

Challenge 2: Transition

The NESP mandates for teacher education curriculum reform are broad and deep: moving from content-based curriculum to a standards-based curriculum; from a two-year program to a four-year program with specializations; from discrete disciplinary and pedagogical subjects to an approach which integrated pedagogical content knowledge; from didactic teacher-directed approaches to learner-centred pedagogies; from summative assessment to more formative approaches and; more opportunities for practicum. By any measure, these changes are enormous and the time frame give little opportunity to build deep understanding of how a standards-based curriculum can be conceptualized and enacted.

Central to a standards-based approach is that graduate or beginning teacher standards need to be demonstrated by the *end* of the program which provides multiple opportunities for student teachers to develop their knowledge and skills over the four years of the program and apply these in practicum experiences, collecting evidence of their development through subject assessment, exemplars of planning and other artefacts and feedback on their practicum experiences. In our international work, we have found it useful to think of the developmental sequence of a pre-service teacher education program as introducing-developing-consolidating-assuring standard across the four years. This framing assists in ensuring that the curriculum is not unnecessarily overloaded, particularly in Years 1 and 2. We noticed that, although the Myanmar pre-service teacher education program had essentially doubled in length, there was still a tendency to overload the curriculum in Years 1 and 2 to try and replicate the previous program content demands.

The new program involved both new subjects and the integration of Pedagogical Content Knowledge in what had previously been discipline-content-specific subjects. New subjects, for example, education studies, incorporated disciplines such as educational psychology which had been a discrete subject in the former program. Inevitably, discipline specialists were concerned about the amount of disciplinary knowledge that student teachers might not receive in the new program. Even when discipline subjects remained the same, the balance of discipline content knowledge and pedagogical content knowledge was the source of much discussion in curriculum writing.

The old program relied heavily on summative assessment, whereas the new program focussed more on formative assessment. Good formative assessment is integrated into the teaching and learning activities and sequences throughout each subject and provides opportunities for student teachers to reflect on their own learning and that of their peers. Teacher educators were enthusiastic about this approach but recognized they needed to develop their own skills in devising quality formative assessment to support student teacher learning.

The new program had many more opportunities for practicum experiences both in the Education Colleges and in practice/partner schools. At the time of writing the Year 2 curriculum, the pragmatic details of how practicum experiences would be

organized were not yet finalized and, in any case, were likely to be organized differently in different ECs. However, in a standards-based program, practicum experiences are where student teachers can *apply* their developing skills and knowledge in authentic contexts. High-quality practicum experiences are foundational to an effective teacher education program and are where Teacher Educators and mentor teachers work collaboratively with student teachers to provide feedback and support.

All of these elements require teacher educators to engage in different thinking and practice as they transition from the old program to the new curriculum. In addition, some practical aspects of the new program had not yet been worked through or decided. Teacher educators and Core Curriculum Teams were universally positive about the new curriculum but realized that the transition to the new program presented a set of challenges for their own learning as well as for the student teachers.

Challenge 3: Embedding Standards

Quality standards-based teacher education programs embed standards and priorities at a whole-of-program level where opportunities for student teachers to demonstrate their developing knowledge and skills against standards are embedded in subject assessment as well as tasks and artefacts which student teachers can collect. Artefacts such as lesson plans can provide evidence against multiple standards. Similarly, cross cutting themes such as inclusion, peace education and gender equity need to be mapped at a whole-of-program rather than individual subject level. There is a tendency when introducing a standards-based program to look at standards or priorities as checklists.

In Myanmar, as in other studies of standards-based reform in the Asia–Pacific region (see Clinton et al, 2015; Enkhtsogt & Kim, 2018), it is important to note that the embedding of standards is dependent on the teaching profession itself, and support for teachers to embrace and adapt standards-based reform. Even teachers with higher levels of experience have reported facing significant pressure to enact multiple major reforms simultaneously with little time to do so (Call, 2018; Ingvarson, 2010; Masters, 2015). As a result, teachers often feel overwhelmed by the scale and scope of national education change. Such focus on teaching and learning quality is also likely to be foregrounded through the DBE requirements of the new School Quality Improvement Plan (SQIP). Embedding standards into the daily practices of teachers will ensure successful implementation, uptake, and continual use.

Challenge 4: Time

In periods of rapid educational reform, there is little time to work on developing deep shared understanding of how standards can be used across the career span to drive

continuous improvement in practice. Yet providing teachers and policymakers with adequate time to implement and adapt to standards-based reform is critical.

As our research has found, many policymakers, researchers, educational leaders, teacher educators, and teachers know about, and perceive, the TCSF to be of overall importance to the future of Myanmar's education system. The TCSF offers much potential for professional growth, contributing to the further development of professionalism and ownership of the TCSF among teachers in Myanmar. The TCSF offer a common approach to teaching, and a framework for reflection on practice as a way by which to improve teaching quality. Yet the findings of the validation of the TCSF are consistent with studies of teacher standards in other contexts (see Clinton et al, 2015), and in particular, the tension between knowledge, interpretation, use, and enactment.

While Myanmar's teachers display knowledge of and confidence in discussing the TCSF, the level, nature, and impact of implementation in classrooms remain unclear. In time, it is likely that the TCSF will become more embedded within the teaching profession in Myanmar, setting the scene for a major and important cycle of teaching reform and professionalization. However, while the TCSF offers a chance for improvement from early career to school leader level, there remains a need to understand the ways that the TCSF can support a developmental progression among Myanmar's teachers. Embedding the TCSF in classroom practice will take much more time and effort, and integration and alignment with existing policies and practice will be needed to effect widespread change in professional culture and ultimately student learning and outcomes.

Implementation and Enactment of Standards-Based Reform

In the context of standard-based education reform, enactment theory (see Deetz, 1982; Eisenberg, 2006; and Weick, 1988) offers a chance to understand the ways that schools (as organizations), understand and form their unique interpretations of teacher education through "enactment of interaction cycles" (Eisenberg, 2006) and policy reform (Ball, 2015; Ball et al., 2011). These interactions lead to the continuity and coordination of individuals and provide a rationale for the strategic and routine behaviour of individual members within an organization. Thus, in the context of standards-based reform, the interactions between staff and students, as guided by the Ministry of Education, should in theory contribute to the embracing of teacher standards within each Education Colleges, and schools.

Broadly speaking, the TCSF is about inducting teachers into new modes of practice, which is more likely to occur when they have ongoing opportunities to engage and experiment with the TCSF. Thus, if the TCSF is embedded in purposeful policies and practices in the realms of performance and development, professional learning, and self-reflection, there is a greater likelihood of teachers embracing the TCSF. As expectations for Myanmar's teaching profession become more refined and aligned to the TCSF, the TCSF offers a vision for future practice and policy in Myanmar. The

TSCF offers the potential for a common national language and framework for self-reflection and feedback on teaching practice particularly if the TCSF is embedded in purposeful practices and policies, and supported through future implementation.

Yet at the same time, the enacted environment becomes a tangle of assertions in which actions are also outcomes that establish future expectations for each school. Educational change is impacted by a complex interplay of factors across schools and systems, and in our work with Myanmar's educators and education system, it remains clear that although levels of knowledge and understanding of the factors that improve student outcomes are increasing, enactment of high-quality teaching practice remains dependent on continued capacity building among educators, and investment in standards-based teacher education programs. While it is encouraging that much professional development for Myanmar's educators has focussed on the new curriculum, aligning professional development to the needs of individual teachers is still nascent. Indeed, no initiative is likely to be successful unless adequate time and resources are provided and those resources are explicitly targeted to areas where they are likely to have most impact. For Myanmar, continued funding for schools and students will alleviate pressure on parents and local communities and support the broader goals of Myanmar's education reforms, particularly in regard to equity and inclusion.

Our work in Myanmar has provided insights into the ways in which professional learning and development that engages teachers in locally situated and context-specific engagements position teachers to take ownership of their practice. Our research also demonstrates numerous examples of supportive leadership and mentoring practices that are driving engagement and connectedness with teachers and families during a period of educational reform. Supporting teachers in their day-to-day practice to effect improvements in learning for all students will be key.

Conclusion

Our experience in working with the education reforms in Myanmar confirms policy and practice challenges in similar contexts: alignment, capacity building, embeddedness and time. As the implementation of Myanmar's educational reform initiatives move forward, it is important to reflect on both the challenges and possibilities for educational improvement within the Union, particularly considering the political instability now facing Myanmar's educators and people. Myanmar has made significant gains in its approach to system and school improvement. Teacher standards provide a framework for quality teaching and learning, and are now being used as a basis teacher education courses in Myanmar, and the spread in awareness of the conditions that lead to high-quality teaching practice may itself prove to be an effective stimulus for practice improvement, even before all necessary systems are in place. The government will likely play a key role in supporting future reform, the ways in which such reforms are interpreted and put into practice in local contexts requires cooperation and collaboration across all levels of the education profession.

While this may be challenging if the voices of the profession are silenced in times of political uncertainty, there are still many reasons for optimism and opportunity to share lessons learned. Indeed, by providing support for continual education reform moving forward, the implementation of high-quality teacher education programs can become a shared responsibility between policymakers and practitioners alike.

References

Ahmed, S. K., Carslake, T., Dabrowski, A., & Lietz, P. (2020). Gender and ethnicity in Myanmar education. In *Baseline Study Report for the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) Committee.*

Ball, S. J., Maguire, M., Braun, A., & Hoskins, K. (2011). Policy actors: Doing policy work in schools. *Discourse: Studies in the cultural politics of education*, *32*(4), 625–639.

Ball, S. J. (2015). What is policy? 21 years later: Reflections on the possibilities of policy research. *Discourse: Studies in the Cultural Politics of Education, 36*(3), 306–313.

Barber, M., & Mourshed, M. (2007). *How the world's best-performing school systems come out on top.* McKinsey & Company. http://mckinseyonsociety.com/how-the-worlds-best-performingschools-come-out-on-top/

Barrett, A., Sajid, A., Clegg, J., Hinostroza, J., Lowe, J., Nikel, J., Novelli, M., Oduro, G., Pillay, M., Tikly, L., & Yu, G. (2007). Initiatives to improve the quality of teaching and learning: a review of recent literature. Background paper prepared for the Education for All Global Monitoring Report 2008 'Education for All by 2015: Will we make it?'

Call, K. (2018). Professional teaching standards: A comparative analysis of their history, implementation and efficacy. *Australian Journal of Teacher Education, 43*(3), 6.

Chung, H., & Kim, H. (2010). Implementing professional standards in teacher preparation programs in the United States: Preservice teachers' understanding of teaching standards. *KEDI Journal of Educational Policy, 7*(2), 365–377.

Clinton, J., Dinham, S., Savage, G., Aston, R., Dabrowski, A., Gullickson, A., & Arbour, G. (2015). Evaluation of the implementation of the Australian Professional Standards for Teachers.

Cochran-Smith, M., & Zeichner, K. (Eds.). (2005). *Studying teacher education: The report of the AERA panel on research and teacher education.* American Educational Research Association.

Dabrowski, A., & Spink, J. (2020). *Validation of the Myanmar Teacher Competency Standards Framework (TCSF) Final Report*. Australian Council for Educational Research.

Danielson, C., & McGreal, T. L. (2000). *Teacher evaluation to enhance professional practice.* Association for Supervision and Curriculum Development.

Darling-Hammond, L. (1998). Teachers and teaching: Testing policy hypotheses from a national commission report. *Educational Researcher, 27*(1), 5–15.

Darling-Hammond, L. (1999). Reshaping teaching policy, preparation and practice: Influences on the national board for teaching professional standards. AACTE Publications.

Darling-Hammond, L. (2001). Standard setting in teaching: Changes in licensing, certification, and assessment. In V. Richardson (Ed.), *Handbook of research on teaching.* American Educational Research Association.

Davis, D. (1962). Professional standards in teaching: Moving from ideas to action. *Journal of Teacher Education, 13*(2), 191–202.

Deetz, S. A. (1982). Critical interpretive research in organizational communication. *Western Journal of Communication (includes Communication Reports), 46*(2), 131–149.

Dinham, S., Ingvarson, L., & Kleinhenz, E. (2008). Investing in teacher quality: Doing what matters most', in *Teaching talent: The best teachers for Australia's classrooms.* Business Council of Australia.

Doecke, B. (2001). Public and personal domains: Professional standards for teachers of English in Australia. *Educational Studies in Language and Literature, 1*(2), 163–177.
Education Council of New Zealand. (2017). *Graduating teacher standards.* Retrieved from https://educationcouncil.org.nz/content/graduating-teacher-standards
Eisenberg, E. M. (2006). *Strategic ambiguities: Essays on communication, organization, and identity*. Sage Publications.
Elmore, R. F. (2002). Bridging the gap between standards and achievement: The imperative for professional development in education. In *Secondary lenses on learning participant book: Team leadership for mathematics in middle and high schools*, pp. 313–344.
Enkhtsogt, T. A., & Kim, Y. (2018). Major principles of ICT policy for improving ICT integration in education for students with disabilities in Mongolia. *Asia-Pacific Collaborative Education Journal, 14*(2), 21–32.
Fullan, M. (2010). *All systems go: The change imperative for whole system reform.* Corwin 2000 Press.
Goodall, H. L., Jr., & Eisenberg, E. M. (1997). The dispossessed. *Case Studies in Organizational Communication, 2*, 371–380.
Hargreaves, L. (2009). The status and prestige of teachers and teaching. In *International handbook of research on teachers and teaching* (pp. 217–229). Springer.
Honig, M. I. (2006). *New directions in education policy implementation.* Suny Press.
Hudson, P. (2009). How can preservice teachers be measured against advocated professional teaching standards? *Australian Journal of Teacher Education, 34*(5), 65–73.
Ingvarson, L. (1998). Professional development as the pursuit of professional standards: The standards-based professional development system. *Teaching and Teacher Education, 14*(1), 127–140.
Ingvarson, L. C. (2010). Recognising accomplished teachers in Australia: Where have we been? Where are we heading? *Australian Journal of Education, 54*(1), 46–71.
Kleinhenz, E., & Ingvarson, L. (2007). *Standards for teaching: Theoretical underpinnings and applications.* Australian Council for Education Research.
Loughland, T., & Ellis, N. (2016). A common language? The use of teaching standards in the assessment of professional experience: Teacher education students' perceptions. *Australian Journal of Teacher Education, 41*(7). https://doi.org/10.14221/ajte.2016v41n7.4
Masters, G. (2015). Raising the professional status of teaching. *Teacher Magazine.* Retrieved from https://www.teachermagazine.com.au/geoff-masters/article/raising-theprofessional-status-of-teaching
Mayer, D., Mitchell, J., Macdonald, D., & Bell, R. (2005). Professional standards for teachers: A case study of professional learning. *Asia-Pacific Journal of Teacher Education, 33*(2), 159–179.
Ministry of Education. (2016a). *National education strategic plan 2016–21. Summary*
Ministry of Education. (2016b). *Operational guidelines for the school grant program,* 2016–2017 School Year.
Mpokosa, C., Ndaruhutse, S., McBride, C., Nock, S., & Penson, J. (2008). Managing teachers. The centrality of teacher management to quality education. Lessons from developing countries. Retrieved from www.cfbt.com/evidenceforeducation
Organisation for Economic Cooperation and Development [OECD]. (2005). *Teachers matter: Attracting, developing and retaining effective teachers.* OECD.
Sergiovanni, T. J., & Starrat, R. J. (2002). *Supervision: A redefinition.* McGraw-Hill.
Spillane, J. P., Reiser, B. J., & Reimer, T. (2002). Policy implementation and cognition: Reframing and refocusing implementation research. *Review of Educational Research, 72*(3), 387–431.
STEM & My-EQIP. (2018). Teacher Competency Standards Framework (TCSF) Beginning teachers. Draft Version 2.2, 27 December 2018. Nay Pyi Daw, Myanmar: Myanmar Education Quality Improvement Program (My-EQIP) & UNESCO.
STEM & My-EQIP. (2019). *Teacher Competency Standards Framework (TCSF) validation study. Expert review survey and information sheet*. Nay Pyi Daw, Myanmar: Myanmar Education Quality Improvement Program (My-EQIP) & UNESCO.

Tang, S., Cheng, M., & So, W. (2006). Supporting student teachers' professional learning with standards-referenced assessment. *Asia-Pacific Journal of Teacher Education, 43*(2), 223–244.

Tatto, M. T., Ingvarson, L., Schwille, J., Peck, R., Senk, S.L., & Rowley, G. (2008). Teacher Education and Development Study in Mathematics (TEDS-M): Policy, practice, and readiness to teach primary and secondary mathematics. Conceptual framework. *International Association for the Evaluation of Educational Achievement*. Teacher Education and Development International Study Center, College of Education, Michigan State University.

Tuinamuana, K. (2011). Teacher professional standards, accountability, and ideology: Alternative discourses. *Australian Journal of Teacher Education, 36*(12), 72–82.

Weick, K. E. (1988). Enacted sensemaking in crisis situations [1]. *Journal of Management Studies, 25*(4), 305–317.

World Bank. (2012). System Approach for Better Education Results (SABER): what matters most in teacher policies? *A framework for building a more effective teaching profession.* World Bank.

Chapter 35
Embedding Action Research in Philippine Teacher Education

Richard Jugar and Sylvester Cortes

Abstract Action research as a form of systematic inquiry has always been used as a tool in improving contextualized educational practice. In the Philippines, the most recent teacher education curriculum specifies action research as the type of educational research to be taught in the education research course as identified in the teacher education program. This paper presents how action research is embedded in the teacher education program along with some accounts of the experiences of students who have recently completed the course on educational research. The students' experiences were analysed based on the definition of action research as provided by the Department of Education. The four aspects include (1) action research as a systematic inquiry, (2) action research as a reflective inquiry, (c) action research as a tool for improving education practice, and (4) the operating unit of pre-service teachers' developed action research action research. A tri-pillar model on teaching action research to pre-service teachers is forwarded based on both the agreed definition and the students' accounts with emphasis on the limitations of actual teaching experience akin to pre-service teacher education.

Keywords Action research · Teacher education · Higher education

For the past years, the Philippines has adopted a number of significant educational reforms that cut across all levels of both formal and non-formal education sector. The Enhanced Basic Education Act of 2013 through Republic Act 10533 essentially transformed Philippine basic education from K-10 to K-12. The addition of two years in basic education through the establishment of two more years in senior high school effectively places the Philippines within steps of other nations in Southeast Asia in particular, and to the rest of the world in general. The enhanced Philippine basic education enumerates a number of features that include (1) strengthening early

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childhood education through universal kindergarten; (2) making the curriculum relevant through contextualization and enhancement; (3) ensuring integrated and seamless learning through spiral progression; (4) building proficiency through language with mother-tongue-based multilingual education (MTBMLE); (5) gearing up for the future through the implementation of two added academic years or senior high school; and (6) nurturing the holistically developed Filipino through the development of livelihood and college readiness with twenty-first-century skills (Department of Education, 2012).

In higher education, the Philippines institutionalized the use of Outcomes-based education (OBE). In 2012, the Commission on Higher Education (CHED) issued CHED Memorandum Order (CMO) No. 46 on Policy-Standard to Enhance Quality Assurance (QA) in Philippine Higher Education through an Outcomes-based and Typology-based QA. The different higher education institutions were also typologized horizontally and vertically based on their qualifications and focus. Horizontally, HEI's are categorized as universities, colleges, or professional institutes, while vertically, an HEI may be autonomous, deregulated, or regulated. With this typology, the highest designation of an HEI is an autonomous university. Graduate education has also been redefined and expanded to cover multiple arrangements and modalities including new areas of focus and development (Commission on Higher Education, 2019). These reforms are consistent with, and in accordance with the ASEAN Reference Qualification Framework (ARQF, 2014) and its contextualized counterpart—the Philippine Qualification Framework (PQF, 2012). As expected, the massive educational reforms from basic to graduate level education directly impacted the teacher education programs as well as the in-service professional development requirements of professional teachers.

Teacher Education in the Philippines

The teacher education program in the Philippines is a four-year degree equivalent to Level 6 of both PQF and ARQF. CMO 34s. 2004 on the Revised Policies and Standards for Undergraduate Teacher Education Curriculum was the last reference document prior to the adoption of K to 12 in 2013 (CHED, 2004). The program may be roughly categorized into three based on the intended levels to which the graduate will teach: secondary education, elementary education, and early childhood education. Special education is also offered but is generally subsumed within the elementary education. In terms of course distribution, the teacher education program has three distinct sets of courses that include the general education courses, the professional education courses, and the specialization courses. The curriculum is also designed to include an experiential component in the form of field studies and student internship. Prior to completion of the degree, teacher education students are expected to undergo a practicum (teaching internship program) in the final year where the graduating teacher education student acts as a teacher in a typical class under the supervision of a mentor.

In 2017, two new CMO's were released detailing the different specializations in the Philippine Teacher Education Program. CMO 74 focusses on the program Bachelor of Elementary Education, while CMO 75 details that of the Bachelor for Secondary Education program. The same documents also identified the different courses for each program and their corresponding credits. These new programs are aligned with the identified features of the Philippine K to 12 curriculum as a means of ensuring that the future teacher education graduates are prepared to teach in an enhanced Philippine basic education setting. One of the highlights is the *integration of action research in the undergraduate curriculum.* The recently deployed teacher education program identified two courses of research with an explicit focus on action research as the type (CHED, 2017a, b). In this paper, we draw from literature, our own experiences, as well as the actual experiences of teacher educators and teacher education students to argue that while the integration of action research in pre-service teacher education is both promising and essential, it carries with it substantial challenges and limitations that should be systematically addressed. In particular, this paper presents the current state and context of teaching action research in pre-service teacher education and to forward a model on how the teaching of action research may be improved. Towards this aim, we intend to answer the following questions:

1. How is action research embedded in the current teacher education curriculum?
2. What are the pre-service teachers' experiences in learning action research as embedded in the current teacher education curriculum?
3. What model of teaching action research in pre-service teacher education may be developed based on these experiences?

Action Research in Philippine Teacher Education

The definition, scope, and application of action research as documented in literature has evolved over time. Cilliers (1999) summarized the different classifications from the works of several authors as shown in Table 35.1.

In terms of approach, there are a number of models in literature that outline the possible steps and processes associated with the conduct of action research such as Lewin's Model (1952), Townsend's Approach (ATA, 2000), Kemmis and McTaggart Action Research Spiral/Cycle (2005), McNiff and Whitehead's Action-Reflection Cycle (2011), and Johnson's Action Research Model (2008, cited in Mertler, 2017). All of these models identify three basic aspects of what constitute action research: systematic inquiry, reflective approach, and improvement of policy or practice.

In the context of Philippine teacher education, action research is defined as "a process of systematic, reflective inquiry to improve educational practices or resolve problems in any operating unit (i.e. school, classroom, office)" (Department of Education, 2017 p. 2). This definition of action research is used since this is essentially what is expected of practising or in-service teachers. The ability to conduct action research is also one of the subject-specific competencies in teacher education identified by Tuning Asia—Southeast (Jugar & Tena, 2019). Moreover, the Southeast Asia

Table 35.1 Classifications of Action Research from the Perspectives of Different Authors

Researchers	1	2	3
Grundy (1988)	Technical	Practical	Emancipatory
McCutcheon and Jurg (1990)	A positivist perspective	An interpretive perspective	A critical science perspective
Kemmis and McTaggart (1990)	Collective	Self-reflective	Enquiry
McKernan (1991)	The scientific–technical view of problem-solving	Practical–deliberative action research	Critical-emancipatory action research
Holter and Schwartz-Barcott (1993)	Technical collaborative approach	Mutual collaborative approach	Enhancement approach

Teacher Competency Framework (SEA-TCF) also highlights this competency as it expects teachers to "conduct action research to improve practice… and to publish or share action research findings in local, national, and international journals and conferences" (SEA-TCF, 2017 p. 16).

The number of credits or "units" allocated in teaching research for Philippine teacher education range from 3 to 4. For most programs, a 3-unit credit is allotted in the teaching of research that is equivalent to a one semester course with three-hour weekly contact time. Only the Bachelor of Secondary Mathematics Education program lists a 4-unit allotted credit. As the CMO does not explicitly indicate how action research should be taught, different higher education institutions will have a different interpretation and consequent implementation of the course. Moreover, the CMO only stipulates the minimum requirements and HEI's are relatively free to go over and beyond what is listed. For instance, some HEI's increase the course allocation for action research to 2 courses instead of 1, effectively increasing the credit allocation from 3 to 6.

The teaching of action research essentially covers two distinct parts, at least in the Philippine context of teacher education. The first part is the knowledge component of teaching where students are taught what is action research and the processes associated with its conduct. The other part is the actual application or conduct of an action research. Usually, the outcome of the course on action research is stated in terms of students formulating an action research proposal, its implementation, and dissemination of results. Currently, literature on action research in pre-service teacher education in the Philippines is extremely scarce. Studies by Morales et al. (2016), Cortes (2019) and Cortes et al. (2021a, 2021b) focussed on in-service Filipino teachers' conceptions and needs on action research and they found out that the almost all components of action research were rated with moderate difficulty ranging from identifying issues and problems to be investigated to presentation and dissemination. While it may be argued that the respondents of the said study are products of the old teacher education curriculum, research in education has always been a part of

the Philippine teacher education curriculum suggesting that research in general and action research in particular has not been sufficiently addressed in pre-service teacher education. In an attempt to collect first-hand data on what transpires within the research courses of the pre-service teacher education, the next section details the experiences of undergraduate teacher education students in learning action research as embedded in their educational research course.

Pre-service Teachers' Experiences in Learning Action Research

The actual experiences of the pre-service teacher education students in their respective educational research courses were inquired upon and documented. The process of inquiry adapts the approach of Willis and Granger (2020) that anchors the design on theoretical phenomenology and individual cases as the unit of analysis. The succeeding subsections present the five case summaries to provide insights into pre-service teachers' experiences in learning action research embedded in the current teacher education curriculum.

Liza's Case

Liza is in her third year of taking Bachelor of Secondary Education (BSEd) in a state university, of which she majors in English language teaching. Currently, she is part of a seven-member research group, including two mentors, an in-service teacher from a public secondary high school teaching English, and their professor handling the action research course. Their research project originated from an action research proposed by their in-service teacher mentor, which explores the effectiveness of modular learning on developing students' self-regulation skills and conceptual understanding of selected topics in English 10. This research topic was conceptualized after face-to-face classes in basic education were not permitted by the Philippine government brought by the spread of novel coronavirus in the country since March 2020. She mentioned that she appreciates the idea of working on an action research project as a group, and that the topic they are working on is grounded on actual classroom issues rather than formulating the research topic on their own. Liza described this learning experience as both "authentic" and "active learning". She explained,

> I got to immerse myself in what teachers do to improve their teaching practices which is through engaging in action research. I felt like I was able to really put the theory into practice. Our mentors allowed us to work collaboratively in all facets of the project, meaning we were assigned to work only on specific tasks. Thus, I get to improve my skills in different areas of research ranging from formulating a topic to collecting and interpreting data then finally to writing the manuscript.

Despite these descriptions of her experiences, she had several criticisms regarding the monopoly of pedagogy used by their professor during the periods when they developed their action research proposal. She said they were only given modules or course packages. There were no virtual lectures but only virtual consultations to discuss about their problems or concerns when writing the proposal. Fortunately, their in-service teacher mentor was already with them right from the start, so she instead addressed their questions in lieu of the role of their research professor. Liza was also concerned with the paradigmatic orientation of their mentors. She has recognized the expertise and interest of their mentors in qualitative but not in quantitative research designs. However, in their study, both were of equal importance as they used mixed-methods research. They had to consult some other mentors who can help them in the quantitative aspect of their study. She explained that even their modules contained limited inputs in quantitative research designs. Finally, she had criticisms about the contents and structures of the module. There is an imbalance of inputs in some chapters. In this regard, she said,

> If inputs were limited in some parts of the module, I had to research. I was just expecting that everything should be discussed explicitly there because we did not have lectures. I am just saddened that some of my classmates do not have at all times the luxury to be in the internet café when the need arises.

From these criticisms, Liza gave several recommendations to improve the teaching of the course. First, modular learning should be coupled with virtual lectures because some misconceptions may arise in self-paced learning. Second, during virtual lectures, the research professor should invite experts to talk about certain topics of action research because one does not have a monopoly of knowledge. Third, a textbook may be adapted rather than using professor-made modules which have not undergone thorough validation. Fourth, an inclusion of statistics in the BSEd English curriculum is desirable because our research does not limit to qualitative research designs. This course should be a prerequisite.

Middleton's Case

Middleton also studies English language teaching in a state university. She is currently a third-year student and recently presented the results of their group action research project to a panel of examinees. Their project aimed to develop the reading comprehension of Non-English major pre-service teachers using a centrally developed practice which they adapted. Contrary to Liza's case, Middleton, together with her group, implemented their research project in a tertiary class, and the professor of the class who originally taught the course did not act as a mentor. In other words, only their research professor acted as their sole research mentor. The English professor just gave them two weeks to use his class to implement their action research project online. The implementation took one week after the approval of their proposal, and since they had the shortest implementation period, they were the first group to finish

their research project in the entire class. Middleton expressed her pride in being the earliest group to submit their project.

However, when she was asked about her overall experience in engaging with action research, she described it as "very challenging" during this time. According to her,

> The constant craving for knowledge and assistance from experts in the field remain unsatisfied. The modules which were distributed to serve as guides for instructions were helpful yet not satisfying the total needs of pre-service teachers. The contents were limited, and you could really tell the difference of it being explained by the professor during face-to-face classes.

She added that although modules are only one form of delivering instructions as they adapt asynchronous classes, the professor's interaction time and responses were still limited. In this regard, she made extra efforts to understand concepts that were not explicitly discussed in the module and during virtual lectures by reading research articles from Google Scholars, Academia, and other reputable websites.

Despite these challenges, Middleton has several key learnings from engaging in action research. For one, she realized that an action research topic should be selected based on its timeliness, needs of the context, and the amount of time required for it to be completed. Two, the review of related literature is equally important with other parts of an action research. Through literature, we are informed of the gaps and existing interventions of the problem being studied. She warned that one must be able to judge the reliability of the sources and that we should develop a taste for quality sources. Non-scholarly sources such as Wikipedia and articles archived in predatory journals should not be used. Three, it is important that one can judge the appropriate research designs, data gathering procedure, and data analysis for a certain research objective or question.

From the challenges also, she gave some suggestions to improve the teaching of the course. First, a face-to-face meeting with the research professor may be done at least once every two weeks, provided safety protocols will be observed. Second, there should be pre-recorded materials to be supplemented because not all concepts introduced in the modules will be discussed during virtual lectures. Finally, a research professor should have in-depth knowledge of data analysis software, referencing and paraphrasing software, plagiarism software, and some other technological tools relevant in doing research. She contended,

> Action research does not operate all alone by writing. Technology is one of the forerunners of a successful research project. We need software to search articles, reference, analyze data, paraphrase, and determine plagiarism index.

Harry's Case

Harry studies BSEd major in Mathematics in a private sectarian university. At present, he is also a third-year student and belongs to a 17-student class. This class is divided into four research groups, and each group has three other mentors aside from their

professor handling the action research course. One mentor is a Mathematics teacher from the basic education department of their university who also acted as their cooperating teacher in their Field Study (FS), a professional education course embedded in the teacher education curriculum. The other two mentors are an English language expert and a statistician. According to him, the action research project they were working on investigated the effect of formative assessment feedback on eighth-grade students' ability to solve mathematical word problems. The project was implemented in the class of their mentor, who teaches Mathematics in Junior High School. It is now completed, and they are just waiting on their scheduled oral defense.

He described his overall learning experience in this research course as "authentic", "engaging", and "empowering". He shared some of the practices they had, which explains his desirable experience in the course.

> We are very involved in our action research project from the start until the end. The topic we investigated was conceptualized during our observations in the online classes in Mathematics of grade eight students as part of our FS. We observed that the teacher consistently gave formative assessments to her grade eight students, but the results were not maximized. In other words, there was no feedback coming from the teacher regarding her students' performance during formative assessments. We believe that such feedback would help build the students' success in solving word problems. By then, we proposed this topic to our research professor and cooperating teacher. They were very much supportive in the project.

After the topic was conceptualized, Harry said that there were series of lectures from their professor and invited guests to talk on certain parts of the action research proposal. He mentioned that their research professors also required them to attend webinars before writing their proposal, which professional organizations organized. Among the webinars they attended were ethical issues in action research, using different statistical software, and searching articles from different research databases to which their university has a subscription. Before the implementation of their project or during the proposal writing period, Harry admitted,

> It was quite challenging to interact with our mentors virtually due to internet connection issues, but they are approachable and willing to extend extra effort, time, and resources. Aside from lectures and webinars, we have separate sessions for mentoring and consultation. I think that is the advantage of small class size.

During and after the implementation of the project, he described his experience as "energy-draining". He was assigned to teach the lessons in the class they investigated, but he also perceived it to be "engaging" and "empowering". He stressed, "*I really felt those times as a teacher looking for ways to improve my practice*". While he did the teaching, his group mates were assigned to observe the class and collect data. They all had specific tasks in every part of the action research for a collective goal. Eventually, data were processed with their statistician and their research professor's help in preparation for writing their results.

> Our professor was with us all the time. I was so happy because I worked with supportive colleagues and mentors.

Harry recognized the critical roles of each member in the project at the end of their project, and that action research should be collaborative. He opted not to give a list

of suggestions except for his desire to be trained to write their paper in a publishable format and publish it in a reputable journal before they finish their degree.

Alexander's Case

Alexander is a third-year BSEd student who specializes in science education in a private non-sectarian university. He belongs to a research group composed of three members, excluding their research professor. Their action research project explored the effect of collaborative learning activities in developing student's motivation in an online Science, Technology, and Society (STS) synchronous class. They implemented this action research project in an STS class also taught by their research professor.

From his experience, he viewed action research as a means of improving educational outcomes. He said,

> We had an FS subject of which we were required to observe classes. However, during this time, we do not have off-campus observations, so we were assigned to observe college online classes. As I immersed myself in this experiential learning course, I realized that professors encountered so many problems in the field, especially during this period. One of the problems we observed is developing and sustaining student's motivation in online classes. Hence, we came up with such a research topic. Our goal was to help our research teacher improve his teaching practices and the educational outcomes in STS.

At present, Alexander and his group completed the project and are about to present it to the thesis committee. He admitted that his experience throughout the research process was not easy, but it taught him to become self-regulated.

> Our professor only provided us modules, and he connected to us through different online platforms such as Google Meet, Zoom, Facebook Messenger, and whatever is available only if the need arises. I have experienced studying all by myself because I was ashamed to drop a message to my professor, although he is not strict. If ever I encountered challenges, I read articles and asked help from my colleagues in the group.

In particular, the challenges which he encountered include: (a) terms in the research method which he is unfamiliar; (b) research and review articles provided by the teachers but were not explained; (c) development and validation of the instrument, which led them to adapt instead; (d) analysing quantitative and qualitative data; and, (e) judging whether their action research follows ethical rigour. He expressed, "*The more I read, the more I am conscious of what we were doing in our project. Our research professor was seldom with us when we implemented our project*".

In view of these challenges, he offered several recommendations to improve the teaching of the course. First, the professors should build a good rapport with their students because a personality like his restricts him from communicating with his professor because he is afraid that he may not respond. Second, the professor should use multiple pedagogies to teach the course concepts effectively. He explained that the teaching practice of his professor focusses on the use of modules alone. Third, regular

virtual lectures and consultations should be done because students need facilitators and mentors. They may have unlimited access to articles or materials they need, but they need explanations of these. Fourth, research professors should teach by experience. He said, "*The experiences I am pertaining refer not to the research conferences they joined but the actual research engagement they have*". According to him, this is one reason why professors struggle to connect theory with practice.

Nova's Case

Nova is a third-year student at a local college where she studies BSED major in science. According to her, seven of them in a group conducted research on developing students' motivation and attitudes in science through project-based learning. Their research professor acted as their sole mentor while mentoring two other groups. She said, "*It is difficult to share a mentor with other groups, but I understand. The science education department does not have enough faculty to do the mentoring*". She added that she was also struggling to manage a large number of members in a group being assigned as the leader. "*Some of the members were no longer functional*".

In this regard, she described her experience as "exhausting" and "stressful". She explained that it demands so much time, resources, energy, and effort. Right from the start, it took them four attempts before their topic was approved.

> The frustration we had was immense, but I know our professor had to reject the topics we previously presented because she wanted us to work on a quality action research project. When she gave her approval, our next dilemma was to write the proposal. There were conflicts in the group because some members preferred specific parts that others had the same preference too. Nobody wants to be assigned to write the review of related literature and methodology sections. We had textbooks, modules, and some electronic materials, but there were no thorough discussions because our school also adapted a modular learning approach the same with other schools.

Nova added that when they finished their specific tasks, they had to align all parts again. Hence, they were unable to present their action research proposal on their assigned date.

On a positive note, the group members agreed to work collaboratively during the implementation of the project. "*It was really a lesson learned among every one of us*", Nova said. Their project was implemented in one of the sections taught by their research professor. She said that their professor was also hands-on during their action research implementation. Also, their professor sought help from a language expert, statistician and coordinated with a nearby university to submit their paper for plagiarism check. Nova narrated her key takeaways during this part of their research,

> I have learned that in conducting research, one must be patient and objective in collecting and analyzing data. One should not commit fraud in fabricating or modifying the data. These practices would lead to bias and false results. Also, we need to use statistical software and some data management systems because we may not intentionally alter the data, but

> the manual analysis would likely result in an inaccurate calculation, thus, presenting incorrect findings. The presentation of these results should also follow the recommendation of professional organizations such as the American Psychological Association (APA).

From Nova's experiences, she recommends some practical strategies to improve the teaching of the course. One, each group should have separate mentors, and the number of members in a group should be limited between three or four. She explained, "*Although action research should be collaborative, it is not ideal to have many members*". Two, the research professor can suggest researchable topics in the event that the proposed topics by the students do not meet her standard to save time. They know best regarding the problems in the classrooms and school. Third, modular learning should be blended with virtual lectures by the professor and invited experts. The students need to interact with them. Fourth, the college should have subscriptions to the necessary software for doing research. Fifth, the teacher handling the course should not be an entry-level teacher. She said,

> Teachers' experience is a big factor that determines students' success in a course. If neophyte teachers are assigned to teach the course, they should be trained prior through giving them the opportunity to attend professional development programs.

She is concerned that an emerging teacher teaches them in one of the content courses of their program.

Deconstructing the Learning Experiences

The narratives of the five teacher education students on their experiences in learning action research as embedded in their educational research course were deconstructed based on the four aspects of action research as defined. These four aspects include: (1) action research as a systematic inquiry, (2) action research as a reflective inquiry, (c) action research as tool for improving education practice, and (4) the operating unit of pre-service teachers' developed action research. The overall approach is deductive, with the four aspects serving as the predetermined foci of interests in the analysis of the narratives (Nowell et al., 2017). The deductive approach was employed as it addresses the need to summarize the key features of the data while keeping a well-structured approach to ensure that the resulting interpretations adhere to the context of pre-service Philippine teacher education.

Action Research as a Systematic Inquiry. Action research is categorically a legitimate form of research that qualifies it as a form of systematic inquiry. The engagement of pre-service in doing action research morphs teacher education students as teachers doing research to improve practice, a process described by Manfra (2019) as placing them at the centre of research-into-practice. This pedagogical approach led them to have active engagements and authentic experiences in the action research process. Hence, they described their overall learning experiences as engaging, active learning, authentic, and among others. Some may have experienced it to be challenging, exhausting, and stressful, but these are found out

to be common even among in-service teachers, as revealed by several studies (e.g. Morales et al., 2016; Ulla et al., 2017). What matters is that these experiences prove that their professors are not merely teaching them the course's concepts, but more importantly they are tasked to immerse themselves in performing the instructional tasks or research processes and completing the action research projects.

In particular, the instructional tasks of the course essentially required them to systematically and collaboratively formulate research topics and questions related to their practice, develop practical actions or solutions for the problem, gather and analyse multiple types of data, make use of the results to refine or improve practice, and write the research article. This process–product approach of teaching and learning culminates with a completed action research project which is to be presented by the pre-service teachers before the panel of examinees. Looking into the practices of professional development programs for in-service teachers, some studies (e.g. Hathorn & Dillon, 2018; Paredes-Chi & Castillo-Burguete, 2018) revealed that the programs ended with completed research as a participant's output. In the same manner, the course outcome of action research for undergraduate teacher education of the teacher education institution where case study student-teachers belong is the same. The completion of this research project indicates that they engaged throughout the entire action research process, indicating that both action research products and processes are given equal importance. There may be variations in their experiences, but those are confined to what their respective professors have used in pedagogy, assessment and evaluation, technology, mentoring approach, and others.

Action Research as a Reflective Inquiry. Pre-service teachers also recognized that learning action research developed them to become reflective of their practices or the ability to question their own assumptions regarding teaching and learning (Strand, 2006). There are two instructional practices that could prove this experience by the student-teachers.

For one, they were encouraged to investigate a topic grounded on actual classroom issues of which they were tasked to identify a range of classroom problems, reflect on them, and come up with a practical solution. As Harry and Alexander disclosed, the topics they investigated were grounded on their observations from an experiential learning course. Harry said,

> The action research we worked on did not just come out because we were curious about it. We were really tasked by our professor to properly observe in the classes and identify the pressing need until we decided to address the misuse of formative assessment. Even the development of our action to the problem was not done at the click of our fingers. We reviewed and reflected on the literature until we arrived at a consensus that we will use feedback as our action or intervention.

By these practices, the professor is preparing them to become reflective and autonomous professionals rather than mere teachers or practitioners who conduct only classes as expected from their function in the latter part of their professional paths.

Two, as they were tasked to resolve only perceived classroom problems, the course introduced them to one type of action research known as "reactive". Nonetheless, even in-service teachers have a cognitive constraint to this type of this action research

typology according to purpose as revealed by Cortes et al. (2021a, 2021b).This research typology is characterized by providing a solution or correcting existing problems and/or improving existing conditions (Craig, 2009). Alexander narrated,

> Our professor always told us that the topic which we should investigate should be based on existing problems, not those theoretical ones. I mean problems that do not exist now but may exist in the future or would not even exist. Thus, as I notice, all the action research in our class focused on resolving existing problems. For instance, we observed that students in an online STS class lacked motivation, so we decided to act on it by giving them collaborative learning activities.

However, while there is nothing wrong with using one type of action research, the professor missed that action research could also be proactive. It is the counterpart of the reactive action research process which is used to identify first the potential problems which researcher conducts a systematic inquiry to improve conditions. It is less popular compared to the former action research type and this popularity of the former creates cognitive constraints among in-service and pre-service teachers. Nonetheless, whether reactive or proactive, both share the same characteristics (e.g. continuous inquiry, professional reflection, and continuous improvement), but the steps or processes are rearranged (Craig, 2009).

Action Research as a Tool for Improving Educational Practice. One of the purposes of action research is to improve educational practice as established in the literature (e.g. Leitch & Day, 2000; Rönnerman, 2003; Young et al., 2010; Department of Education, 2017 p. 2). In this regard, pre-service teachers enrolled in Philippine Teacher Education Programs are tasked to design and implement action research studies congruent only to this feature and goal of the research method. As revealed by the research projects of case study pre-service teachers, their studies are confined within the areas of improving instruction, curriculum, pedagogy, and assessment.

There are some narratives which prove that research professors ensure that that action research studies conducted by their student-teachers are aimed at improving educational practice, e.g.

> When our professor said that we should be working on quality action research projects, she meant that our research is aimed at resolving a problem grounded in the realities of the classroom.

> We worked on developing student's motivation in a synchronous STS class because our professor kept on reiterating that action research aims to improve practice and educational outcomes. We saw the lack of motivation of students as an opportunity to improve teacher's practice by way of introducing collaborative learning activities.

Operating Unit of Pre-service Action Research. All action research projects for all case study pre-service teachers operate at the classroom level, although its scope may expand until national or even international scale. One explanation of why their studies share the same scope is their lack of exposure to problems in management levels, policy, curriculum implementation, and other areas of education. Their observations and experiences dictate the scope and nature of the research topic they will intend to study, and these are largely confined in the classroom setting since they have yet to teach in actual schools.

Model of Teaching Action Research in Pre-service Teacher Education

The teaching of action research in pre-service teacher education as experienced in the context of Philippine teacher education program highlights the unique context of pre-service teacher education students compared to their in-service counterparts. While practising or in-service teachers have both the teaching experience and the actual school setting to draw inspirations from, pre-service teachers have only two distinct sources: personal experiences as a student and perceived classroom realities as an external observer.

Using the identified aspects derived from the definition of action research by the Department of Education in 2017, each of the aspects are described in the context and experiences of a typical pre-service teacher education student along with the possible scaffolds to ensure that teaching of action research considers both limitations and opportunities unique to the pre-service teacher education setting. The proposed of model of teaching action research in pre-service teacher education identifies three distinct pillars as follows:

1. Teaching action research as a systematic inquiry anchored on the experiential learning courses component of the curriculum
2. Teaching action research as a reflective inquiry through explicit inclusion of specific sub-problems targeting researchers reflections on the experience of conducting action research
3. Teaching action research as a means of improving instructional practice focussing on the classroom as the operating unit.

The three pillars as identified contextualizes the definition of action research in the realities of pre-service teacher education. Since the course on educational research is usually taken during the third year of undergraduate teacher education, the students have not had any actual classroom teaching experience as of yet because the practice teaching component is usually reserved in the second semester of the final year of the program (Commission on Higher Education, 2017a, 2017b). As an alternative, pre-service teachers will only have the classroom observations as embedded in the field study courses of their professional education subjects. In the field study courses, students are asked to observe actual classes taught by in-service teachers. Depending on the professional education course where the field study course is tethered, the focus of the observation varies and may include assessment, teaching strategies, classroom management, etc. The process of observing what transpires in the classroom can provide an acceptable entry point in identifying potential research problems for the students' action research (Barendsen & Henze, 2019; Frank, 1999).

The formulation of a sound research problem and the development of the research proposal towards the implementation of a specific intervention and the dissemination of the results addresses the aspect action research as a systematic inquiry (Kemmis & McTaggart, 2005). In the process, the second pillar of the model advocates that a specific research question focussing on the reflective aspect of the research process

should be explicitly included in the formulated action research itself. The inclusion of a reflective-based research questions such as those focussing on the pre-service students' insights and thought processes leading to the formulation of the problem and the consequent experience of conducting the actual action research itself will ensure addressing the aspect of action research as a reflective inquiry (Loughran, 2010). This also ensures that the pre-service students are directly reminded that action research is a reflection-driven form of inquiry that originates from the teacher's deliberate act to reflect on the current state of things with the goal of improving educational outcomes through the implementation of a specific sets of actions or interventions.

Lastly, pre-service teachers are expected to be classroom teachers upon completion of their degree. Recognizing the limitation of their identifiable basis for developing action research problems as stemming from their own experiences or as a product of their classroom observations in their field study courses, it is important that teaching of action research also aligns the operating unit: the classroom. The choice of a classroom as the unit to which improvement in educational practices will be anchored is reasonable as it allows the pre-service teachers to explore an environment that is both readily available and easily relatable. Using a specific office in particular or the school in general as the operating unit in the development of action research may prove counterproductive for pre-service teachers as the students essentially lack the experience to fully grasp the context (Blaik Hourani, 2013).

The tri-pillar model of teaching action research for pre-service teacher education as described does not necessarily negate the possibility that students can and may conduct action research in any and all aspects of educational practices and settings. However, this model stems from the unique experiences and realities of pre-service teacher education students. This may be considered as an initial approach of teaching action research that may be subsequently expanded for in-service teacher education professional development on action research.

References

Alberta Teachers Association. (ATA). (2000). *Action research guide for Alberta teachers.* Alberta Teachers Association.

ASEAN. (2014). *ASEAN qualifications reference framework (AQRF).* Retrieved from https://asean.org/wp-content/uploads/2017/03/ED-02-ASEAN-Qualifications-Reference-Framework-January-2016.pdf

Barendsen, E., & Henze, I. (2019). Relating teacher PCK and teacher practice using classroom observation. *Research in Science Education, 49*(5), 1141–1175.

Blaik Hourani, R. (2013). Pre-service teachers' reflection: Perception, preparedness and challenges. *Reflective Practice, 14*(1), 12–30.

Cilliers, W. J. (1999). *An experiential learning process for the advancement of previously disadvantaged employees in an industrial context*. University of Pretoria.

Commission on Higher Education. (2004). *CHED Memorandum Order No. 30: Revised Policies and Standards for Undergraduate Teacher Education Curriculum.* Commission on Higher Education.

Commission on Higher Education. (2012). *CHED Memorandum Order No. 46: Policies-Standard to Enhance Quality Assurance (QA) in Philippine Higher Education through an Outcomes-based and Typology-based QA and Guidelines for Graduate Programs.* Commission on Higher Education.

Commission on Higher Education. (2017a). *CHED Memorandum Order No. 74: Policies, Standards and Guidelines for Bachelor of Elementary Education (BEEd).* Commission on Higher Education.

Commission on Higher Education. (2017b). *CHED Memorandum Order No. 75: Policies, Standards and Guidelines for Bachelor of Secondary Education (BSEd).* Commission on Higher Education.

Commission on Higher Education. (2019). *CHED Memorandum Order No. 15: Policies, Standards and Guidelines for Graduate Programs.* Commission on Higher Education.

Cortes, S. T., Pineda, H. A., Lorca, A. S., Gador, S. C., Mangompit, R. M., & Pacaldo, F. J. (2021a). Examining perception on action research of basic education teachers. *Malaysian Online Journal of Educational Sciences, 9*(2), 1–11.

Cortes, S. T., Pineda, H. A., & Geverola, I. J. R. (2021b). Examining competence in action research of basic education teachers in Cebu City, Philippines. *Journal of NusantaraStudies*, *6*(2), 202–230. https://doi.org/10.24200/jonus.vol6iss2pp202-230

Cortes, S. T. (2019). Needs assessment on action research competencies of teacher-researchers in Surigao del Sur, Philippines. *Journal of Education Naresuan University*, *21*(4), 1–19.

Craig, D. V. (2009). *Action research essentials* (1st ed.). Jossey-Bass.

Department of Education. (2012). What is K to 12 Program? Retrieved from https://www.officialgazette.gov.ph/k-12/

Department of Education. (2017). DepEd Order No. 16: Research Management Guidelines. Retrieved from https://www.deped.gov.ph/2017/03/20/do-16-s-2017-research-management-guidelines/

Enhanced Basic Education Act. (2013). Retrieved from https://www.officialgazette.gov.ph/2013/05/15/republic-act-no-10533/

Frank, C. (1999). *Ethnographic eyes: A teacher's guide to classroom observation.* Heinemann.

Grundy, S. (1988). Three modes of action research. In: S. Kemmis & R. McTaggert (Eds.), *The action research reader* (3rd ed.). Deakin University Press.

Hathorn, C., & Dillon, A. M. (2018). Action research as professional development: Its role in education reform in the United Arab Emirates. *Issues in Educational Research, 28*(1), 99–119.

Holter, I. M., & Schwartz-Barcott, D. (1993). Action research: What is it? How has it been used and how can it be used in nursing? *Journal of Advanced Nursing, 128*, 298–304.

Jugar, R., & Tena, O. (Eds.). (2019). *Reference points for the design and delivery of degree programmes in teacher education.* Deusto University Press.

Kemmis, S., & McTaggert, R., (1990). *The action research planner*. Deakin University Press.

Kemmis, S., & McTaggart, R. (2005). Participative action research: Communicative action and the public Sphere In N. K. Denzin & Y. S. Lincoln (Eds.), The SAGE handbook of qualitative research (3rd ed.). Sage.

Leitch, R., & Day, C. (2000). Action research and reflective practice: Towards a holistic view. *Educational Action Research, 8*(1), 179–193.

Lewin, K. (1952). Group decision and social change. In G.E. Swanson, T.M. Newcomb, & E.L. Hartley (Eds.), *Readings in social psychology* (Vol. 2). Holt.

Loughran, J. (2010). Reflection through collaborative action research and inquiry. In *Handbook of reflection and reflective inquiry* (pp. 399–413). Springer.

Manfra, M. M. (2019). Action research and systematic, intentional change in teaching practice. *Review of Research in Education, 43*(1), 163–196.

McCutcheon, G., & Jurg, B., (1990). Alternative perspectives on action research. *Theory into Practice, 24*(3).

McKernan, J., (1991). *Curriculum action research. A handbook of methods and resources for the reflective practitioner.* Kogan Page.

McNiff, J., & Whitehead, J. (2011). *All you need to know about action research* (2nd ed.). SAGE Publications.

Mertler, C. A. (2017). *Action research: Improving schools and empowering educators* (5th ed.). SAGE Publications Inc.

Morales, M. P. E., Abulon, E. L. R., Soriano, P. R., David, A. P., Hermosisima, M. V. C., & Gerundio, M. G. (2016). Examining teachers' conception of and needs on action research. *Issues in Educational Research, 26*(3), 464–489.

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods, 16*(1), 1609406917733847.

Paredes-Chi, A. A., & Castillo-Burguete, M. T. (2018). Is Participatory Action Research an innovative pedagogical alternative for training teachers as researchers? The training plan and evaluation for normal schools. *Evaluation and Program Planning, 68,* 176–184.

Philippine Qualifications Framework. (PQF) (2012). Retrieved from http://ceap.org.ph/upload/download/20138/2723637531_1.pdf

Rönnerman, K. (2003). Action research: Educational tools and the improvement of practice. *Educational Action Research, 11*(1), 9–22.

Southeast Asia Teacher Competency Framework (SEA-TCF). (2017). Retrieved from https://www.criced.tsukuba.ac.jp/math/seameo/2019/pdf/SEA-TCF%20BOOK.pdf

Strand, K. (2006). Learning to inquire: Teacher research in undergraduate teacher training. *Journal of Music Teacher Education, 15*(2), 29–42.

Ulla, M. B., Barrera, K. I., & Acompanado, M. M. (2017). Philippine classroom teachers as researchers: Teachers' perceptions, motivations, and challenges. *Australian Journal of Teacher Education, 42*(11), 52–64.

Willis, A. S., & Grainger, P. R. (2020). Teacher wellbeing in remote Australian communities. *Australian Journal of Teacher Education, 45*(5), 18–37.

Young, M. R., Rapp, E., & Murphy, J. W. (2010). Action research: Enhancing classroom practice and fulfilling educational responsibilities. *Journal of Instructional Pedagogies, 3.*

Chapter 36
Pre-service Curriculum and Perception of Prospective Student Teachers Towards Inclusive Education

Pennee Kantavong Narot and Piyawan Srisuruk

Abstract Inclusive education is a change in a basic education system and requires understanding and participation from all stakeholders, such as school administrators, teachers, and parents. Past studies have indicated that teachers play an essential role in making education more inclusive. This chapter explored how a teacher education curriculum in Thailand regards inclusive education and how student teachers, who experienced two different learning programmes, perceived inclusive education. The study examined how two groups of prospective teachers and staff perceived pre-service teacher training for IE. A qualitative research instrument via semi-structured interviews was employed for data collection in order to review the pedagogical approaches used and the instructors' views of IE. The questionnaire survey was based on a Sentiments, Attitudes, and Concerns for Inclusive Education Rating Scale (SACIE-R) developed by Forlin et al. International Journal of Inclusive Education 14:723–739 (2010) was used.

Keywords Pre-service · Inclusive education · Attitudes · Structured interviews · Curriculum

Introduction

After the World Conference on Education for All in Jomtien, Thailand, in 1990 (United Nations Educational, Scientific and Cultural Organization (UNESCO), 1990), the development of the Salamanca Statement in 1994 (UNESCO, 1994) and the assembly of the World Education Forum at Dakar in 2000 heightened awareness of governments' need to focus on inclusive education (IE) chances for children with special and/or diverse learning needs. The result can be found in educational reform which in Thailand commenced with the 1999 National Education Act. The

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Act provided that the educational institute is responsible for organizing appropriate education for SEN children, based on their abilities. However, reports from Ministry of Public Health have suggested that there is still not sufficient provision of educational support for these students, when it concerns the issue of educating them in an inclusive classroom (Narot & Sivabhaedya, 2010).

IE is a process where an education system and regular schools, school administrators, and teachers address the education needs of all children without discrimination (Kaplan & Lewis, 2013). The barriers for achieving an IE system are related to attitudes, practices, resources, policies, admirative processes, and the environment (Forlin, 2012; Sharma et al., 2013).

Pre-service Teachers Training

The importance of appropriate training and better preparation for new practicing teachers in the management of SEN students has been widely suggested (Florian & Rouse, 2009; Sharma et al., 2008). Forlin (2010) pointed out that preparing teachers for inclusion is a crucial factor especially when addressing attitudes and promoting a greater commitment to inclusion. Sharma et al. (2013) found that school teachers do not have sufficient knowledge and skills to deal with inclusive classroom. When teachers were not well-equipped to create an inclusion environment for SEN students, it may cause them to develop negative attitudes towards inclusion. It is necessary that in-service teacher educational institutes have to consider revising and improving teacher preparation programmes in order to equip the prospective teachers to manage their works in inclusive settings, and the in-service education programmes must provide substantial knowledge covering the range of disabilities and skills to work collaboratively with other professions. Moreover, courses on pedagogical approaches must be practical and include various techniques and strategies for working with students with diverse needs. Additionally, teacher education should provide field-based studies for students to familiarize themselves with pedagogical practices and environments. Past studies indicated that field studies or practices would lead to positive attitudes among teachers (Boyle et al., 2013).

Teachers' Attitudes and Inclusion

Understanding about SEN students seems to be an essential trait for teachers to have positive mindsets towards inclusion. Attitude is said to have a direct relationship between intention and behaviour concerning a situation (Ajzen & Fishbein, 1972). The previous research reported that general education teachers who did not understand disabilities were not likely to accept children with special needs. Furthermore it was pointed out that more interaction with disabilities persons can lead to positive attitudes towards them. The main concept is that teachers with negative attitudes lead

to less learning opportunities, low achievement, and discouragement (Florian et al., 2010; Forlin, 2010) So, the importance of teachers positive attitudes towards people with disabilities early in their professional years can lead to higher expectations, increased learning opportunities, and increased learning achievement of the learners (Forlin et al., 1999, p. 209). As for the prospective teachers, a high level of knowledge is a necessary component to develop their positive attitudes towards IE (Chambers & Forlin, 2010). Moreover, opportunities to interact with people with disabilities during the period of training have proved to encourage and enhance a more positive position towards inclusion (Forlin, 2010). Literature on teacher learning has pointed out that student teachers enter the programme based on their belief about managing learning and teaching situations. The lessons learned from how prospective teachers view their study programmes were that they learned from field experiences in the study projects required in the courses more than from theoretical aspects (Allen, 2009; Roness, 2011). This situation seemed to agree with Darling-Hammond (2010) who found that students teachers were disappointed in and discontented with the teacher education they had encountered, because they felt that what was taught in teacher education was inappropriate. Furthermore, they opined that they preferred information for immediate use and they valued practical experiences. A lot of previous research reported that teachers stated that they did not receive adequate training and preparation to manage IE (Ainscow & Sandill, 2010; Forlin, 2010; Kantavong, 2018). So, the pre-service teachers' education should consider all these crucial aspects. From every perspective of the preparation of teachers' education, positive attitudes towards inclusion are the strongest predictors of the success of inclusion. When the teachers have good attitudes towards inclusion, they tend to use different approaches to support students with diverse needs (Forlin, 2010). Forlin and Chambers (2011) also found that the level of confidence and knowledge of legal system among teachers were positively and significantly correlated with attitudes towards SEN students.

At this point we conclude that knowledge and experiences would lead to sentiments, attitudes, and caring towards IE. The increase of the good feelings, attitudes, and concerns of prospective teachers is considered to be a crucial element for the successful implementation of IE (Sharma et al., 2008). It is supported by the research of Senol and Can Yasar (2020) who pointed out that concern is the stage where the person expressed a sense of insufficiency. The concern may be from the sense that they did not have enough knowledge and experiences about SEN students. The lack of knowledge causes low perception of self-efficacy which may lead to concern and anxiety. The preparation of prospective teachers should aim to reduce concern by providing a high level of knowledge and experiences.

Approaches for Pre-service Teachers Training

The strategies for the training of prospective teachers are still to be considered. The main concerns were that even in countries where inclusion has been practiced for more than two decades, preparing teacher for inclusion still has been slow to meet

the new demands of an IE. For example, the European Agency for Development of Special Needs Education (2007) cited in Florian and Rouse (2009) reported that the schools across Europe faced problems of managing programmes for diversity groups which are the biggest challenges and barriers for inclusion. The causes of the problems and barriers are derived from inadequate programmes for the teachers' preparation in the areas of special education needs and working in inclusive schools. The key concept for developing the approach to teacher training is to provide teachers with awareness and understanding of educational and social problem issues that can affect children's learning achievement. The next issue is to develop strategies that teachers can use to support and work with children with diversity needs. So, inclusive practice should be based on the concept that teachers understand how to include and not exclude the learners who experience difficulties (Florian & Rouse, 2009). In the area of preparing teachers for IE, Florian and Link later (2010) investigated the project on new pre-service education course that starts from the question of how to bring what the learners already know to make the best use when they experience difficulty, not relying solely on whether teachers have the necessary knowledge and skills to work in inclusive classrooms. Their standpoint is that it is not an essential point to make a judgement that teachers do not have the required knowledge and skill to teach learners, because it may be that the learners who have learning difficulty needs may not require different learning approaches from most of the other learners. Also, when teachers are challenged in their classrooms with students with learning difficulties, colleagues with who have specialized expertise in learning difficulties may be able to lend their support. Florian and Linklater employed a "learning without limits" approach for student teachers in Aberdeen. Under the package called further professional studies (FPS). The student teachers are required to take courses of further professional study which require 50 h; 25 h are tutors directed, and 25 h are students directed. The specific area in the FPS: further professional study courses related to the school curriculum, such as a course modern language, ICT for learning and teaching, and a course like 'Thinking skill'… The student teachers are required to work in groups and present their work at student teacher-led conferences at the end of the programmes. This study confirmed that learning achievement is a result of collaboration work within communities under the concept of co-agency, everybody, and trust. These principles emphasize that through the approach of allowing teacher to plan the instructional decisions, teachers can lead to the act that enhance children's capacity to learn. The findings conclude that the concepts of co-agency, everybody, and trust provided opportunities for teachers to recognize their capacity to teach all learners. They learned to create an environment for learning to enhance achievement for all, so that new teachers can become inclusive practitioners. In order to prepare prospective teachers for inclusion, Wang and Fitch (2010) reported on the study of teacher education for IE which is called Initial Teacher Education. The concept incorporated courses and field work into the programme, the strong point of which is the placement of multiple collaboration by coaches who are experts in the field so that the pre-service teachers can experience best practices in action. The value of the programme is the multiple opportunities for pre-service teachers to work with instructors in classes, seminars, and field placement which contribute to the seminar

sessions. The prospective teachers gain not only knowledge relating to IE, but also become co-teaching partners and develop collaboration skills, professional learning, and school leadership skills. Forlin et al. (1999) conducted interesting research on pre-service teachers regarding their attitudes towards people with disabilities in three universities in Queensland. The three universities provided various opportunities for pre-service teachers to interact with people with disabilities. The interactions included: compulsory visits to special education schools or centres, incursions by people with disabilities, undertaking more professional experiences in special schools and meeting guest lecturers who work with special needs students. It was reported that the prospective teachers who had at least weekly contact with people with disabilities felt more comfortable with people with disabilities than those pre-service teachers who declined the activities.

From the above-mentioned points, preparing pre-service teachers to work in inclusive schools requires concerned higher educational institutes to make an effort to ensure the curriculum covers both content and pedagogy and some other skills by providing hands-on experiences for the student teachers, in order to work effectively with diversity students (Ainscow & Sandill, 2010; Florian & Linklater, 2010; Florian et al., 2010; Wang & Fitch, 2010). So, in view of the findings from the previous research which reported that, although some teachers receive training and knowledge on the broad principles of inclusive instructional approach, they do not receive specific comprehensive content concerning SEN, such as relating to autism and dyslexia (Mintz & Wyse, 2015), and the concept may need to be reconsidered. In the same vain, Sharma (2012) discussed an approach to prepare teachers by implementing inclusive practices for all children in main stream education. He mentioned that one major rationale for the preparation of student teachers for inclusive classrooms is that there was inadequate training and experiences to meet the needs of students with disabilities who attended inclusive classrooms. Also, there is a lack of well-equipped teachers, and many countries have raised the insufficient of suitably trained teachers as a major challenge. It is apparent that all developing countries should give priority to teacher education for inclusion (Sharma et al., 2013). The literature has provided many ideas, concepts, and principles for pre-service teacher training which are worth consideration for future development. At the same time, the training system and policies of individual countries may be issues worth investigating.

Pre-service Teacher Training in Thailand

After the education reform in Thailand was implemented, under the 1999 National Education Act, the public education system is required to provide an equal opportunity for every citizen to receive not less than 12 years basic education. Chapter 2 of the Act also emphasizes that the system has to provide education for the underprivileged and the mentally and physically disabled in an appropriate form according to individual needs (Office of the National Education Commission: ONEC, 1999). Since then, the Thai Government enacted and enforced the policy to support education and

services for children with disabilities (Vorapanya & Dunlap, 2014). The movement towards IE for SEN students became clearly applicable under the provisions of the Persons with Disabilities Education Act, 2008. The law grants the right and opportunity for persons with special educational needs to education from early years to higher education. As a result, the schools become inclusive schools which means that every school has to accept all children into their classes without discrimination. Thus, the whole educational system has had to reorganize itself to accommodate the policy (Bualar, 2016; Vorapanya & Dunlap, 2014).

Many sections of the educational system have to be prepared to accommodate this policy. Along with the national educational reform, the pre-service teachers' training programmes have been changed from a four to a five-year programmes. Prospective teachers attend four years doing course work and one year in school for practicum. With the goal of achieving Education For All, the inclusive and special education courses were added to the curriculum. Although legally all Thai children are entitled to be included in the school system, many studies showed that the situation of IE in Thailand has progressed slowly due to various factors, namely insufficient resources, not enough educators in the field, no clear direction for programme implementation, weak networking among involved organizations, and negative attitudes towards special education (Carter, 2006; Changpinit et al., 2007;Vorapanya & Dunlap, 2014; Bualar, 2016). Bualar pointed out that the attitudes of teachers in Thailand towards IE are influenced from both experiences in society and the background in their training.

When considering the situation of pre-service training concerning IE, Kantavong et al. (2012) conducted a curricular review of IE in Thailand and found that every institute offers either one or two courses in special and IE. The course descriptions include knowledge and skills for prospective teachers to identity and manage the barriers when they are facing the learning environment within a school setting. After the 1999 National Education Act, Thailand moved to enhance the goal of Education For All by emphasizing IE. Past studies had reported that concerning rights-based education or opportunities for and/or limitations on special needs education students attending regular schools was not clearly specified or focused in teachers' training education programmes. The issues of human rights, gender, and the inclusion of the underprivileged and marginalized groups were also not provided for as an individual course. Educators and instructors who were interested or knowledgeable in areas like human rights, gender, and marginal groups would raise these issues in their classes. So, it was reported that some instructors were indirectly mentioned such issues on the other courses. However, the data revealed that every pre-service teacher training institute provided a special education or IE course. This may be because the administrators and educators believe that experiences from the course would help students to develop positive attitudes, values, and respect towards persons with special needs. However, some lecturers mentioned that, since the issues of human rights, gender and marginalized groups were not specified in the curriculum, the instructors then viewed that it was not necessary to include these contents in the course.

Context of the Case

Based on the quality control measures, every higher educational institute has to revise their curriculum every five years. The Faculty of Education, KhonKaen University, falls under this quality assurance for higher educational institutes as it provides pre-service teachers' training in Northeastern Thailand. To comply with the National Education Act, 1999, the curriculum has been adjusted from four year to five year programmes and emphasizes the importance of Education For All. The inclusive education course was offered as a separate course for the last ten years. Then, at the most recent revision of the curriculum, the inclusive education course was removed, and the revised version of the curriculum now offers two new courses: Psychology for Teachers, and Learning Management and Classroom Management. The subject of IE is offered as a small topic in the "Psychology" course.

The content and instructional programmes for pre-service teachers' education can be presented as follows: The inclusive education course covered: the meaning, significance, types, laws, organization and management of inclusive schools and classrooms, problems related to the inclusion, identification and design for Individualized Education Programmes and assessment, principles of learning, reinforcement, shaping, prompting, modelling in inclusive classrooms, intervention strategies, and group strategies.

The class activities were designed based on project-based learning. Student teachers were assigned to visit schools and were chosen to conduct case studies with SEN students with different disabilities. Then, the experiences were presented to the class in sharing experiences and knowledge sessions. The instructors included a team of educators with the following experiences: one in curriculum and instruction and six instructors in inclusive and special education with expertise in different individual disabilities.

The content of the two new courses which replaced the inclusive education course can be described in detail as follows: (1) the Psychology for Teachers course covers: Principle, concept, theory, and rationale on how humans learn, pedagogy on the learning process regarding the sociocultural context; turning educational psychology into practical work; application of educational psychology based on its principle; improvement and development of learning and management by research; learning management and assistance regarding psychology for teachers; and learning environment and skills for learning; and (2) the Learning Management and Classroom Management course covers: Principle, concept of learning management, classroom management, relationship of learning management for student-centred learning, and learning management focusing on teaching in an internship classroom, theories, and models of learning and management focusing on students' thinking skills in the twenty-first century, environment learning management for classroom learning with emphasis on the relationship between the students' learning process and communication in the classroom, classroom development for a learning centre in school, development of lesson plans based on the Plan-Do-Check-Act Cycle, and learning integrated inclusion. For these two courses, the classroom activities still share similar

approaches, such as requiring student teachers to work in a group project to visit schools and observe the classroom settings, and report their experiences from classroom observation to the student teacher-led class sessions. However, the instructors for the two new courses consist of two instructors in curriculum and instruction who are new members for the team and six instructors with experience in inclusive and special education who are the same team that conducted the old inclusive education course.

Thus, this study aims to answer the question: Are there any differences between the two cohorts of students teachers who attended the two different curricula in their views towards IE when using a measurement scale based on the sentiments, attitudes, and concerns for IE?

Research Methods

This study was a survey research. The sample comprised of 48 prospective teachers, aged 23–25 years old, from the Faculty of Education, Khon Kaen University, Thailand. Simple random sampling was employed for data collection. The research instruments were: (1) a questionnaire based on Forlin et al. (2011). Forlin et al. (2011) developed the SACIE-R scale to assess a teacher's general and specific attitudes towards IE. The original measurements consisted of 15 items; however, only 12 items were adopted for this investigation. Since this study intended to emphasize the outcomes of the curriculum with focus on attitude, three items were not included following feedback from a trial with non-respondents and educators in the field of IE. The three items were: "I dread the thought that I could eventually end up with a disability", "I would feel terrible if I had a disability", and "I am afraid to look directly at a person with a disability". The three items were viewed as being too obvious in terms of the respondents' desire to rate them to please the researcher because, in Thai culture and belief, the concept of disabilities is regarded as being the result of a bad deed by an individual; as Vorapanya and Dunlap (2014) cautioned, the situation of special education in Thailand should be considered through cultural perspectives. The feeling of horror to look at disabilities may not match the way society teaches people to think; society always teaches us to be sympathetic and kind to disabled people. It is a basic kindness to help others with disabilities and gives rise to a sense that, if we help such people, we will not one day become disabled ourselves.

The participants were asked to respond to a 4-point Likert scale in which 1 = strongly disagree and 4 = strongly agree. The scale consists of three sub-scales; sentiments, attitudes, and concerns. The score consisted of 1 = strongly disagree ($\bar{x}$ = 1–1.75), 2 = disagree ($\bar{x}$ = 1.76–2.45), 3 = agree ($\bar{x}$ = 2.46–3.15), and 4 = strongly agree ($\bar{x}$ = 3.16–4.00). After the data collection, the items were regrouped in order to view the level of attitudes more clearly: the first seven items indicated a negative view of IE, and the last five showed a positive view towards IE. An acceptable reliability was 0.619 (Cronbach's alpha). The open-ended questionnaire was used for additional interviews with students, and structured interviews were conducted

with the ten instructors. The respondents included 48 students who undertook the old inclusive education course programme and 24 students from the other two new programme courses. Among these, there were 16 male students (33.3%) and 32 female students (66.7%). The ten instructors who were members of the teaching team served as key informants for interviews.

Data Analysis

The SPSS version 23 was used to analyse the data to find the differences between the two groups of students; the group that attended the old inclusive education course and the group that attended the new Psychology and Classroom Management courses. All attitude questions were analysed with a value assigned on the scale reflecting a positive attitude towards inclusion. Based on Forlin et al. (2014), the factors that were considered to connect to a negative view required reverse coding before analysing, such as the item relating to concerns: "I am concerned that my workload will increase if I have students with disabilities in my class". The data from the open-ended and structured interviews were grouped and analysed using content analysis. The results were reported in a descriptive manner.

Results

The data were obtained from the prospective teachers who experienced two different learning programmes for working in regular schools. These schools by law have to accept all students, so the classrooms become inclusive settings. The objectives of the courses were that after attending the course or courses offered, students should be equipped for managing inclusive classrooms and working with SEN students with a positive attitude towards inclusion.

The respondents were asked to rate the questionnaire and answer the short interview questions. The findings revealed that there were no statistically significant differences between the two groups (the inclusive education course and the Psychology course and Classroom Management course) who attended the different programmes. The data are shown in Table 36.1.

Independent Samples Test

Program	n	Mean	S.D	t-value
Psychology	24	32.16	2.88	0.105
Inclusive Ed	24	32.29	5.08	

*P-value = 0.917

Table 36.1 Means and standard deviation scores on sentiments, attitudes, and concerns of the two groups of respondents

No.	Issues	Inclusive course		Psychology course	
		$\bar{x}$	SD	$\bar{x}$	SD
1	Concerned that students with disabilities will not be accepted by the rest of the classroom	3.44	0.616	3.13	0.640
2	Concerned that it will be difficult to give appropriate attention to SEN and other students in an inclusive classroom	3.00	1.029	2.93	0.458
3	Feel comfortable to make contacts with people with disabilities brief and I finish them as quickly as possible	1.78	0.878	2.00	0.756
4	Concerned that my workload will increase if I have students with disabilities in inclusive classroom	2.44	0.856	2.07	0.704
5	Concerned that I will be stressed if I have students with disabilities in my classroom	2.67	0.686	2.07	0.704
6	It is difficult to overcome my initial shock when meeting people with severe physical disabilities	2.28	1.179	2.13	0.834
7	Concerned that it will not be easy to teach students with disabilities when I do not have enough knowledge and skills in such aspect	3.22	0.732	2.53	0.516
8	Students who have difficulty to communicate their thoughts verbally should be in regular classroom	3.00	0.686	3.40	0.507
9	Students who are inattentive and disruptive should be in regular classroom	2.72	0.752	2.67	0.724
10	Students who require assisting communicative technologies (e.g. Braille/sign language) should be in regular classroom	2.44	0.705	2.67	0.724
11	Students who are underachievement and frequently fail exams should be in regular classroom	3.00	0.767	2.67	0.816
12	Students who need an individualized instructional programme should be in regular classroom	2.56	0.784	2.73	1.033
Mean total		2.71	0.805	2.58	0.701

Table 36.1 showed that the prospective teachers from the two programmes have similar attitudes towards IE. The finding from t-test showed no significance differences between the two groups of respondents.

After reversing the scores, item 3: "I tend to make contacts with people with disabilities brief and I finish them as quickly as possible", and item 6: "I find it difficult to overcome my initial shock when meeting people with severe physical disabilities", fall to levels of disagreement for both groups of respondents, $\bar{x} = 1.78$, S.D. = 0.878 and $\bar{x} = 2.93$, S.D. = 0.458, respectively. Forlin et al. considered that these two items reflected sentiments as they indicated that the respondents do not feel alien to people with disabilities. So, we considered these rating mean scores as positive attitudes. As for items relating to concerns and attitudes, such as item 1: "I am concerned that students with disabilities will not be accepted by the rest of the class", item 8: "Students who have difficulty expressing their thoughts verbally should be in regular classes", and item 7: "I am concerned that I do not have the knowledge and skills required to teach students with disabilities", the mean scores of the two groups of respondents were at agreement levels: $\bar{x} = 3.44$, S.D. = 0.66, and $\bar{x} = 3.13$, S.D. = 0.64; $\bar{x} = 3.00$, S.D. = 0.686 and $\bar{x} = 3.40$, S.D. = 0.640; and $\bar{x} = 3.22$, S.D. = 0.732 and $\bar{x} = 2.53$, S.D. = 0.56, respectively. Also item 2: "I am concerned that it will be difficult to give appropriate attention to all students in an inclusive classroom" ($\bar{x} = 3.00$, S.D. = 1.309, and $\bar{x} = 2.93$, S.D. = 0.458 for both groups) falls into concerns and sentiments which still indicates a positive attitude among the respondents.

The perceptions were verified by the interview sessions which revealed that the prospective teachers expressed their concerns based on their point of view of their personal ability. They understand the barriers in learning for SEN students, but they feel somewhat uncertain about their ability to manage the classroom. They further explained that in a real situation, if they have support from senior educators or experts in the field they would be happy and able to manage an inclusive classroom. It can be concluded that the prospective teachers from both programmes showed an average positive attitude towards IE.

In terms of knowledge and preparing prospective teachers to work in inclusive settings, the interviews of the ten instructors revealed that they all designed their courses based on project-based learning. The concept of project-based learning is believed to help student teachers to develop problem-solving skills, critical thinking, creative thinking, teamwork, leadership, communication, and collaboration skills. The course is based on a student teacher-centred approach. The instructors work as facilitators and consulting agents. The student teachers are assigned to develop their term project by forming a team and then implementing the project or research for new knowledge by visiting and observing the classrooms for data collection. The student teachers presented their group work and summarized their reports by the end of the semester. The core knowledge that the instructors provided for the students teachers are models for the case study.

The eight instructors who worked in inclusive schools and the Research and Development Center of Autistic Inclusive Education, Khon Kaen University, can be both instructors and experts in the field for the student teachers. Their major

concern is that when the inclusive education course was offered, the student teachers could study in-depth about how to work with different disabilities. With the two new courses, there is more other content to cover, although the project-based learning seems to fill this gap. As two of the instructors said: "The project-based work provided opportunities for student teachers to learn from a real setting and gain hands-on experiences. Student teachers may become uncertain about the problems they are working on, but the close-supervision approach and the exchange of knowledge with the school teachers provide the student teachers with a sense of understanding and the knowledge to work in an inclusive classroom really well".

Conclusion and Discussion

The findings of this study have many interesting implications for the development of a teacher's education. First, although the separate course of inclusive education is unavailable for prospective teachers, the approaches from the new courses, including the instructors teams, have not changed. This provides opportunities for student teachers to experience similar concepts to those who undertook the inclusive education course. This may be the main reason for there being no significant differences between the two groups with different learning courses. Secondly, the strong instructional design for the courses may be the major contribution to the positive attitude of the prospective teachers. The two groups attended different programmes, but the instructional approaches are still community-based (project-based). When we look at the work of Florian and Rouse (2009), she proposed that content and pedagogy are the key factors for working effectively with SEN students. In this present study, the content and pedagogy are not the main emphasis of the course. The instruction design based on a student teacher-centred approach through project-based learning seemed to be the strength of the programme. This approach seems to be in line with the study of Forlin et al. (1999) where prospective teachers were provided with opportunities to have direct contact with special education school centres and learned from experts who work with special needs people. In this case not only have the prospective teachers direct interaction with students with disabilities, but their instructors (8 of them) are experts who work in inclusive schools and an autism research centre. However, in later years there are two issues suggested by the previous research; when teachers are challenged with SEN students, the colleagues who have expertise in the field may be able to lend their support (Florian & Linklater, 2010). Florian and Linklater also further explained that learning achievement is a result of the relationship within communities under the concept of co-agency, everybody, and trust. This concept would provide prospective teachers with the ability to realize their potential to teach learners with diverse needs. This point is confirmed by the information from the interviews with prospective teachers who said that they feel concern for their ability to manage an inclusive classroom but that if colleagues who are experts in the field can lend their support, then they would feel that they can manage an inclusive classroom. The prospective teachers may have developed this concept

from their hands-on experience of working in school through their project-based learning. In the process of such learning activities, the students have opportunities to develop a relationship with the school teachers and work collaboratively with them. The project-based learning also supports the study of Wang and Fitch (2010) who reported the training approach by having pre-service teachers work with schools for professional development as well as gaining in inclusive education.

So, it may concluded that the positive attitude of prospective teachers is a good sign of an effective curriculum and instruction for the groups in this study. It may be pointed out that with the two new courses, Psychology for Teachers and Learning Management and Classroom Management, the outcome for the prospective teachers does not move away from the goals of preparing teachers for IE. This may be due to the instructional approaches and the strong expertise in the field of the instructors. Future research may try to investigate: (1) the effectiveness of other approaches to prepare prospective teachers for IE, and (2) the approaches to reduce the concerns of the perspective teachers may be by providing a strong input in knowledge for the prospective teachers so that they will have more confidence in their teaching and it will raise their sentiments and attitudes towards inclusion. It was suggested that knowledge is a key for reducing the concerns among prospective teachers (Forlin & Chambers, 2011; Sharma, 2012).

References

Ainscow, M., & Sandill, A. (2010). Developing inclusive education systems: The role of organisational cultures and leadership. *International Journal of Inclusive Education, 14*(4), 401–416.

Ajzen, I., & Fishbein, M. (1972). Attitudes and normative beliefs as factors influencing behavioral intentions. *Journal of Personality and Social Psychology, 21*(1), 1–9.

Allen, J. M. (2009). Valuing practice over theory: How beginning teachers re-orient their practice in the transition from the university to the workplace. *Teaching and Teacher Education, 25*(5), 647–654.

Boyle, C., Topping, K., & Jindal-Snape, D. (2013). Teachers' attitudes towards inclusion in high school. *Teachers and Teaching: Theory and Practices, 19*(5), 527–542.

Bualar, T. (2016). What has gone wrong with inclusive education in Thailand? *Journal of Public Affairs, 16*(2), 156–161.

Carter, S. L. (2006). The development of special education services in Thailand. *International Journal of Special Education, 21*(2), 32–36.

Chambers, D., & Forlin, C. (2010). Initial teacher education and inclusion: A triad of inclusive experiences. In C. Forlin (Ed.), *Teacher education for inclusion: Changing paradigms and innovative approaches* (pp. 74–83). Routledge.

Changpinit, S., Greaves, D., & Frydenberg, E. (2007). Attitudes, knowledge, concerns, and coping strategies regarding inclusive education in a community of Thai educators. In *The 1st International conference on education reform.* Mahasarakham University. Retrieved from http://www.icer.msu.ac.th/ICER2007/paper/CI03.pdf

Darling-Hammond, L. (2010). Teacher education and the American future. *Journal of Teacher Education, 61*(1–2), 35–47.

Florian, L., & Rouse, M. (2009). The inclusive practice project in Scotland: Teacher education for inclusive education. *Teaching and Teacher Education, 25*(4), 594–601.

Florian, L., & Linklater, H. (2010). Preparing teachers for inclusive education: Using inclusive pedagogy to enhance teaching and learning for all. *Cambridge Journal of Education, 40*(4), 369–386.

Florian, L., Young, K., & Rouse, M. (2010). Preparing teachers for inclusive and diverse educational environments: Studying curricular reform in an initial teacher education course. *International Journal of Inclusive Education, 14*(7), 709–722.

Forlin, C. (2010). Re-framing teacher education for inclusion. In C. Forlin (Ed.), *Teacher education for inclusion: Changing paradigms and innovative approaches* (pp. 3–10). Routledge.

Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education, 39*(1), 17–32.

Forlin, C., Tait, K., Carroll, A., & Jobling, A. (1999). Teacher education for diversity. *Queensland Journal of Educational Research*, 15(2), 207–225. http://education.curtin.edu.au/iier/qjer/qjer15/forlin.h

Forlin, C. (2012). Diversity and its challenges for teachers. In Chris F. (Ed.), Future directions for inclusive teacher education: an international perspective (pp. 83-92). Abingdon: Routledge.

Forlin, C., Sharma, U., Loreman, T. (2014). Predictors of improved teaching efficacy following basic training for inclusion in Hong Kong. *International Journal of Inclusive Education,* 18(7), 718-730.

Forlin, C., Earle, C., Loreman, T., & Sharma, U. (2011). The sentiments, attitudes, and concerns about inclusive education revised (SACIE-R) scale for measuring pre-service teachers' perceptions about inclusion. *Exceptionality Education International, 21*(3), 50–65.

Kantavong, P. (2018). Understanding inclusive education practices in schools under local government jurisdiction: A study of KhonKaen Municipality in Thailand. *International Journal of Inclusive Education, 22*(7), 767–786.

Kantavong, P., Nethanomsak, T., & Iuang-ungkool, N. (2012). Inclusive education in Thailand after 1999 National Education Act: A review of a pre-service teacher education system. *Procedia-Social and Behavioral Sciences, 69*, 1043–1051.

Kaplan, I., & Lewis, I. (2013). *Promoting inclusive teacher education: Curriculum* (p. 30p). UNESCO.

Mintz, J., & Wyse, D. (2015). Inclusive pedagogy and knowledge in special education: Addressing the tension. *International Journal of Inclusive Education, 19*(11), 1161–1171.

Narot, P. K., & Sivabhadya, S. (2010). A model professional learning program for enhancing the competency of students with special need. In C. Forlin (Ed.), Teacher education for inclusion: Changing paradigms and innovative approaches (pp. 226–235). Routledge. https://doi.org/10.1007/511125012-9227-9

Office of the National Education Commission: ONEC. (1999). The National Education Act. Prigwan Communication.

Roness, D. (2011). Still motivated? The motivation for teaching during the second year in the profession. *Teaching and Teacher Education, 27*(3), 628–638.

Senol, F. B., & Can Yasar, M. (2020). Change in sentiments, attitudes and concerns towards inclusive education: Perspective form from of preservice preschool teachers. *International Journal of Eurasian Education and Culture, 5*(9), 1126–1144.

Sharma, U. (2012). Using reflective practices for the preparation of pre-service teachers for inclusive education for inclusion classrooms. In C. Forlin (Ed.), Teacher education for inclusion: Charging changing paradigms and innovative approaches, (pp. 102–111). London, UK: Routledge.

Sharma, U., Forlin, C., & Loreman, T. (2008). Impact of training on pre-service teachers' attitudes and concerns about inclusive education and sentiments about persons with disabilities. *Disability & Society, 23*(7), 773–785.

Sharma, U., Forlin, C., Deppeler, J., & Yang, G. X. (2013). Reforming teacher education for inclusion in developing countries in the Asia Pacific region. *Asian Journal of Inclusive Education, 1*(1), 3–16.

UNESCO. (1990). *World declaration on education for all and framework for action to meet basic learning needs (Jomtein Declaration).* UNESCO.

UNESCO. (1994). *The Saamanca statement and framework for action on special needs education.* UNESCO.

Vorapanya, S., & Dunlap, D. (2014). Inclusive education in Thailand: Practices and challenges. *International Journal of Inclusive Education, 18*(10), 1014–1028.

Wang, M., & Fitch, P. (2010). Preparing pre-service teachers for effective co-teaching in inclusive classrooms. In C. Forlin (Ed.), *Teacher education for inclusion: Changing paradigms and innovative approaches* (pp. 112–119). Routledge.

Yada, A. K. (2020). Difficult different processes towards inclusion: A cross-cultural investigation of teachers' self-efficacy in Japan and Finland (p. 57). Japan University of Jyvaskyla, Faculty of Education & Psychology.

Chapter 37
Tradition, Challenges, and Innovation in Japanese Teacher Education

Takayo Ogisu and Yuto Kitamura

Abstract This chapter aims to snapshot the current status of Japanese teacher education, by highlighting both how teacher education as a system has historically evolved and how teacher education programs have tried to renovate themselves to meet the changing needs of the local communities. Japanese teacher education is known as one of the most successful systems in producing a high quality teaching force, but there is strong criticism that it fails to accommodate rapid social, economic, and political changes. This paper, therefore, first reviews the evolution of the teacher education system over time, then identifies three major issues—teacher burnout, increasing diversity in the classroom, and the use of ICT in teaching and teacher education—as ongoing challenges. It then introduces a school reform model, a teacher education program, and a local education board that try to address the above challenges in innovative ways. It concludes with what lessons we can infer from these innovative programs for future teacher education policies in Japan and abroad.

Keywords Tradition · Challenges · Innovation · Japan · Teacher education

Introduction

Japanese teacher education has been known as one of the most successful systems in the world in terms of producing a high quality teaching force for some decades, thanks mostly to Japanese students' high scores on international tests such as the International Association for the Evaluation of Educational Achievement's (IEA) Trends in International Mathematics and Science Study (TIMSS) and the Organization for Economic Cooperation and Development's (OECD) Programme for International Student Assessment (PISA). A 1999 PISA video study particularly highlighted high quality teaching practices among Japanese teachers, and traditional school-based

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professional development practices—known as *jugyo-kenkyu* or lesson study—were nominated as a secret of the professionalism of Japanese teachers (Stigler & Hiebert, 1999).

In stark contrast to this image, there is strong internal criticism that Japanese teacher education fails to accommodate rapid social and economic changes and thus the whole education system fails to produce globally competitive human resources. Such criticism—mostly from business circles—has led to a series of teacher education reforms based on neoliberal ideology since the mid-1980s. At the same time, however, school teachers themselves also have shown discontent with their working conditions. As evidenced in the OECD Teaching and Learning International Survey (TALIS), Japanese school teachers chronically work longer hours than their peers around the world, spending a significant amount of time on non-teaching duties while sacrificing time for lesson preparation and professional learning. COVID-19 even added disinfection—another non-teaching duty—to teachers. Such depressing situations are tweeted every day with the hashtag "teacher is dying" (#sensei shinukamo). Teacher education programs are under significant pressure to produce teachers who are ready to deal with these realities. These pressures—from both above and below—pose critical questions to the post-WWII Japanese teacher education system.

This chapter aims to snapshot the current status of Japanese teacher education. We first situate the current teacher education system in a historical context, then identify three major issues—teacher burnout, increasing diversity in the classroom, and the use of ICT in teaching and teacher education—as most urgent ongoing challenges. We also highlight innovative teacher education practices that try to address these challenges.

Teacher Education in Japan: A Historical Overview

In order to better understand the current issues and challenges of Japanese teacher education, we must situate them in a historical context, in which World War II was a watershed. In the pre-war teacher education system, teacher preparation was conducted in normal schools which focussed on nurturing gentleness, affection, and dignity in prospective teachers, and less emphasis was put on academic excellence.

With guidance from the general headquarters of the Supreme Commander for the Allied Powers (GHQ) after WWII, normal schools were replaced with university-based teacher preparation programs established following liberal arts colleges in the U.S. (Mouri, 2020). Preparing teachers who are well-informed and have a deep understanding of their areas of study became a mandate for university-based teacher preparation programs. Japanese teacher preparation was conducted at university level until 2008, when professional graduate schools of teacher education were introduced. Fifty-four such professional graduate schools had been established by 2021 to prepare new teachers who can immediately be effective as well as to provide middle-level

school leaders with professional development opportunities. Even with these professional graduate schools, however, university-based bachelor's level teacher preparation is still prevalent, and the share of master's degree holders among primary teachers is still as low as 4.9% as of 2019 (MEXT, 2019a).

University-based teacher preparation was accompanied by the introduction of two related systems. One is the open system, in which all universities/colleges/departments that meet the accreditation criteria are entitled to offer teacher preparation programs. Under the open system, even universities that do not have schools of education can conduct teacher preparation unless they offer required courses laid down in the national guidelines. The faculty of math at X university, for example, can offer teacher preparation programs for future secondary math teachers. As such, one can obtain a secondary teacher's certificate from a teacher preparation program at a non-education school or department, except for kindergarten and elementary school teachers, who are prepared exclusively in schools of education. The open system has been regarded as a key to the protection of academic freedom in teacher preparation as well as to open the door for candidates with diverse academic expertise to join the teaching profession (Machida, 2019).

In around 2000, however, criticism against teacher preparation programs hit its peak. Opponents claimed that university-based teacher preparation is too academic and fails to prepare those who are ready to teach students. As a result, the principle of university-based teacher preparation was relaxed. In 2004, the Tokyo Metropolitan Board of Education, for example, started to offer a unique program called *kyoshi juku,* or a supplemental program for prospective teachers, followed by nearly 40 such programs nationwide. These programs provide prospective teachers, mainly senior year university students, with practical teaching experience for about a year, and the participants in these programs are preferred in the recruitment process. At the same time, the Ministry of Education, Culture, Sports, and Technology (MEXT) has tightened regulations on university-based teacher preparation programs (Sakuma, 2010).[1] Following the recommendations of the Central Education Council, MEXT proposed the *Teacher TrainingCore Curriculum* in 2017, which clarifies the fundamental principles of the teacher preparation curriculum with stronger emphasis on practical teaching skills and less on academic knowledge. It also defines minimum qualifications for teacher educators. Maekawa (2019) provides criticism that the core curriculum strengthens MEXT's influence on the content as well as the personnel matters of teacher preparation and thus it suppresses academic freedom. The core curriculum makes the programs more compatible with the Courses of Study,[2] and to reduce the flexibility with which each program can develop unique courses. Given the fact that MEXT applied the core curriculum for reappraisal of teacher preparation

[1] In fact, this reform was introduced in the name of deregulation. Sakuma (2010) reviews the impacts of higher education reform on teacher preparation programs since 1990 and claims that university-based teacher preparation programs became mere suppliers of teachers according to requests from the national and local governments.

[2] Courses of Study is defined by MEXT as "broad standards for all schools, from kindergarten through upper secondary schools, to organize their programs in order to ensure a fixed standard of education throughout the country" (MEXT, 2017/18).

programs in 2018, it is fair to say that the open system—one of the principles that underpins post-war Japanese teacher education system—is wavering.

The other system that characterizes post-war teacher education in Japan is the licensure system, which requires all teaching personnel to hold the respective teacher's license that can be obtained only by completing a preparation program. Only teacher's license holders are eligible to sit for teacher recruitment exams conducted by local governments. A teacher's license, therefore, neither guarantees a candidate a post at a school nor assures a candidate's quality. It just certifies that the candidate has successfully fulfilled all teacher preparation requirements, and the actual screening is conducted at the recruitment stage. This licensure system has enabled the Japanese teaching profession to attract a large pool of candidates—although many license holders do not pursue a teaching career—and maintain a relatively high competition rate at recruitment exams. It was estimated that about 213,221 new teacher's licenses were issued in 2018, with only 32,986 (15.4%) of the respective license holders actually recruited as teachers (MEXT, 2019a).

The licensure system also underwent a series of reforms. As part of a decentralization and deregulation effort under the Liberal Democratic Party (LDP), in 2004, local governments came to be able to hire non-license holders with special expertise and experience to work as teachers, with the system being further deregulated in 2014. As a result, local governments started to recruit management specialists from the business sector as school leaders. This reform was aimed at bringing neoliberal ideas into the teaching profession. Moreover, with the revisions to the School Teachers License Act in 2009, following a report titled "About Teacher Training and the Teacher's License System in the Future" issued by the Central Council of Education, practicing teachers began to be required to renew their teacher's license every 10 years by completing 30 h of coursework. Reflecting the declining academic performance of Japanese pupils, this system was introduced in recognition of the necessity for periodic renewal of teachers' knowledge and skills in the fast-changing knowledge-based society (Kitamuraet al., 2018).[3] However, this system has been criticized as it puts additional pressure on teachers, who already suffer heavy workloads, and on top of that, it does not meet school teachers' learning needs.

Another important characteristic of Japanese teacher education can be found in its professional development. Professional development of teachers has historically been organized in three layers: the official system, in-school training, and informal communities. As the official system, local education boards are responsible for offering induction programs and professional development courses as stipulated in the School Teachers License Act. Learning opportunities are also organized at schools in the form of both on-the-job training (OJT) and in-school training (known as *konai kenshu* in Japanese). As is always the case, novice teachers are those most in need of professional development opportunities. In the current system, novice teachers need to participate in induction courses for 25 days or more and complete

[3] A license renewal system was first proposed in the 1990s to detect unfit teachers, in response to the growing concern among the public about the inappropriate behavior—such as corporal punishment and sexual harassment—of some teachers (Kitamura et al., 2018).

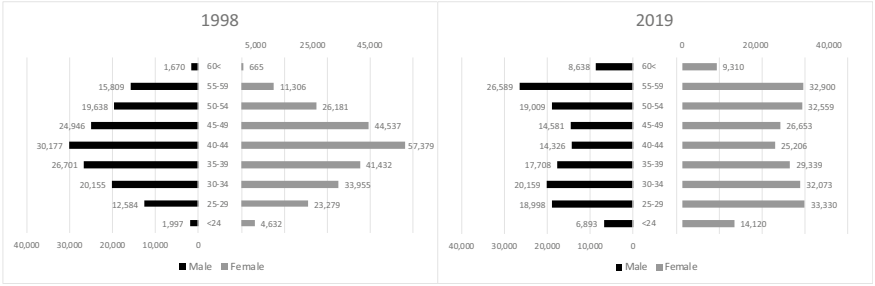

Fig. 37.1 Teaching force has experienced significant demographic changes over the past 20 years. *Source* Developed by the authors based on *Statistics on School teachers, MEXT 1998 and 2019a*

OJT for at least 10 h a week and 300 h a year by observing other teachers' lessons and receiving feedback from their mentors. In addition, Japanese school teachers have sought professional learning opportunities outside of this system.

What is unique to Japanese teacher education is its informal forms of professional development opportunities. In post-war Japan, school teachers voluntarily formed countless study groups across the nation and facilitated informal professional learning opportunities. Lesson study, as mentioned earlier, also evolved through these voluntary communities (National Association for the Study of Educational Methods, 2009). Informal opportunities enable teachers to reflect on their teaching practices with their colleagues, provide physical and mental support to novices, and engage in research to improve their teaching. These bottom-up and autonomous professional development practices, together with official and in-school professional development systems, have played a key role in preparing a common language among teachers and enhancing their professionalism. This professional culture, however, has rapidly declined due to multifaceted reasons, such as changes in the demography of the teaching force as a consequence of the retirement of a large number of baby boomer teachers, which has caused a significant generation gap in the teaching profession (Fig. 37.1), as well as the increasing busyness of school teachers who are already obsessed with official system requirements (Yamada & Hasegawa, 2010).[4]

The post-war Japanese teacher education system can be characterized, therefore, as a system that respects the autonomy of teacher educators about their preparation as well as the autonomy of teachers themselves regarding their professional learning. University-based teacher preparation, open system, and licensureism are the three

[4] There exist several lines of research on the professional culture among Japanese schoolteachers. Many school ethnographies were produced during the 1990s, together with a series of life history studies of schoolteachers. This body of research reveals hidden codes of conduct shared among teachers, including the fact that Japanese teachers hold self-sacrifice to be an important source of their professional identities (see, for example, Hisatomi, 1995). In the 2000s onward, comparative studies have emerged. A line of this kind of research aims to unveil the uniqueness of Japanese schoolteachers in comparison with foreign countries, whereas another line of research tries to capture how the professional culture has changed, particularly after the rise of neoliberal reforms in education (Yamada & Hasegawa, 2010).

principles that underpin the post-war teacher preparation system in Japan (Machida, 2019), and it is these principles that enable many universities to take part in teacher preparation and prepare a large number of candidates with diverse backgrounds, among whom only those of the highest quality are actually selected to enter the profession. Teachers prepared within such a system are supported mostly in informal—or autonomous—communities, where teachers' collective professionalism has been cultivated.

Influenced by the economic decline and social changes caused by globalization, the LDP has led a series of neoliberal reforms since the early 2000s, which in fact has minimized the professional autonomy of teacher educators and school teachers, and thus increased government control over the teaching profession. It has been an attempt to professionalize teachers from the top by raising quality standards of university-based teacher preparation programs and professional learning, but what it has actually brought to the teaching profession is deprofessionalization, in which teaching has come to be regarded as a job that anyone can do, such as by management personnel from the business sector, regardless of whether one has professional skills or not (Sato, 2011). It has also dismantled the professional culture that teachers themselves have traditionally cultivated. The deprofessionalization of the teaching profession is located at the core of various challenges that Japanese school teachers and teacher educators currently face, to which we now turn to discuss in the sections that follow.

Challenges to Japanese Teacher Education

A series of neoliberal reforms has brought major challenges to Japanese teacher education and the teaching profession as a whole. One way they have impacted teaching is through the increasing number of teachers on fixed-term contracts and part-time teachers in schools due to the cut in national expenditure on teacher salaries since 2005. Before this reform, the national and local governments were responsible for teacher salaries on a 1:1 basis; it then became 1:2, which significantly increased the financial burden on local governments. According to the MEXT's surveys, there were only about 17,500 elementary teachers (5.3%) whose employment was based either on temporary contracts or on a part-time basis in 1989 (MEXT, 1989), while this number surged to 54,945 (17.5%) in 2019, well above 12% of the OECD average (MEXT, 2019a). It is also evident that younger (30 years or younger) teachers tend to be hired based on these contracts (MEXT, 2019a).

Teacher Busyness

Such rapid demographic changes in the teaching profession as well as unstable teacher supply have put teachers and schools under heavy pressure. As the OECD

Teaching and Learning International Survey (TALIS) 2013 revealed, Japanese secondary school teachers reported that they worked 53.9 h per week, with the largest share of their duties being non-teaching tasks (OECD, 2014). The situation worsened in the 2018 survey, which reported that Japanese teachers' weekly working hours had increased to 56.0 h, compared to 38.8 h on average across the OECD (OECD, 2019). As a consequence, the number of teachers who take temporary leaves of absence due to illness had reached 8578 (including 5400 teachers with mental illness such as depression) in 2009, an increase of more than 10 times in 10 years (Yufu, 2010). The issues of teacher busyness, stress, and burnout have attracted public attention since around the early 1990s, and school teachers themselves have produced various first-hand accounts on their busyness and loneliness through various channels, including newspapers (e.g. Asahi Shimbun carried the serial *Teachers Now* to report on the severe working conditions of school teachers in 2010). These negative images have lowered the attractiveness of the teaching profession, which resulted in a rapid drop in the competition rate in recruitment exams to an average of 2.7 in 2020, compared to 12.5 in 2000. A chronic teacher shortage is inevitable if such a situation continues, which may put the in-service teachers under even heavier pressure.

Although there is only a limited number of empirical studies available regarding how busy Japanese school teachers are in comparison with other professions, Kanbayashi (2015), who compared the actual workloads of school teachers in the 1950s and 1960s to those of the 2000s and 2010s, points out that although total workloads have increased only slightly, today's teachers spend more hours dealing with larger numbers of students in need for diverse reasons, as well as to intervene in various aspects of students' lives, such as various school events and extracurricular activities, in response to the expectations of society. Regarding teacher stress and burnout, there exists a body of psychological research that identifies various factors that lower job satisfaction and trigger mental illness (Matsuoka, 2015; Nakadaet al., 2016; Yorimitsuet al., 2014). However, Yufu (2010) claims that psychological studies may not provide ultimate solutions to this issue. The fundamental problem lays, she argues, in the lack of recognition of teaching as educational labour and school teachers as educational labourers, and the malfunction of teacher unions. In the absence of a resisting body, the government has not paid enough attention to teachers' labour rights and has exploited them. Teachers' belief of self-sacrifice as a source of professionalism has also made them buy into such an exploitative structure (Yufu, 2010). It is this structure that must be transformed to improve the situation.

Increasing Diversity in Classroom

The rise of neoliberalism has also had an impact on Japanese school teachers in a more indirect manner—through enlarged economic disparities in society. According to a survey conducted by the Ministry of Health, Labour, and Welfare of Japan (2012), the child poverty rate hit 16.3% (one in six children were living under the relative poverty line), compared to 10.9% in 1985. The rise of neoliberalism particularly negatively

affected vulnerable children, such as those from single parent households, those with ethnically, racially, and linguistically diverse backgrounds, and/or those with special needs. Furthermore, a nationwide learning assessment survey, started in 2007, reveals huge learning disparities. Drawing on the concept of parentocracy, the educational sociologist Kariya Takehiko and his group (Kariya, 2012; Kariya & Rappleye, 2020) reveal that the relationship between parental educational attainments as well as their socio-economic status (SES) and children's learning achievements has become much closer over the past two decades.

A series of empowering schools studies, conducted by Shimizu Kokichi's group in socially and economically disadvantaged schools, identifies the characteristics of schools that successfully negate the negative influence of social class on students' learning achievements (e.g. Shimizu, 2015). Similarly, drawing on panel data from a survey conducted with students and their parents, research done by Ochanomizu University characterizes empowering schools with the ability to (1) communicate well with guardians in terms of students' learning; (2) build strong collegiality within school under the principal's leadership; (3) establish long-term prospects for students' learning, in which cooperation between elementary and junior high schools has particular significance; (4) focus on developing students' linguistic abilities to foster learning, such as through building dialogic relationships in the classroom; (5) utilize learning assessment results to inform teaching and learning; (6) stick to the principle of ensuring every student's right to learn; and (7) provide supplemental learning support when necessary (Ochanomizu University, 2018, pp. 130–131). These findings imply that empowering schools function not just in educating children but also assisting them in the social welfare sphere.

Rigorous research is limited, however, regarding the extent to which such economic/academic disparities among students impact the work of teachers. It can be assumed that teachers in schools in economically disadvantaged communities need to spend more time on non-teaching tasks to empower children and their guardians. They are also under greater pressure to ensure a minimum learning outcome for every student. In contrast to such images, Jimmura (2014) explores how disadvantaged school contexts affect the professional growth of novice teachers and points out that novice teachers who have worked in schools with a high ratio of students with low SES are, on average, more likely to show deeper empathy towards students and have more experience collaborating with colleagues. These traits—empathy and collegiality—are necessary for the professional growth of novice teachers, and therefore, schools in economically disadvantaged communities, according to Jimmura (2014), may have positive impacts on professional learning for teachers. How to nurture these traits in pre-service teachers is, however, not well researched yet.

The impacts on teachers and teacher education of other sources of diversity, such as special needs and ethnic and linguistic diversity, have also been widely researched. Regarding students with special needs, the MEXT reported that there were around 420,000 students with special needs in 2017, constituting 4.2% of students at primary and lower secondary levels (MEXT, 2019b, p. 5). The share of students with special needs has nearly doubled in 10 years, with only 72,000 of whom studying at special education schools. This means the majority of them study at regular schools, either

in partially or fully inclusive settings (MEXT, 2020b). However, as Forlin et al. (2015) point out, Japanese teacher education is still based on the dual system of regular and special education rather than on inclusive education. In fact, inclusive education is introduced in regular teacher preparation just as a concept.[5] For those who wish to obtain a special education license, for example, they must first obtain a regular teacher's license and then complete courses on special education theory, curricula, and teaching methods for students with respective disabilities (blind/reduced vision, deaf/hard of hearing, intellectual disabilities, physical disabilities, and/or weak constitution) and finally complete a two-week practicum at respective special education schools. Pre-service teachers, as a result, do not feel ready to teach students with diverse needs and disabilities (Forlinet al., 2015). Although this is more so for pre-service teachers in regular courses, student teachers in special education courses also feel that they are not ready to teach inclusive classrooms.

Similarly, the number of students with ethnically and linguistically diverse backgrounds has also shown a rapid increase, although many teacher preparation programs fail to prepare their students to face such a reality. There exists a body of ethnographic research that explores the experience of immigrant children in Japanese schools (Nukaga, 2003, 2008; Tokunaga, 2011; Tokunaga et al., 2018), and this line of research sheds a critical light on the Japanese education system, which has long been based (incorrectly) on the monolithic population, culture, and language in Japanese society. Shimizu and his group also researched how transnational families strategically move globally by seeking better educational opportunities for their children (Shimizu et al., 2013). They reveal that the public education system in Japan does a poor job of accommodating the needs and aspirations of students with diverse cultural backgrounds. As a result, according to a MEXT survey, nearly 20,000 school-age foreign residents (about 16%) were not attending school, and there were around 50,000 students who need support for Japanese language learning as of 2019 (MEXT, 2020a). The internationalization of teacher preparation programs and professional development courses have attempted to meet these needs, but such efforts have not yet been formally institutionalized (Tanaka, 2014). Mismatches between what prospective teachers learn in preparation programs and the various kinds of diversity waiting for them in the classroom pose critical questions to the current teacher preparation system.

Delayed Digital Transformation

The COVID-19 pandemic has not just unveiled the above challenges, but also brought new challenges to Japanese teacher education. One of the new challenges is the

[5] The MEXT's *Teacher Training Core Curriculum* in 2016 requests content that covers children with special needs to be incorporated in all teacher preparation programs. Prospective teachers are, according to the core curriculum, supposed to understand the needs of children with developmental and mild mental disabilities and the methods of supporting their learning. This content, in essence, suggests that children with other types of disabilities would not be included in regular classes.

impact of the expansion of ICT use in teaching. The MEXT has been discussing digital transformation (DX) in education since around 2018, resulting in a five-year plan proposed in December 2019, shortly before the COVID-19 pandemic hit Japan. The plan aims to achieve Global and Innovation Gateway for All (GIGA) schools that offer equitable education that meets individual learning needs by equipping schools with stable access to the Internet and providing a digital device to every student.

The government ordered all schools to temporarily close for three months, starting at the end of February 2020, which was a big spur for the GIGA schools plan. As a result of special budgetary arrangements of as much as 230 billion yen (about 2.1 billion USD), every student was going to be provided with a digital device at the beginning of April 2021. Such rapid changes in the classroom, however, have inevitably caused teachers and prospective teachers to fall behind, particularly when most prospective teachers in their senior year were not able to do practicum at schools due to the pandemic.

The objective of the GIGA schools plan is twofold. First, it aims to renew the goals of teaching and learning to meet the changing needs of society. This plan envisions that learning in the 2020s should be designed based on the individual learning needs, pace, characteristics, and achievement of each student, and study logs, automatically generated and accumulated by artificial intelligence (AI), play a key role in realizing such learning (Primary and Secondary Education Subcommittee under the Central Education Council, 2020). Individualized learning, according to the MEXT, is a basis for deepening and advancing students' learning through active and dialogic styles of learning. Second, by utilizing technology, the GIGA schools plan intends to redress teachers' long working hours. It is expected that the use of AI will reduce teachers' workloads, particularly the time spent on marking and administrative paperwork.

School teachers, as well as pre-service teachers, need to interpret what individualized learning means for their work and how they incorporate individualized learning into collaborative and dialogic learning, in addition to learning how to use new devices and software. Boards of education, in fact, offer a variety of training on new devices and software hand in hand with service providers, while support to help teachers make sense of the GIGA schools plan itself is limited. Moreover, concerns are expressed regarding the disparities in school teachers' level of familiarity with digital devices (for example, Fukumoto, 2020). Digitalization also needs to be addressed in teacher preparation programs, but it is yet to be institutionalized as of March 2021. Rapid policy changes like this often bring confusion and may leave some in- and pre-service teachers who are not so familiar with ICT left behind.

Innovations in Teacher Preparation and Professional Development

As we have seen so far, all of the three challenges of Japanese teacher education—teacher burnout, increasing diversity, and ICT usage in teaching—touch on the issue

of equity. Although neoliberal reforms are sweeping the whole education system, there are in fact many innovative practices in teacher education to help teachers overcome disparities. In this section, we are going to introduce three innovative practices to show how Japanese teachers and teacher educators are trying to achieve equitable education.

Reforming Schools into Learning Communities

The first innovation emerged based on a bottom-up initiative by school teachers. In response to the rise of accountability discourses in education, some teachers started to resist the neoliberal reforms by identifying themselves as learning professionals rather than teaching specialists. By recognizing themselves as learners, these teachers attempted to reform schools into a community in which everyone—teachers, students and their guardians, and local residents—learns and grows together. With theoretical backup by Sato Manabu, a leading education researcher in Japan, this movement came to be known as School as Learning Community (SLC) or *Manabi no Kyodotai* in Japanese.[6] Hamanago Elementary School, established in 1998 in Chigasaki City, Kanagawa Prefecture, was the first SLC pilot school, and it triggered an explosive spread of the SLC movement across Japan(Kitamura et al., 2018). By 2012, some 1500 elementary schools, 2000 junior high schools, and 200 senior high schools in Japan had adopted the SLC model for their school reform (Sato, 2006, 2012), and the SLC model has gained strong momentum particularly among teachers working in schools in low SES communities.

The SLC model puts teachers' professional learning at the centre of school reform. With "leaving no teacher alone" as a slogan, the school administration focusses on ensuring every teacher's right to learn, regardless of years of experience. Professional learning is primarily facilitated through lesson study cycles. In lesson study, multiple teachers work together in planning a lesson, examining teaching materials, implementing and observing a lesson, and reflecting on the lesson, through which the teachers help each other to learn to become reflective practitioners and establish trust and collegiality among them. Teachers at SLC schools also have their own research themes on which they conduct action research in their teaching. It is believed in this model that we cannot ensure every student's right to learn without fulfilling every teacher's professional learning needs.

The SLC model is particularly innovative as a solution to teacher busyness and burnout in two major ways. First, SLC schools minimize non-teaching tasks, such as by reducing the frequency and length of teacher meetings and by outsourcing some of the non-teaching tasks. These measures allow teachers focus on their own professional learning, which would make teaching more rewarding. Second, collegiality fostered through lesson study would increase teachers' job satisfaction, as

[6] See Kitamura et al. (2018) for a detailed discussion on the vision, philosophy, and activity system of the SLC model.

many existing studies point out (Matsuoka, 2015; Shah, 2012; Woods & Weasmer, 2004). Although it is still necessary to reduce teachers' workloads more fundamentally, SLC model is a bottom-up innovation to combat the issue of teacher busyness by framing teachers and their work differently.

Addressing Diversity in Teacher Preparation

Aichi University of Education (AUE), one of the national universities that specializes in teacher education, offers a unique program to prepare teachers who have a deep understanding of the needs of culturally and linguistically diverse children. Aichi prefecture is located in the Chubu region, which has many multinational manufacturing companies like Toyota that attract the largest number of immigrant workers of any region in Japan. As of 2016, there were 7277 students who learned Japanese as a foreign language in Aichi, which constituted 21.2% of the national total. Aside from its large number of students with immigrant backgrounds, Aichi prefecture is unique in the linguistic diversity—Portuguese, Filipino, Chinese, Spanish, Korean, Vietnamese, and many more—among these students. Prospective teachers in Aichi are inevitably going to teach in diverse classrooms. To prepare their students for this reality, AUE launched the Department of Teaching Japanese as a Foreign Language in 1987, as one of the first of such departments in primary teacher preparation programs in Japan.

In addition to teacher preparation, AUE has been very active in supporting students learning Japanese as a foreign language. Since 2003, AUE has been producing supplemental learning materials in multiple languages and distributing them to those in need. This project expanded into a project called the Resource Room, in which a variety of multilingual materials are produced, collected, and archived to be used by school teachers and guardians (Aichi University of Education, 2020). AUE faculty members conduct a series of research studies on Teaching Japanese for Speakers of Other Language (TJSOL) as well as on methods of educating prospective teachers about diversity. AUE students also volunteer in local schools to support students in need either by team teaching in regular classrooms or in TJSOL classes. The Resource Room also organizes Japanese classes for students and their guardians with international backgrounds. By engaging in these activities and gaining first-hand experience with diverse students, prospective teachers can deepen their understanding of the needs of these students and about effective interventions to support them and ultimately prepare themselves for teaching diverse students.

Facilitating Innovative Teaching Practices

Local boards of education also play a key role in supporting teacher learning. The case of Kamakura City Board of Education is our third example of innovative practice. Kamakura, known for its history of hosting a military government in the late twelfth century, is a coastal city in the southern part of Kanagawa prefecture. With its rich historic, cultural, and natural sights, Kamakura is a lively city with international tourists and relatively young and high-income residents. Public schools in Kamakura, therefore, enjoy stability in terms of students' academic performance, which is higher than the national average. Such stability, according to the superintendent, has nurtured conservativeness among teachers and perpetuated the status quo. In such an atmosphere, school teachers in Kamakura may not have been fully aware of the necessity to accommodate in their teaching the rapid social changes outside of the school walls, and new practices rarely emerged from the teachers' side. To break this atmosphere and facilitate innovation in teaching, Kamakura City Board of Education established in 2020 a new funding scheme that school teachers can use to collaborate with various supporters such as universities, private companies, non-profit organizations, and EdTech companies to bring real-life themes—sustainable development, programming, entrepreneurship, and so on—into teaching, so that learning can be more relevant to students' lives.

Promotion of ICT usage in teaching is one of the Kamakura project's major components. Teachers in Kamakura are under pressure to meet the goals set by the GIGA schools plan, as discussed in Sect. 3.3, and Kamakura City Board of Education aims to promote the use of ICT in teaching—from the usage of ICT as teaching tools to teaching about ICT—by collaborating with external supporters.[7] For example, in response to the fact that many teachers find difficulties in teaching programming—newly introduced subject under 2020 Courses of Study—by themselves, Kamakura Board of Education funds a project that invites professional engineers in a local EdTech company to organize programming workshops at schools. At the same time, these external supporters offer training courses for teachers on how best teachers can use coding for their daily teaching and teach coding and programming by themselves. Kamakura Board of Education also plans to make GIGA School supporters station in selected schools, so that teachers can get on spot professional advice regarding the ICT usage and lesson planning.

The uniqueness of the Kamakura project lies in its funding mechanism to facilitate bottom-up innovations. The funding for this project is raised using government crowdfunding, and it is therefore independent from the national and prefectural governments' control. Schools can propose projects based on their unique needs, and the city board of education, which has close relationships with every school in the city and is in a good position to respond quickly to the needs of schools,

[7] Kamakura City Board of Education also offers its original in-school trainings on GIGA schools. Each school can either choose training from the list of themes prepared by the Board of Education or request training on specific themes/topics.

matches the needs with available capacities held by various supporters. Such bottom-up solutions are particularly important when there is a huge gap between the realities in schools and the ambitious goals—like GIGA schools plan—set by the central ministry. Collaborating with various stakeholders in the local community is also expected not just to improve the relevance of learning but to help teachers think about teaching and learning differently and encourage innovations in their teaching practices. Although it is too early to be evaluative, this program has the potential to trigger school teachers' professional growth in line with the social situation and ultimately provide autonomous professional learning opportunities to them.

Conclusion

In this article, we have aimed to offer readers a snapshot of the current state of Japanese teacher education. To achieve this goal, we first reviewed how post-war teacher education has been transformed by a series of neoliberal reforms after the 2000s. All of the three principles that characterize post-war teacher education—university-based teacher preparation, the open system, and licensurism—have been attacked in the midst of the decline in Japanese students' scores in international achievement tests, and the government has strengthened its control over teachers and teacher education and deprofessionalized the teaching profession. With deprofessionalization at the core, Japanese school teachers as well as teacher education are now facing variety of challenges caused by social disparities. Those include, as discussed in section three, teacher burnout and shortages, a growing number of students with diverse needs, and the use of ICT necessitated by COVID-19. While teacher education—both teacher preparation and professional development—is expected to play a role in guiding pre- and in-service teachers to overcome these challenges, it is quite difficult.

However, as we have seen in the previous section, several innovations are emerging at various levels. SLC, for example, is an innovation from within schools and by teachers that aims to place professionalism in the hand of teachers. The teacher preparation program at AUE has been proactive in supporting linguistically diverse students and the teachers who teach these students as well as helping prospective teachers develop knowledge and skills for teaching in classrooms with diversity. The project by Kamakura City Board of Education facilitates bottom-up innovations in teaching through a responsive funding scheme to motivate teachers' professional growth. These innovations are still small in scale and not yet shared widely, but we see in them a light of hope.

Several implications can be inferred from these innovative practices. First, supporting teachers' professional learning needs to be emphasized equally along with students' learning. The recent neoliberal reforms tend to focus too much on students' learning outcomes and dismiss learning opportunities on the part of teachers. Facilitating teacher learning by securing funding or by reducing administrative tasks is necessary to ensure the teachers' right to learn. Second, as the AUE and Kamakura

cases exemplify, teacher education needs to be open to the local communities in which schools exist. Teachers need to be exposed to the diversity as well as resources in the community, so that their teaching would be more relevant to the real-life experiences of their students.

References

Aichi University of Education. (2020, 4月 6). *Gaikokujin jidoseito shien resource room [Resouece Room for students of foreign nationalities]*. https://www.aue-resource-room.jp/

Forlin, C., Kawai, N., & Higuchi, S. (2015). Educational reform in Japan towards inclusion: Are we training teachers for success? *International Journal of Inclusive Education, 19*(3), 314–331. https://doi.org/10.1080/13603116.2014.930519

Fukumoto, Y. (2020). Shingata Corona: Online jugyo, tsukai kirenai genjitu [Online lessons amid COVID: Can we make the full use of tablets?]. *Asahi Shinbun*, 13. http://database.asahi.com/library2/main/top.php

Hisatomi, Y. (1995). *Kyoinbunka no shakaigakuteki kenkyu [Sociological study on teachers' professional culture]*. Taga Shuppan.

Jimmura, S. (2014). Teacher role recognition and socioeconomic disparities in school districts. *The Journal of Educational Sociology 94*, 237–256.

Kanbayashi, T. (2015). Increasing workloads of Japanese teachers with quantitative expansion of extracurricular activities: Comparative analysis of aggregated data of prior teachers' time use surveys with a general linear model.*The Japanese Journal of Educational Research*, *82*(1), 25–35. https://doi.org/10.11555/kyoiku.82.1_25

Kariya, T. (2012). *Education reform and social class in Japan: The emerging incentive divide.* Routledge.

Kariya, T., & Rappleye, J. (2020). *Education, equality, and meritocracy in a global age: The Japanese approach.* Teachers College Press.

Kitamura, Y., Ogisu, T., & Yamazaki, E. (2018). Chapter 7: Schoolteachers' professionalism and teacher training in Japan. In *Navigating the common good in teacher education policy: Critical and international perspectives* (pp. 100–114).

Machida, K. (2019). Significance and problem of the postwar opening system training: Reconsideration of the teacher training based on liberal arts education. *The Annual Bulletin of the Japanese Society for the Study on Teacher Education*, *28*, 8–17. https://doi.org/10.32292/jsste.28.0_8

Maekawa, K. (2019). The perspective of MEXT policy on teacher preparation in open system. *The Annual Bulletin of the Japanese Society for the Study on Teacher Education*, *28*, 18–28. https://doi.org/10.32292/jsste.28.0_18

Matsuoka, R. (2015). School socioeconomic context and teacher job satisfaction in Japanese compulsory education. *Educational Studies in Japan, 9*, 41–54. https://doi.org/10.7571/esjkyoiku.9.41

MEXT. (2017/18). *MEXT: Improvement of academic abilities (Courses of study).* https://www.mext.go.jp/en/policy/education/elsec/title02/detail02/1373859.htm

MEXT. (1989). *Statistics on Schoolteachers 1989.* MEXT. https://www.e-stat.go.jp/stat-search?page=1&toukei=00400003&year=19891

MEXT. (2019a). *Statistics on Schoolteachers 2019.* MEXT. https://www.e-stat.go.jp/stat-search?page=1&toukei=00400003&year=20191

MEXT. (2019b). *Regarding the status of special education in Japan.* MEXT. https://www.mext.go.jp/kaigisiryo/2019/09/__icsFiles/afieldfile/2019/09/24/1421554_3_1.pdf

MEXT. (2020a). *Regarding the results of the foreign children's education situation survey.* MEXT. https://www.mext.go.jp/a_menu/shotou/clarinet/genjyou/1295897.htm

MEXT. (2020b). *Regarding the situation of special education in Japan. Expert meeting regarding the future of special education.* https://www.mext.go.jp/kaigisiryo/2019/09/__icsFiles/afieldfile/2019/09/24/1421554_3_1.pdf

Ministry of Health, Labour, and Welfare. (2012). Kokumin Seikatsu Kiso Chosa[*National living standard basic survey*]. Ministry of Health, Labour, and Welfare. https://www.mhlw.go.jp/toukei/list/20-21kekka.html

Mouri, T. (2020). Teacher training, pedagogy, and the declining birthrate: The challenges facing Japan's teacher training faculties and universities. *The Japanese Journal of Educational Research, 87*(2), 203–213.

Nakada, A., Iwasaki, S., Kanchika, M., Nakao, T., Deguchi, Y., Konishi, A., Ishimoto, H., & Inoue, K. (2016). Relationship between depressive symptoms and perceived individual level occupational stress among Japanese schoolteachers. *Industrial Health, 54*(5), 396–402. https://doi.org/10.2486/indhealth.2015-0195

National Association for the Study of Educational Methods. (2009). *Lesson study in Japan.* Gakubun-sha.

Nukaga, M. (2003). Japanese education in an era of internationalization: A case study of an emerging multicultural coexistence model. *International Journal of Japanese Sociology, 12*(1), 79–94. https://doi.org/10.1111/j.1475-6781.2003.00044.x

Nukaga, M. (2008). The underlife of kids' school lunchtime: Negotiating ethnic boundaries and identity in food exchange. *Journal of Contemporary Ethnography, 37*(3), 342–380. https://doi.org/10.1177/0891241607309770

Ochanomizu University. (2018). *Hogosha ni taisuru chosa no kekka to gakuryokutou tono kankei no senmontekina bunseki ni kansuru chosakenkyu [An analysis of the survey conducted with students and their guardians]*. MEXT. https://www.mext.go.jp/a_menu/shotou/gakuryoku-chousa/1406895.htm

OECD. (2014). *TALIS 2013 results.* https://www.oecd-ilibrary.org/content/publication/9789264196261-en

OECD. (2019). *TALIS 2018 results (Volume I): Teachers and school leaders as lifelong learners.* OECD. https://doi.org/10.1787/1d0bc92a-en

Primary and Secondary Education Subcommittee under the Central Education Council. (2020). *Atarashii jidai no shotochuto kyoiku no arikata ronten matome [Points of discussion regarding primary and secondary education in new era]*. MEXT. https://www.mext.go.jp/b_menu/shingi/chukyo/chukyo4/houkoku/1382996_00003.htm

Sakuma, A. (2010). Reform of teacher preparation programs since 1990 in Japan: Marketization and re-regulation. *The Journal of Educational Sociology*, *86*, 97–112. https://doi.org/10.11151/eds.86.97

Sato, M. (2006). *Gakko no Chosen: Manabi no Kyodotai wo tsukuru* (*Schools that challenge: Creating Learning Communities*). Tokyo: Shogakukan.

Sato, M. (2011). Kyoshi kyoiku no kokusaidoko: Senmonshokuka to kodoka wo megutte [Global trends in teacher education: Professionalization and upgrading]. *The Annual Bulletin of the Japanese Society for the Study on Teacher Education*, *20*, 47–54. https://doi.org/10.32292/jsste.20.0_47

Sato, M. (2012). *Gakko Kaikaku no Tetsugaku* (*Philosophy for School Reform*). Tokyo: University of Tokyo Press.

Shah, M. (2012). The importance and benefits of teacher collegiality in schools—A literature review. *Procedia - Social and Behavioral Sciences, 46*, 1242–1246. https://doi.org/10.1016/j.sbspro.2012.05.282

Shimizu, K. (2015). Who shall be educated? Parental school choice in contemporary Japan. *The Japanese Journal of Educational Research*, *82*(4), 558–570. https://doi.org/10.11555/kyoiku.82.4_558

Shimizu, K., Yamamoto, B. A., Kaji, I., & Hayashizaki, K. (2013). *Oukan suru hitobito no kyoiku senryaku: Global syakai wo ikiru kazoku to kokyoiku no kadai [Educational strategies among*

cosmopolitans: Families living in globalization and challenges to public education]. Akashi Shoten.

Stigler, J. W., & Hiebert, J. (1999). *The teaching gap.* Free Press.

Tanaka, M. (2014). The globalizing trends in teacher education. *Annual Report Graduate School of Education, Tohoku University, 63*(1), 245–261.

Tokunaga, T. (2011). 'I'm not going to be in Japan forever': How Filipina immigrant youth in Japan construct the meaning of home. *Ethnography and Education, 6*(2), 179–193.

Tokunaga, T., Nukaga, M., & Takahashi, F. (2018). Growing up in multicultural japan: diversifying educational experiences of immigrant students. In A. Yonezawa, Y. Kitamura, B. Yamamoto, & T. Tokunaga (Eds.), *Japanese education in a global age: Sociological reflections and future directions* (pp. 155–174). Springer. https://doi.org/10.1007/978-981-13-1528-2_9

Woods, A. M., & Weasmer, J. (2004). Maintaining job satisfaction: Engaging professionals as active participants. *The Clearing House, 77*(3), 118–121.

Yamada, T., & Hasegawa, Y. (2010). The occupational culture of teachers and its transformation. *The Journal of Educational Sociology*, *86*, 39–58. https://doi.org/10.11151/eds.86.39

Yorimitsu, A., Houghton, S., & Taylor, M. (2014). Operating at the margins while seeking a space in the heart: The daily teaching reality of Japanese high school teachers experiencing workplace stress/anxiety. *Asia Pacific Education Review, 15*(3), 443–457. https://doi.org/10.1007/s12564-014-9330-0

Yufu, S. (2010). How should we interpret the pathological phenomena of involving the teaching profession? Teaching as educational labor. *The Journal of Educational Sociology*, *86*, 23–38. https://doi.org/10.11151/eds.86.23

Chapter 38
Teacher Education at Crossroads in India: Dire Need of a New Direction

Jyoti Raina

Abstract In India, professional preparation of teachers is recognized as central to qualitative improvement of school education and the history of teacher education is more than a century old. Yet teacher education development has followed an uneven trajectory in early years of post-independent India and even in recent times. There has been stagnation in the content, processes, and pedagogy of initial teacher education. It is therefore not surprising that teacher education attracted censure in all the policy texts in independent India in the last five decades. It has continued to remain an insular field within the university establishment as also within broader social science academic discourse. The first part of the chapter provides an overview of the history of teacher education development in India. It also takes a look at the teacher education programmes, curriculum and practices while examining the inertia that plagues its content, processes and pedagogies. The next section presents salient features of the new perspective to teacher education that shaped an academic discourse on teacher education policy in early twenty-first century. The chapter concludes by attempting to highlight how the currently prevailing economistic discursive framework shapes current genre of policy while falling short of offering teacher education the much needed direction forward.

Keywords Initial teacher education (ITE) · Teacher education institute (TEI) · Teacher education programme (TEP) · Critical teacher education

Teacher Education at Crossroads in India: Dire Need of a New Direction

Teacher education development in India began in the wider setting of modern Indian education under colonial rule. Its history dates back to more than a century and a half. The first major educational policy-text in colonial times, the Indian Education Commission (1881–1884), recognized the professional preparation of teachers

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as central to qualitative improvement of school education (RoIEC, 1882: 129). Though the term teacher education did not appear in the report's 739 page text but concerns about training and preparation of teachers for various levels of school education were unambiguously expressed. This was the early period of educational development in colonial India. It marked the beginning of teacher education in India. Historical evidence suggests that pre-colonial India did not have the structures of a formal system of education though a limited elementary school network consisting of *ashrams, pathshalas,* and *madrasas* was open to certain sections of society (Prasad, 2020: 182–183). The commission recommended short duration initial teacher training programmes for graduates to prepare teachers for quantitative expansion of a then meagre school education system. The then administrator Viceroy Lord Curzon promulgated the Government of India Resolution on Education Policy in 1904 subsequent to which the first five teacher training colleges were established in select cities of undivided India before Indian independence. He also suggested some general guidelines for the development of these colleges. These included admitting graduates or at least intermediates as student-trainees, forging theory–practice linkage by attaching each training colleges to a school and awarding a university degree or diploma at the completion of the teacher training programme. The training was aimed at the secondary level of school education in an undifferentiated mode.

State policy-making for inclusive educational development began only after India's independence. It followed the policy wisdom of equity in education, a value enshrined in the Indian constitution, as reflected in the words,

> The Preamble to the constitution reflects an aspiration of democratic citizenship for a socialist, egalitarian and just society, envisioning education to be the moral force to build a new inclusive society. Article 45 directing the state to provide for free and compulsory education to all children till 14 years of age aims to actualise this constitutional morality. The Preamble set out the policy development framework according to which education was a process to build citizenship for a democratic, socialist, egalitarian and just society—with guarantee of equality as well as equality of opportunity (Raina, 2020b:6).

The country's first national policy on education: National Policy on Education (NPE), 1968 (GoI, 1992) articulated an aligned road map in which,

> Elementary education in India was envisioned as a leveler to combat the prevailing systemic inequities, a state-funded school system would be open to all children irrespective of their social background, making quality education universally accessible while mitigating glaring systemic inequalities (Ibid: 2020. 7).

The NPE, 1968 was based on the report of the Education Commission (1964–1966), also known as the Kothari Commission, the constitution of which was a major milestone in Indian educational development. Its report continues to remain a landmark policy text even in contemporary times. It is titled "Education and National Development", and it comprehensively detailed the structures, aspects, and levels of education in India, calling for a radical reconstruction. It dedicated a full chapter to teacher education with a call to "vitalize teacher education and through it, the process of learning and teaching in our millions of classrooms" (GoI, 1966: 68). It decidedly admitted the urgent need for a comprehensive programme of improvement

in teacher education for universalizing elementary education. The report lamented that teacher education was isolated from both university academic life as well as school education emphasizing the urgent need to vitalise it by bringing it into the mainstream of academic life of the universities on one hand and of school life on the other (GoI, 1966). Its twin noteworthy recommendations towards these objectives: locating teacher education in a university setting as well as integrating it, as much as possible, with school education, have continued to remain enduring concerns that beg attention even in contemporary times. The first recommendation called for removing the isolation of teacher training from academia by bringing it into the mainstream university life. The commission also recommended that provisions be made for study of education as a discipline of study in higher education institutions and universities. There has been a recognition of the instrumentality of education for social, political, and economic change which puts a spotlight on education as a deeply study-worthy discipline. Within the broader social science discourses, there is increasingly paying attention to the study of education within their respective disciplinary frameworks. The commission pointed out that such an approach to the study of education discipline had not yet evolved in our country. It wrote,

> In India, the general trend has been to identify education with pedagogy. It has been taught mostly in training institutes and is studied only by those who decide to enter the teaching profession, after such a decision has been made. In the educationally advanced countries, however, education has developed considerably as a social science and a separate academic discipline. (GoI, 1966:68).

The second recommendation was to locate teacher education comprehensively in the wider framework of school education in the country. This would also be useful in viewing teacher education as a continuous process of which the pre-service and the in-service components would be inseparable. The report suggested that a demonstration school should be attached to every teacher training institution. Also just as laboratory work is a compulsory part of study of the science disciplines, a minimum teaching practice should be essential to a teacher education curriculum, bringing teacher education closer to school education practice. The report advocated that this isolation could be broken through comprehensive internship programmes during initial teacher education. Such thorough-going internships will enable student-teachers to observe and take up not just classroom teaching but participate in all the aspects related to the professional work of a teacher. It states

> Such comprehensive and fruitful internship will be possible only when there is a systematic collaboration and cooperation between the schools and the training institutions and when student-teaching is regarded as the joint responsibility of the producers(i.e. the training institutions) and the users (i.e. the schools and the State Departments) (GoI, 1966:69).

Qualitative reform in teacher education has even suggested the need for shifting its site mainly to the school. Teacher education policy has even suggested a completely internship-based model in which a short theoretical study is accompanied by a 3–5 year of teaching in a school under the close supervision of mentor teachers (GoI, 1990). The assumptions here are twofold. One that school teachers need to be involved in preparation of student-teachers for recognizing teaching as a professional activity.

Second this kind of school-based teacher education facilitates the student-teachers in learning to teach through observation, activity, and discovery. The student-teachers gain a deeper understanding of curricular, learning, pedagogical, and classroom management issues during such an engagement.

Teacher Education Programmes (TEPs)

In the post-independence years, preliminary differentiation emerged in initial teacher education (ITE) programmes for equipping student teachers to teach at pre-primary, primary, secondary, and post-secondary stages of school education. TEPs, however, remained a unitary undifferentiated field consisting of two main programmes: D.Ed. (Diploma in Education) as the professional qualification to teach at the primary level and B.Ed. (Bachelor of Education) for the secondary and post-secondary level. There were two main modes of pursuing these programmes. First the regular programmes conducted in teacher training institutes affiliated with universities/District Institutes of Education and Training (DIET's) located in the various districts of the various states of the country, administered by the state governments. Second the distance education mode in select universities with limited face to face contact teaching but mainly through guided postal tutorials. The assessment was mainly in the paper–pencil mode but again through postal non-face-to-face responses.

In their curricular design, the ITE programmes did not vary much drawing dominantly from behaviourism in education viewing preparation of teachers as a technicality in the name of "teacher training". This was not merely a semantic limitation because even terming the programmes as "teacher education" left less than adequate scope for criticality, enquiry, reflection, self-development, self-study, praxis, and understanding the processes of classroom teaching–learning. The ITE curriculum in most of the programmes of D.Ed. and B.Ed. across the country's institutional landscape comprised of theoretical coursework in philosophy of education, educational psychology, classical learning theory, "methodology" of teaching, lesson planning in select school subjects, and study of prevailing problems of education; the practicum component consisted mainly of practice teaching in designated schools. Though the practicum courses also included dramatics, craft, art, music, and productive work, these were scarcely integrated with the student-teachers practice. The practicum part of the curriculum tended to consist of planning, delivering, and evaluating a mandated number of lesson plans as if subject-specific pedagogies were mere techniques. These were mentored in a supervisory framework that had pre-defined behaviouristic criteria of externally observable skills like classroom management, questioning, and presentation of disciplinary content. Microteaching, for example, began to be considered as a valuable technical skill. The knowledge about teaching in the context of the institutional arrangements for preparation of teachers was shaped by the psychology of learning especially its cognitive aspects that have been studied by learning theorists. This came to be regarded as the foundation of teacher education. The practice of teacher education was mainly drawn from the discursive framework of mainstream

educational psychology. This in turn was based on scientific, behaviouristic, and psychometric intellectual undercurrents. These became to be viewed as significant "because it is seen to provide a practical frame for the teacher" (Batra, 2014:11).

The integration of theory with practice which is essential to meaning-making in an ITE programme (Lampert, 2010) remained an undeveloped feature, and the curriculum did not provide explicit opportunities for strengthening the theory–practice linkage. The curricular framework aimed at preparing student teachers to fit into the existing school system obfuscating the engagement with the crucial issue: What is wrong with prevailing school structures, systems, and practices? Their inadequate engagement within the teacher education curriculum with Indian educational literature that has "held the aim of education to be nothing short of the highest aim of life itself" (Raina, 2020a:7). The Indian tradition has presented a deep critique of school education for its indifference to deeper aims of life (Krishnamurti, 1953), to child nature (Tagore, 1917), and to social inequalities (Gandhi, 1953). Also inspired by the new sociology of education,

> To critical educators, the goal of education is to invite students to think about various disciplinary domains, their society and learning how to learn so that education becomes the place where the individual and society are co-constructed. This co-construction is based on a social pedagogy, a mutually created dialogue developed by teachers posing problems to students that may be derived from their own personal and social lives and the disciplinary academic domains (Raina, 2020a:7).

These were some of the elements that have been rather missing from mainstream teacher education curriculum, process, and pedagogies.

The second national policy of the country National Policy of Education, NPE (1986–1992), called for overhauling the teacher education system while highlighting the role of the teacher as inseparable from the process of education. As a first step towards this overhaul the subsequent to NPE, 1986, the GoI launched a centrally sponsored scheme of teacher education titled Restructuring and Reorganisation of Teacher Education in 1987. This leads to the establishment of DIET's (offering a two-year diploma recognized by the state governments for teaching at the primary level) all over the country; the number of which by 2009 stood at 571 (MHRD, 2009). The initiative was aimed at establishing a robust institutional infrastructure of TEPs for primary school teachers. Colleges of Teacher Education and Institutes of Advanced Studies in Education were also established all over the country's institutional landscape.

The Need for a Statutory Gaze

Even though the professional preparation of teachers was recognized as central to qualitative improvement of school education, as mentioned at the beginning of the chapter yet teacher education development has followed an uneven trajectory in post-independent India. There is no gainsaying that the post-independence years brought quantitative expansion of facilities as well as some qualitative enrichment

in the content, process, and organization of teacher education. Yet this fell short of a comprehensive nation-wide professionalization of teacher education. It is therefore not surprising that teacher education attracted censure in all the policy texts and commission reports in post-independence India in the last five decades and continues to do so. The Education Commission (1964–1966) even regarded the lack of development of teacher education sector as among the causes of poor state of education in the country. The report of the National Commission on Teachers also known as Chattopadhyaya committee report (1983–1985) remarked "If school teachers are expected to bring about a revolution in their approach to teaching….that same revolution must precede and find a place in the Colleges of Education" (GoI, 1985: 48).

One of the significant recommendations of NPE, 1986 was the proposal for the establishment of a statutory body to coordinate, monitor, and develop teacher education throughout the country. This need for a statutory gaze was a response to the perceived inadequacies in the planning, quality, policy, curriculum, organizational structures, and modalities of teacher education. There was also a need for differentiation in programmes for pre-primary, primary, secondary, and post-secondary level as also the modalities of non-formal, distance, and correspondence education. The National Council for Teacher Education (NCTE) came into existence on 17 August 1995 after the enactment of NCTE Act, 1993 by Indian Parliament. Its key functions included planning, coordination, development, and regulation as well as laying down the norms, standards, and guidelines for TEPs. Keeping in view the large size of India and the need for a variety of TEPs, the NCTE has recognized a wide basket of 15 programmes vide a GoI gazette notification on 28 November 2014. The NCTE 2014 regulations drawn from consultations with stakeholders' throughout the country. The basket includes ITE programmes: two-year D.El.Ed. (Diploma in Elementary Education), conducted by DIET's, Bachelor of education programme leading to B.Ed. degree in affiliation with a university and a four-year university located B.El.Ed. (Bachelor of Elementary Education) programme also offered as a university degree. TEPs in physical education, arts education, at the master's level and through a part time mode are also recognized.

The functioning of NCTE has attracted complaints of commercialization, corruption, and failure to arrest the proliferation of sub-standard teacher education institutes (TEIs). Teacher education policy has pointed out stagnation in the content and processes of ITE in India (NCERT, 2005:8) which continued to remain an insular field within the university establishment as also within broader social science academic discourse. There is a lack of differentiation in teacher education practice as in spite of NCTE recognizing a wide array of specialized TEPs as most TEIs offer the B.Ed. and D.El.Ed. programmes only for secondary school and elementary level, respectively. Even though teacher education development took place yet inadequacies in planning, regulation, organization, and policy continue to be widely perceived and recognized. The fact of the matter is,

> The decade between 2004 and 2014 saw a five-fold increase in the number of programmes recognized by these regional committees. About 90 percent of these institutes are privately owned and a mind-boggling majority of them are standalone institutes, running single programmes with as few as 50 students…..These institutes function in isolation from the rest

> of the higher education system, and there is no system to assess and accredit them. Consequently, there is no systematic sieve to ensure the entry of only motivated and meritorious individuals into the teacher education space (Kant & Iype, 2020).

The whopping regional disparities in the number of TEIs in different regions of the country reflect abysmally poor planning, coordination, and monitoring. Consider this,

> Almost one-third of the TEI's are concentrated in Uttar Pradesh. In fact, Ghazipur, a district in UP with a population of around one lakh, has a whopping 300 TEIs. Approximately half of the total TEIs are in the northern region with Rajasthan having the second largest number of institutes (Ibid).

Teacher education curriculum, policy, and practice in contemporary India continue to be in dire need of a qualitative overhaul. It is against this background that the new international perspective was useful in further framing an emerging curriculum discourse.

New Perspective on Teacher Education

The term "new perspective of professional development" (Villegas-Reimers, 2003:11) has appeared in international teacher education literature in the past few decades. It draws greater attention to an emphasis on teaching as a professional activity. The perspective has strengthened as many societies all over the world experience change in their school education systems. The spotlight during educational change has highlighted its key element: the role of teachers especially continuous teacher professional development. It is useful to examine the core elements of this emergent liberal, forward-looking "new" perspective to teacher professional development that increasingly informs policymaking world over. This section examines five of the major elements of the "new" perspective.

The first key element of the new perspective is that teacher education is viewed as a contextual process. This view follows the logic of the locale-specific nature of school education. In real schools teaching and learning, both occur in specific contexts. Teacher education therefore cannot have a universal rationale and needs to be located in a particular context within the wider framework of school education. There is a robust body of research-based evidence that the teacher professional development programmes that are school-based are much more effective in comparison with conventional professional development activities that are not based on actual school classroom teaching–learning experiences (Abdal-Haqq, 1996; Ancess et al., 2007; McLaughlin and Zarrow, 2001;). Research has also pointed towards the maximal efficacy of on-the-job learning through activities like action research in-service teacher education (Wood & McQuarrie, 1999).

Secondly, such a context-specific approach to teacher professional development aligns with constructivism in education. Educational theory increasingly advocates constructivism as the basis of learning, pedagogy, and curriculum, where knowers

make sense of the world by building cognitive structures of their own based upon their lived experiences. This contrasts with a behaviourism-oriented transmission model of school education in which children are viewed as malleable puppets in the hands of an environment that presents them with information to be learned. Such a view further aligns with notions of professional activity of teaching as action where teachers are not passive but don the hat of active learners (McLaughlin and Zarrow, 2001).

The third key feature is an emphasis on teacher education as a continuous long-term process. The long duration is essential to teacher growth much the same way as organic growth from the seed to the flower. Longer TEPs allow for opportunities to relate new learning to previous base knowledge (Cohen, 1990). Conventional practices provide a "filter" (ibid), but a long-term teacher education process that builds on teaching practice is far more effective for teachers. The information processing learning theorists have argued that this is how learning occurs as organizing new information with reference to the existing knowledge consolidates new knowledge into the long-term memory. This makes in-service teacher education an equally important part of continuous teacher professional development. The author's own experience as a teacher educator in a long duration, four year, TEP has witnessed many opportunities for not only student-teachers creating linkages across curricular components from one year to another but also the development of a sense of commitment to teaching as a professional activity because of the long-term time nature of the TEP. Educational policy in India has historically recognized this continuity regarding teacher education as a process with pre-service and in-service components as inseparable (GoI, 1966, 1992).

The fourth element of the new perspective is that it not only essentializes the notion of school-based teacher education but further views the teacher as a reflective practitioner in the school system, a professional who does not merely undertake action based solely on his previous knowledge but continues to engage with reflective teaching (Dewey, 1933). Reflective teaching is essentially a process of examination of personal experience. In doing so, the teacher outreaches tradition, habit, and institutional definitions. The logic of reflective teaching is indeed based on common sense but has a resonance "beyond this underpinning" (Pollard, 1997: 24) too. It is far more rigorous involving "carefully gathered evidence replaces subjective impressions, open mindedness replaces prior expectations, insights from reading or constructive and structured critique from colleagues challenge what may have previously been taken for granted" (Ibid:24). It can be said,

> 'Common sense' may well endorse the valve of the basic, reflective idea but, ironically, one outcome of reflection is often to produce critique and movement beyond the limitations of common-sense thinking. That, in a sense, is the whole point, the reason why it is a necessary part of professional activity. The aim of reflective practice is thus to support a shift from routine actions rooted in common-sense thinking to reflective action stemming from professional thinking (Ibid: 24).

In a review of the National Policy of Education 1986, it was recommended that ITE be based on an "internship model" in which the principal site of training is the school since actual field experiences in a realistic situation over an extended period of time

provide for the practice which is the basis of development of skills of teaching (GoI, 1990). This feature of new perspective aligns with systemic concern for the need to enhance the professional identity of school teachers particularly because of their double role for being both the objects and subjects of change (Cochran-Smith & Lytle, 2001). These elements of teacher education: it is contextual logic, continuous long-term approach, school-based reflective teaching focus make it possible to connect teacher education to school reform processes and programmes on one hand and development of the teacher agency necessary for it on the other (Raina, 2016, 2018). Teacher empowerment has a direct bearing on student well-being (McLaughlin and Zarrow, 2001). It is also linked to school and curriculum reform both of which are concurrent processes (Schifter et al., 1999).

Finally, it needs to be noted that teacher education is not a homogenous process that remains the same in different setting or has a singular aspect even in one setting. It does not have one form or model. It has a variegated nature which is different in diverse settings and can vary in the same setting too (Scribner, 1999). The trend in teacher education for including community-based experiences at varied places (Jones & Hughes, 2016) can be read as a response to this significant characteristic of new perspective on teacher education. It may "look and be very different in diverse settings" (Villegas-Reimers, 2003:15), so

> There is not one form or model of professional development better than all others and which can be implemented in any institution, area or context. Schools and educators must evaluate their needs, cultural beliefs and practices in order to decide which professional development model would be most beneficial to their particular situation (Ibid:15).

Figure 38.1 summarizes these core elements of this "new" education perspective.

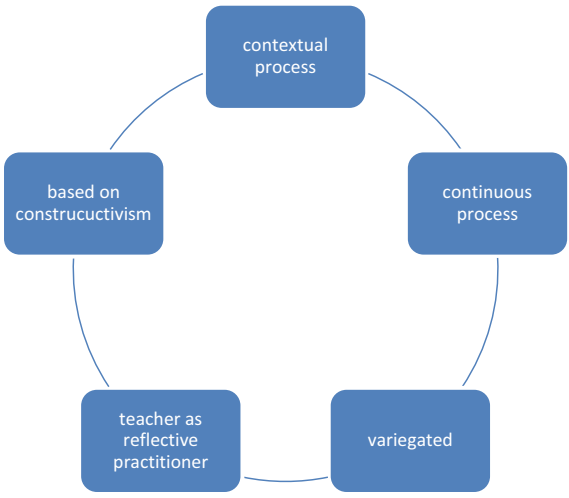

Fig. 38.1 Five elements of new teacher education

Process-Based ITE Curriculum: Orienting Assumptions

The emergent perspective framed the development of academic led teacher education discourses in India (NCERT, 2005; NCTE, 2009). The development of National Curriculum Framework (NCF), (NCERT, 2005) was accompanied by a position paper on Teacher Education for Curriculum Renewal (NCERT, 2005). There was renewed emphasis on professionalizing elementary school teaching through a rigorous professional, degree programme located at the site of a university teaching. A significant step forward was the release of a National Curriculum Framework for Teacher Education (NCFTE) (2009). The framework's "thinking on teacher education" (NCTE, 2009:19) is liberal, humanistic, inclusive, integrative, and eclectic. It recognizes the dialogical exploration, reflective practice, and diversity of learning spaces and curriculum sites (Ibid: 19), characteristics that are in affirmative resonance with the new perspective, as broad principles upon which to design teacher education.

The NCFTE, 2009 recommended a radical, process-based ITE curriculum. This was regarded essential to the development of teacher agency as also teacher education for diversity, social justice, and inclusion. A radical ITE curriculum design aims at broad-based development of knowledge, understanding, skills, attitudes, professional ethics, critical thinking, and teacher identity among student teachers. The premises of such a process-based ITE are twofold. First the understanding of children's psychology including the processes of learning, thinking, and cognition transcends beyond mainstream educational psychology framework into the broader social, cultural, and political context of contemporary Indian society in which children grow up and go to school. This is necessary to actualise the thrust on diversity as also useful in developing among student teachers a multicultural and multilingual perspective. Second, the inclusion of disciplinary knowledge aims to develop not only academic linkages with other undergraduate courses in the discipline necessary for appreciating the epistemological basis of different disciplinary domains of knowledge but also development of pedagogical content knowledge. This may require revisiting school curriculum in Mathematics, Language, Natural Science, and School Science through the lens of this understanding. Such a curriculum empowers student teachers to engage young children in activity-based learning that is participatory, learner-centred and locale specific as also develop "professional skills in pedagogy, observation, documentation, analysis and interpretation, drama, craft, story-telling and reflective inquiry" (NCTE, 2009:24). The inclusion of field-based units of study in theory courses provides opportunity for development of empirical knowledge, student teacher-driven action research, and praxis. Teacher education for social justice, diversity and inclusion also drew from critical teacher education (Hill, 1997; Hill & Boxley, 2007: 54) aiming at developing a vision of an egalitarian society that values human life and is particularly dedicated to the empowerment of the marginalised children through school education..

It is in alignment with these orienting assumptions that a radical ITE programme the Bachelor of Elementary Education (B.El.Ed.) was introduced in 1994 at the University of Delhi. The TEP is now offered in eight women's undergraduate colleges

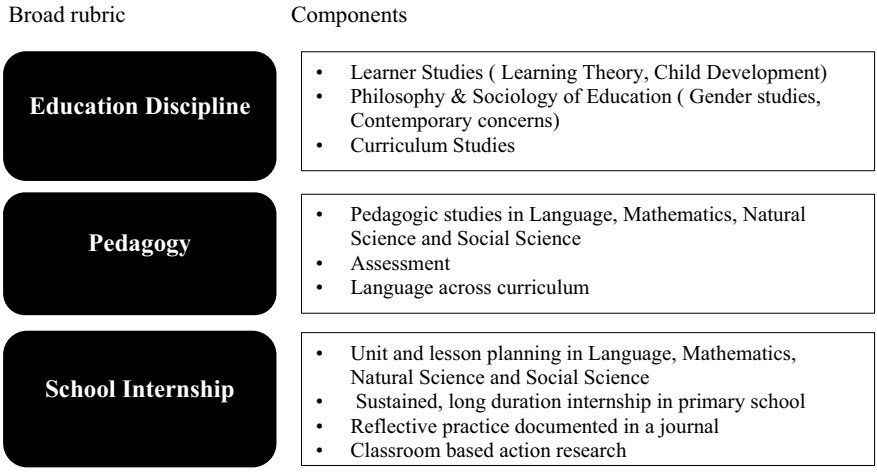

Fig. 38.2 ITE: core curricular layout

in New Delhi metropolis, India, has been regarded as an exemplar (NCERT, 2005; NCTE, 2009), and follows such a radical process-based critical teacher education curriculum framework with inclusionary practices emphasizing academic empowerment through interdisciplinary engagement, personal growth, and reflective practice during fieldwork (Raina, 2018). The NCTE has witnessed deliberations on development of curriculum frameworks in the recent decade for its wide basket of recognized TEPs.

The prevailing core curricular layout of ITE, somewhat common to two of the mainstream TEPs: the two-year diploma as well as the four-year degree programme, consists of the following broad rubrics of theory and practicum coursework (Fig. 38.2).

Essentializing Economistic Moorings

Education has been undergoing restructuring in India, as in other parts of the world, following the Washington Consensus of 1989. The consensus though primarily an economic policy prescription has far-reaching consequences for social infrastructure elements like education. The liberalization of the Indian economy since 1991 has unleashed the neoliberalization of education with devastating consequences for all levels elementary education, higher education, and teacher education. In educational policy and practice, a new discursive framework is now entrenched which is causing cumulative dismantling of public education systems. The nature of the current policy development process in this economistic framework is qualitatively different from that characterizing the previous two national policies of 1968 and 1986. This now essentialized framework "is sorely suited to a policy convergence in school education

between the state and the market" (Raina, 2021: 31). There is a naturalization of the role of the global markets in educational policymaking in the absence of a social imagination (Rizvi, 2017). The National Education Policy (NEP), 2020 (henceforth NEP 2020) released in July 2020 during the pandemic is framed in this currently prevailing neoliberal policy parlance.

Its companion texts Draft National Education Policy DNEP 2019, National Policy on Education [NPE] DNEP 2016 and policy-texts released by state think tank NITI Aayog in 2017 and later confirm these policy trends (Raina, 2019). They herald a break from previous policy history of striving for educational equality through public education. For instance, a significant executive pronouncement during the four-year policy development process preceding the unveiling of NEP 2020 was the "Three Year Action Agenda" (NITI Aayog, 2017) that sought to align policy-processes with neo-liberal economics as:

> India's choice to build a socialist pattern of production during several post-independence decades has resulted in the government entering many activities that do not serve any public purpose and are best performed by the private sector (NITI Aayog, 2017:113).

The current genre of policies hardly invoke the role of the state in providing equality of opportunity in and through access to education. They rather accept the status quo of a multi-layered education system particularly at the school level with hierarchies of access as a given and speak of role of state within this inegalitarian structure. A highly differentiated schooling system is currently institutionalized in Indian society for children belonging to different sections of society. Each of these differential arrangements mirrors the hierarchical socio-economic divisions of our stratified society (Raina, 2020a:3). In re-envisioning the education system while the NEP 2020 recognises that the world today is not what it used to be is "undergoing rapid changes in the knowledge landscape"; "quickly changing employment landscape and global ecosystem"; and there is a need to "address the many growing developmental imperatives of our country" (GoI, 2020: 4) but ignores something fundamental: rising educational inequality. It is framed around thin neo-managerial notions of measurement of outcomes. Its underlying vision is of a globalizing knowledge-based economy and society, one where "knowledge is conceptualised as uncritical, lifelong learning of skills for productivity for a national–global citizenry within a globalising polity" (Raina, 2021:30). Such a vision is a spanner in the wheel from the lens of teacher education "new" perspective.

Teacher Education in NEP 2020

Teacher education is currently located across this discursive economistic framework of school education and higher education. In the NEP 2020, out of the 66 page policy-text; the 13 pages of part on higher education only two pages are dedicated exclusively to 'teacher education'. It has obviously not received the attention it merits. Perhaps the further fleshing was left for the more specialized agency: NCTE to do. The NCTE

has recently unveiled its proposals to develop a new National Curriculum Framework for Teacher Education, 2021.

NEP 2020 recognizes the role of higher education in "promoting human as well as societal wellbeing and in developing India as envisioned in its Constitution—a democratic, just, socially conscious, cultured, and humane nation" moving to become "a knowledge economy and society" and complains of "a severely fragmented higher educational ecosystem". Like its predecessor policy texts, it continues to speak of restructuring teacher education. For teacher education, it recommends that "As teacher education requires multidisciplinary inputs, and education in high-quality content as well as pedagogy, all teacher education programmes must be conducted within composite multidisciplinary institutions. To this end, all multidisciplinary universities and colleges will aim to establish, education departments which, besides carrying out cutting-edge research in various aspects of education, will also run B.Ed. programmes, in collaboration with other departments such as psychology, philosophy, sociology, neuroscience" (GoI, 2020: 43). It speaks of 'The 4-year integrated B.Ed. offered by such multidisciplinary HEIs will, by 2030, become the minimal degree qualification for school teachers'.

Yet key concerns of teacher education: its isolation (as well as insularity) from intellectual discourses, status quoist tendencies, fossilized curriculum, and fragmented pedagogical practices were lamented about but provided mere lip service by both education policies in India: NPE, 1968 and NPE 1986 have remained practically unaddressed. Teacher education literature has documented the alienation of TEIs from intellectual spaces in higher education arena within universities (Batra, 2005). For example, TEIs preparing teachers for the elementary level offering Diploma in Education (D.Ed) courses are neither linked to universities not degree-level programmes. TEIs tend to function as closed spaces for limited, technical "training" of teachers in restrictive conforming orientations. This is in tandem with the view of educational studies as a field of training rather than academic enquiry. Even education literature has highlighted the flawed view of education as a field subject and not a basic discipline domain (Peters, 1963). NEP 2020 "envisions a complete overhaul of the higher education system" recommends "key changes" while "moving towards a higher educational system consisting of large, multidisciplinary universities and colleges" "moving towards a more multidisciplinary undergraduate". The recommendation that TEPs be opened only in multidisciplinary academic settings in intellectually stimulating environments is not new. It has been regarded as essential in the education of student teachers (Raina, 2018; Srinivasan, 2015).

Teacher education is in dire need of a robust direction and an epochal shifts in light of rich professional discourses about teaching" (Biesta, 2015). If the proposed policy is designed to provide a new vision for school education and higher education, it needs to recognize the unique episteme potential of teacher education in bringing the two fields together. NEP 2020 falls short of a road map of how teacher education could be vitalized to turn into a tool of social transformation. The linking the role of the teacher to social transformation is a core educational aim, which previous policies have highlighted. In doing so, it must function within the framework of the

Constitution which provides for a Fundamental Right to Education and a thrust on public education as a leveller for inequalities.

Teacher education in India has followed an uneven trajectory. It is not a misnomer to say that, located in the essentialized economistic school education framework, it is at crossroads at the current juncture. It is at the present moment that critical teacher education in liberal arts, "new" perspective was needed more than ever before. Such an approach has deep epistemic potential for recovery of critical thinking, social transformation, and creation of an inclusive society through equitable schooling even in contemporary times.

References

Abdal-Haqq, I. (1996). *Making time for teacher professional development, ERIC Digest* Washington, DC: ERIC Clearinghouse on Teaching and Teacher Education.

Ancess, J., Barnett, E., & Allen, D. (2007). Using Research to Inform the Practice of Teachers, Schools, and School Reform Organizations. *Theory into Practice, 46*, 325–333.

Batra, P. (2005, October). Voice and agency of teachers: A missing link in the National Curriculum Framework. *Economic and Political Weekly*, 1–7, 47–56.

Batra, P. (2014). Problematising teacher education practice in India: Developing a research agenda. *Education as Change, 18*(1), 5–18.

Biesta, G. J. J. (2015). How does a competent teacher become a good teacher? On judgement, wisdom and virtuosity in teaching and teacher education. In R. Heilbronn & L. Foreman-Peck (Eds.), *Philosophical perspectives on the future of teacher education* (pp. 3–22). Wiley Blackwell.

Cochran-Smith, M., & Lytle, S. L. (2001). Beyond certainty: Taking an inquiry stance on practice. In A. Lieberman, & L. Miller (Eds.), *Teachers caught in action: Professional development that matters.* Teachers College Press.

Cohen, D. (1990). A revolution in one classroom: The case of Mrs Oublier. *Educational Evaluation and Policy Analysis, 12*(3), 311–329.

Dewey, J. (1933). *How we think: A restatement of the relation of reflective thinking to the educative process.* Henry Regnery.

Gandhi, M.K. (1953). *Towards new education.* (B. Kumarappa (Ed.)). Navjivan Publishing House.

GoI. (1966). *Education and national development*. Report of the Education Commission (1964–1966), Ministry of Education, Government of India.

GoI. (1985). *The teacher and society*. Chattopadhyaya Committee Report (1983–1984). Ministry of Human Resource Develeopment, GoI.

GoI. (1990). *Towards an enlightened and humane society.* Report of the Committee for Review of National Policy on Education. Ministry of Human Resource Develeopment, GoI.

GOI, (1992). *National policy on education 1986 (as modified in 1992) with National policy on education 1968*. Department of Education, Ministry of Human Resource Development, Government of India.

GoI. (2020). *National education Policy 2020*. Ministry of Human Resource Development, Government of India. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf

Hill, D. (1997). Reflection in initial teacher education. In K. Watson, S. Modgil, & C. Modgil (Eds.), *Educational dilemmas: Debate and diversity, Vol. I, Teacher education and training* (pp. 193–208). Cassell.

Hill, D., & Boxley, S. (2007). Critical teacher education for economic, environmental and social justice: An ecosocialistic manifesto. *Journal of Critical Education Policy Studies*, *5*(2).

Jones, S., & Hughes, H. E. (2016). Changing the place of teacher education: Feminism, fear, and pedagogical paradoxes. *Harvard Educational Review*, *86*(2), 161–182.
Kant, A., & Iype, S. (2020, 4 March). Teaching the teacher. *The Indian Express*.
Krishnamurti, J. (1953). *Education and the significance of life*. Krishnamurti Foundation India.
Lampert, M. (2010). Learning teaching in, from and for Practice: What do we mean? *Journal of Teacher Education, 61*(1–2), 21–34.
McLaughlin, M. W., & Zarrow, J. (2001). Teachers engaged in evidence-based reform: Trajectories of teachers' inquiry, analysis, and action. In A. Lieberman, & L. Miller, (Eds.), *Teachers caught in the action: Professional development that matters*. Teachers College Press.
Ministry of Human Resource and Development (MHRD). (2009). *Comprehensive evaluation of centrally sponsored scheme on restructuring and reorganisation of teacher education: A report by NCERT*. MHRD.
National Council of Educational Research and Training (2005). *Teacher education for curriculum renewal. National focus groups position papers systemic reform Volume II*.
NCTE. (2009). *National curriculum framework for teacher education: Towards preparing humane and professional teacher*. National Council for Teacher Education (NCTE).
NITI Aayog. (2017). *Three year action agenda: 2017–18 to 2019–20*. Niti Aayog, Government of India.
Peters, R. S. (1963, 9 December). *Education as initiation*. Inaugural lecture delivered at the Institute of Education, University of London, London.
Pollard, A. (1997). *Reflective teaching in the primary school: A handbook for the classroom*. Continuum.
Prasad, M. (2020). A strategy for exclusion: how equality and social justice have been derailed in Indian elementary education. In Jyoti Raina (Ed.), *Elementary education in India: Policy shifts, issues and challenges*. Routledge, Taylor and Francis.
Raina, J. (2016, 13 March). Educating teachers: Consciousness as the basis for personal growth and social change. *The New Leam*. https://www.thenewleam.com/2016/03/educating-teachers-consciousness-as-the-basis-of-personal-growth-and-social-change-by-dr-jyoti-raina/. Accessed on 2 February, 2021.
Raina, J. (2018). Teacher education and inclusionary practices: Sharing Delhi University experiences. In Alan S. Caestrari, & Bruce A. Marlowe (Eds.), *The Wiley International handbook of educational foundations*. Wiley-Blackwell. Also available at http://www.jceps.com/wp-content/uploads/2016/12/14-3-8.pdf
Raina, J. (2019, 14 September). 'DNEP 2019: What's in it for school education? *Economic and Political Weekly*, *54*(37). https://www.epw.in/journal/2019/37/commentary/whats-it-school-education.html
Raina, J. (Ed.) (2020a). Mapping the exacerbated crisis in elementary education: Issues and challenges. In: *Elementary education in India: Policy shifts, issues and challenges*. Routledge, Taylor and Francis.
Raina, J. (2020b). Policy shifts in school education: Where do we stand. *The JMC Review: An Interdisciplinary Social Science Journal of Criticism, Practice and Theory*, *IV*, 153–180.https://www.jmc.ac.in/jmcreview/vol4
Raina, J. (2021, 20 February). School education in NEP 2020: Underlying framework. *Economic and Political Weekly*, *LVI*(8).
Report of Indian Education Commission RoIEC. (1882). Calcutta: Manager of publications. Available at: http://archive.org/details/ReportOfTheIndianEducationCommisssion/page/n325. Accessed 12 January, 2018.
Rizvi, F. (2017). 'Globalization and the Neoliberal imaginary of educational reform' (Working Paper No ED-2017/WP/2). UNESCO Working Papers: Education, Research and Foresight. https://unesco.org/ark:/48223/pf0000247328
Schifter, D., Russell, S. J., & Bastable, V. (1999). Teaching to the big ideas. In M. Z. Solomon, (Ed.), *The diagnostic teacher: Constructing new approaches to professional development*. Teachers College Press.

Scribner, J. (1999). Professional development: Untangling the influence of work context in teacher learning. *Educational Administration Quarterly, 35*(2), 238–266.
Srinivasan, S. (2015, 29 August). Revamping teacher education. *Economic and Political Weekly*, *50*(35).
Tagore, R. (1917). *Personality: Lectures delivered in America.* Macmillan.
Villegas-Reimers, E. (2003). *Teacher professional development: An international review of the literature.* UNESCO International Institute for Educational Planning.
Wood, F., & McQuarrie, F. (1999). On-the-job learning. *Journal of Staff Development, 20*(3), 10–13.

Chapter 39
Preparing Teachers for a Changing World: Developments and Challenges in Brunei Darussalam

Keith Wood, Siti Norhedayah Abdul Latif, and Hardimah Said

Abstract Brunei has emergent findings and promising results aplenty to share from developments in the education system during the first decades of the twenty-first century. In 2007, Brunei approved a new national curriculum, Sistem Pendidikan Negara Abad ke-21(SPN21), with the aim of developing twenty-first century skills among students. In 2009, the teacher education provider, SHBIE, switched from undergraduate (B.Ed.) to postgraduate (MTeach) teacher education. In 2010, Brunei hosted the first international conference of the World Association of Lesson Studies (WALS) outside Hong Kong. Over the past decade, initial and in-service professional development have involved an action research model. In 2013, a four-year SHBIE/Ministry of Education (MOE) research-practice partnership focussed on twenty-first century teaching and learning was initiated with the support of a major grant from the Brunei Research Council with the intention to cultivate teachers' engagement with SPN21. This teacher development project working with consultant SRI International engaged teachers in collaboration to develop approaches to teaching that could support implementation of the new national curriculum. The professional development experience was met with enthusiasm from teachers, although a majority noted that the cultural script of teaching endorsed by the MOE limited opportunities for twenty-first century teaching and learning. In 2018, the MOE introduced a plan seeking to define the required teacher competences to deliver intended results.

Keywords Twenty-first century teaching and learning · MTeach · Lesson and learning study · Practitioner research · Collaboration · Cultural script of teaching

Introduction

Brunei Darussalam is a small South-East Asian country, comprising 5700 square kilometers of Borneo Island, tucked in between Sabah and Sarawak, Malaysia. It is

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home to just under 500 thousand people (Brunei Darussalam Statistical Yearbook, 2019), the majority of whom are Malay (66%), with Chinese (10%) and others (24%) completing the population, of whom most speak at least two languages, Malay and English. According to MOE data (Brunei Darussalam Education Statistics & Indicators Handbook, 2018 and 2019), more than half a million children attend 227 primary and secondary schools and are taught by 8922 teachers, providing opportunities for every child in Brunei who is above the age of six to fifteen years of age to receive compulsory education for at least nine years (Ministry of Education, 2013). The literacy rate in Brunei surpasses 96%.

Education has remained a key foundational value in Brunei, with the focus of education initiatives and reforms placing great emphasis on upholding local values. After independence from the Britain in 1984, the Brunei Government implemented the Bilingual Education policy, the national philosophy *Melayu Islam Beraja* (MIB), or Malay Islamic Monarchy, in education, and ensured that knowledge provision contains the elements of Islam. The Bilingual system implemented in 1985 included a common national curriculum from preschool to secondary levels with the aim to remove any language barrier for all students (Ministry of Education, 2013). In Brunei, it is expected that everyone will uphold the country's national philosophy (MIB) which comprises a blend of language, culture and customs, including the teaching of Islamic laws and values, and the monarchy system. It is central to education and taught at every level, and society is encouraged to practice MIB as a way of life in the country.

The Effect of SPN21 on Teachers' Expectations

In 2007, the Brunei education system reached its greatest milestone with the approval of a new national curriculum with the aim of developing twenty-first century skills among students. The new education system is known as the National Education System for the twenty-first century (*Sistem Pendidikan Negara Abad ke-21* or SPN21). It was designed to provide learners with broad, balanced, relevant, and differentiated learning experiences. SPN21 places the individual at the heart of teaching and learning based on the appreciation of individual needs. Revamping the traditional curriculum which had a limited focus on the development of cognitive skills, SPN21 considers the needs of the learners while ensuring progression and continuity. It was recognized with the introduction of the new curriculum that other aspects of learning such as the inculcation of spiritual, moral, social, and cultural attitudes and values are more relevant in the twenty-first century. The specification of SPN21 is intended to provide optimal opportunities to accelerate individuals who can progress faster, while those who need help are given special guidance. Interestingly, with the introduction of the new curriculum, those who are struggling in their academic performance are no longer required to repeat the same grade. Instead, the weight placed on school retention at the same grade was to be determined by the student's class attendance. Many had mixed feelings about this change, especially teachers who questioned the

introduction of the "no retention" policy. Indeed, His Majesty the Sultan of Brunei during an unscheduled visit to the Ministry of Education questioned whether the abolition of grade retention under SPN21 was a good idea.

In any education reform, curriculum review alone may not succeed effectively without the integration of an innovative assessment scheme. Hence, the Brunei Government decided it was high time to reform school assessment. Continuous assessments (student progress assessment, school-based assessment, and student progress examination) and the formal summative national school-leaving examinations at primary (Year 6) and junior (Year 9) levels were introduced. The main intention behind this reform was the shift from a norm-referenced to criterion-reference assessment with the emphasis on mastery of knowledge and skills. Since teachers are expected to make reforms take effect in the classroom, the Brunei Common Assessment Tasks (BCATs) were introduced. A local study carried out in the learning area of Mathematics (Botty & Shahrill, 2015) which assessed students learning outcomes on three dimensions reflecting the twenty-first century skills: knowledge and understanding, thinking skills, problem solving and investigation, and communication skills indicated that the learning outcomes were confusing for teachers with the marks allocated to students being unfair, thus contradicting the aims of the assessment. The authors argued that teachers should not depend only on BCATs to provide feedback for students. Rather continuous formative assessment should be employed to inform the development of students' knowledge with attention placed on the marking scheme to ensure a fair and systematic nationwide approach.

In keeping with the SPN21 development, major changes were not only limited to the curriculum and assessment, but also focussed on raising teacher standards. This was made clear by the Minister of Education in his contribution to the SPN21 handbook.

> I believe that the most important success factor for this system is to increase the quality and competencies of the teachers and school leaders in Brunei.
>
> (Apong, 2013, p. xiv).

Given the circumstances of SPN21 development, the Brunei Teachers' Standards (BTS) (MOE, 2015) were introduced and implemented in 2014. This gave rise to a new approach to the appraisal of teachers' performance known as the Teacher Performance Appraisal (TPA). It provided a framework for the assessment of the training and professional development needs of teachers in Brunei. The BTS-TPA performative checklist is used to ensure that the quality of teachers is at par with the requirements for providing twenty-first century education (Schleicher, 2012). The challenge for the implementation of this framework is less than wholehearted adherence of some teachers to these BTS-TPA criteria. Instead, teachers pay more attention to the section on individual needs. This was reported in a local study (Ling & Amran, 2018). In which English language teachers were interviewed about the effect of new teacher standards on their approach to teaching. It seems that teachers had reservations about some of the elements in the BTS-TPA with regard to a lack of contextual recognition of the students. The study provided insights for addressing this limitation of the BTS-TPA.

To ensure continuous support for teachers' professional development to meet the expectation of the development students' twenty-first century skills, the MOE has set up the Brunei Darussalam Teacher Academy (BDTA). There are four series in the Teacher Development Programmes offered by BDTA: Signature, Modular, Tool Box, and Bespoke series. In addition, the BDTA is working in collaboration with the Sultan Hassanal Bolkiah Institute of Education (SHBIE), the teacher education faculty at Universiti Brunei Darussalam, in a research project on the development of teachers' pedagogical content knowledge in five learning areas: Science, English, Mathematics, ICT, and Malay Language. This SHBIE-BDTA project is a learning study employing a collaborative action research design. An example of a similar study with teachers of economics is described below. Essentially, groups of teachers work together to develop effective approaches to teaching and learning. This exercise ensures continuity of reflection on the SPN21 curriculum and assessment by the teacher. This partnership between SHBIE and BDTA is a positive development offering an opportunity for teachers, researchers, and administrators to work together to achieve the outcomes ought by the MOE. Another recent example is the MOE-BDTA-SHBIE collaboration on a series of Teachers' Day Conferences (TDC) with the themes *Empowering Education through Innovation (2019)* and *Empowering Education Excellence through Innovation (2020).* These one-day conferences create opportunities for sharing ideas and research studies carried out by teachers and academics through forums and presentation of workshops to inform best practices in teaching and learning of twenty-first century education. The second TDC marked the occasion of Brunei's first ever virtual conference due to the COVID-19 pandemic. This conference expanded its audience capacity ensuring all teachers in Brunei could benefit from participation on this online platform.

SPN21 has had major implications for teachers who seek to meet the expectations of the policymakers. Teachers are the ones responsible for making the reforms take effect in the classroom. They have witnessed several "upgrades" in terms of assessment for learning designed by the MOE that have had repercussions for schools. A failure to uphold the assessment objective has brought about the trial of yet another assessment strategy. When such reform does not work, school principals are fearful of the consequences that follow. Fast forward to today, it has been 14 years since SPN21 was introduced. There remains more research needed to secure outcomes and provide evidence of the effectiveness of education under the new national curriculum. It is a work in progress.

SHBIE: The Teacher Education Provider

In 2009, influenced by the clinical practice model of teacher education at the University of Melbourne, Brunei's teacher education provider switched from undergraduate (B.Ed.) to graduate (MTeach) teacher education (Fig. 39.1) with a focus on evidence-based teaching to meet the needs of individual students by using evidence from assessment to inform the design of teaching and evaluating the effectiveness of

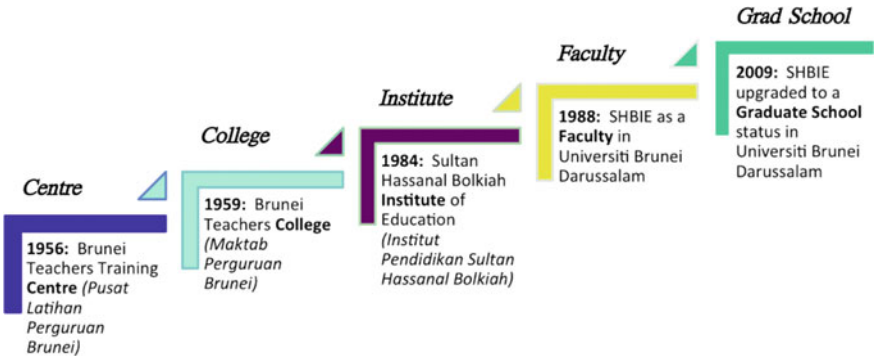


Fig. 39.1 From Teacher Training Centre to Graduate School (Shahrill et al., 2014)

teaching for individual learners. This was seen to be one of the efforts to ensure the development of teachers to align with the implementation of SPN 21 curriculum.

The introduction of the Master of Teaching aimed to produce teachers who have sound pedagogical content knowledge of their subjects. The transformation of SHBIE into a graduate school of education followed the recommendations of the McKinsey Report (Barber & Mourshed, 2007) that in order to achieve best performing school systems, it is essential for the right people—teachers, principals, and administrators with experience of teaching—to be working in those systems and to be developing effective teaching, and that this may take time to achieve.

The introduction of the MTeach aimed to produce highly qualified teachers who will be equipped to meet the demands and challenges of the twenty-first century. In reaching the target of qualified teacher, on admission to the MTeach degree programme, applicants will have a good honours degree—at least second class lower or equivalent from a recognized university—with excellent English proficiency—at least IELTS 6.5 or TOEFL 600—and successful performance at interview. For the past three years, the selection of candidates has the requirement that the applicants demonstrate their potential by performing a teaching demonstration as part of the admission process.

In 2019, to assure the quality of entrants to the teaching profession, the MOE introduced two initiatives for those interested in becoming teachers to gain some experience of the profession. The *Immersion* programme offers MTeach graduates the opportunity to experience teaching in school for a period of months with the continuous support of a school-based mentor prior to consideration for appointment. The *Apprenticeship* programme provides an opportunity for those with an undergraduate degree who have an inclination to join the teaching profession to be placed in schools for a period of one year before joining the MTeach programme. The selection procedure for admission to both of these programmes is demanding. The applicants are selected on the basis of an academic evaluation, a psychometric test, a teaching demonstration, and evidence of leadership and team-working skills, in addition to an interview.

For more than a decade, SHBIE's priority has been to develop as a first-class graduate school of education to contribute to the achievement of Brunei's*Vision 2035* to become a nation that will be recognized for its highly educated, skilled and accomplished people, high quality of life, and dynamic and sustainable economy.

The MTeach programme offers six specialization strands: early childhood education and care, primary education, secondary education, vocational and technical education, higher education, and inclusive special education. It has a duration of eighteen months. SHBIE's partnership with schools, and vocational and higher institutes, provides teacher candidates with the opportunity to practice for two semesters of the programme. A third semester is devoted to the completion of a research exercise by individual candidates. A series of taught modules include technology, pedagogy and content knowledge (TPACK), practice in a specific learning area, educational research, and assessment within the six specializations.

In addition to the MTeach, SHBIE offers the degrees of Master of Education for in-service candidates and Master in Counselling, and the degree of Doctor of Philosophy.

Twenty-First Century Teaching and Learning

In 2013, 150 teachers in 15 subject-based teacher groups each supported by a member of UBD Education Faculty as a facilitator commenced action research into teaching and learning in a project funded by the Brunei Research Council to support the implementation of a new twenty-first century national curriculum *SPN 21*. The new curriculum was intended to provide students with a preparation for life and work in the twenty-first century. The professional development model employed an approach to twenty-first Century Learning Design (21CLD) developed by SRI International (2013). Cycles of plan, design, teach, review lesson study (Fig. 39.2) focussed on the development of students' capability in collaboration to construct interdisciplinary knowledge, using ICT where appropriate, taking responsibility for their own learning to solve real-world problems and, in so doing become innovative.

Rubrics were used to record the level of skill that could be achieved by the students through participation in the lesson design. They are summarized in Fig. 39.3. They were introduced to the teachers in a workshop which was followed by their engagement in cycles of action research. The assumption was that the opportunity to engage in changing teaching would lead to change in the way teachers experience teaching to meet the aims of the new national curriculum.

An example of the rubrics in use is shown in Fig. 39.4. In the first cycle of lesson study, the teachers identified algebra as a focus for their work. In particular, they focussed on the lower secondary school students' capability to expand an algebraic expression of the form $(x + a)(x + b)$. The lesson design, based on a two-dimensional, rectangular space which was to be increased in size by an amount x in both dimensions, proved successful when several iterations were explored by the students having varied the dimensions but crucially maintaining the same area

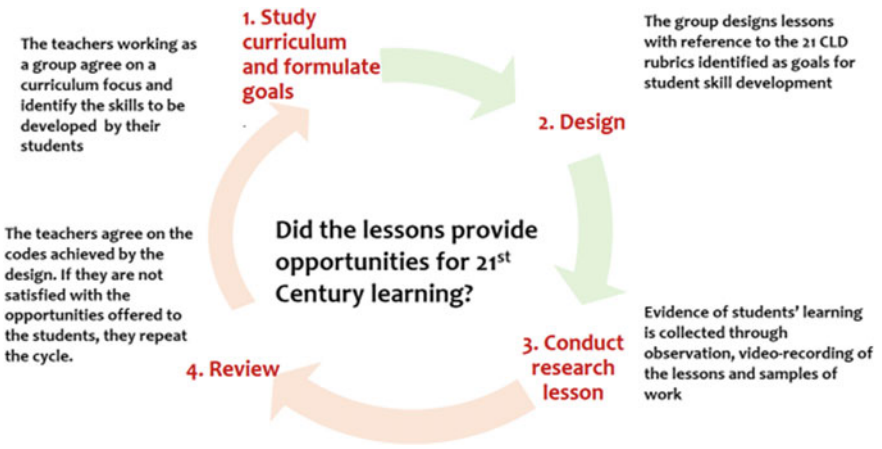


Fig. 39.2 Lesson study cycle

of the rectangular space. Following this success, the teachers turned their attention to the rubrics asking themselves how algebra could figure in a lesson designed to achieve higher 21CLD codes. At the suggestion of the facilitator, they agreed to run an adapted business simulation with their students in cycle 2 which required students to collaborate in groups representing competing businesses selling a similar product. The groups' task was to set price and production level. The teacher then revealed the demand for their product based on the competitiveness of their group's price. The students calculated revenue, costs, profit, or loss as a result of their decision and strategized their next moves in subsequent rounds. With this design, the teachers recorded an improvement in collaboration and self-regulation codes. But they were not satisfied with this.

For cycle 3, the group adopted a design proposed by one of their members to provide a real-world business experience for their students. The students in groups were tasked to run stalls selling ice-cream floats of their own design at a forthcoming school fair. The students were debriefed in focus group discussion after the activity which revealed insights into the learning of the students from this experience. The teachers' codes are shown in Fig. 39.4. They were confirmed by our consultants, SRI International, on presentation of the evidence.

Teacher groups focussed on introducing 21CLD to classes in mathematics, science, MIB, and social studies at primary and secondary levels. Wood and Sithamparam (2021) provide further examples of the lesson designs emerging from this research project. A majority of the teachers were enthusiastic. Evidence of effect was collected in exit interviews and with survey instruments from the participating teachers. A sample of this evidence is shown in Figs. 39.5 and 39.6.

However, the teachers' enthusiasm must be put into context. Teachers explained that lessons based on 21CLD take more time than lessons dedicated to covering the

Design Code:	Collaboration	Knowledge Construction	Real-world Problem-solving	Self-regulation	Skilled Communication	ICT
1	Work individually	Reproduce information/ use familiar procedures	Use a previously learned answer or procedure	Learning goals and success criteria known in advance	Not producing extended or multi-modal communica-tion	No opportunity to use ICT
2	Work in groups but not sharing responsibility	Interpreting, analyzing, synthesizing or evaluating but not main requirement	Problem-solving but not a real-world problem	Long term activity but no opportunity to plan	Not providing supporting evidence or designing for a specific audience	Use ICT to practise basic skills but not constructing knowledge
3	Sharing responsibility but not making substantive decisions	Knowledge construction main requirement but not application in a new context	Real world but not innovate or implement Ideas	No opportunity to revise work based on feedback	Only one of the above achieved not both	Constructing knowledge but no need to use ICT
4	Making substantive decisions but work not inter-dependent	Learning activity in one subject	Implement, or communicate ideas to one who can implement	Do have the opportunity to revise work	All of the above achieved	Not creating an ICT product for authentic use
5	Work is inter-dependent	Multi-disciplinary	-	-	-	Do create such an ICT product for users

Fig. 39.3 Summary of SRI Rubrics (SRI International, 2013)

syllabus for forthcoming examinations. The following extract from an exit interview illustrates this point:

> T: The most useful is seeing students being able to think … Building their own knowledge without us teaching them. Independence … Relating the lesson to real-life. That's what's most important I think because actually Maths is related to real-life. Most of the time we teach only the Maths part and not the real-life bit.
>
> I: Do you think you will continue working on those [21CLD lessons]?
>
> T: Maybe we can just use it only for a few topics. We can't do it for all.

	Cycle 1	Cycle 2	Cycle 3
Curriculum focus:	Expanding Algebraic Expressions	Algebra of Profit and Loss: Classroom Simulation	Algebra of Profit andLoss: Mini-enterprise Activity
Collaboration code	2	4	4
Knowledge Construction code	3	3	4
Real-World Problem-Solving code	2	2	4
Self-Regulation code	1	2	3

Fig. 39.4 Example of codes achieved in lesson study cycles (Mathematics)

I: Why?

T: There's too much to teach and the pressure of producing good results for the SPE [public examination].

I: So what's the strategy for getting the good results?

T: Focusing on the exam question. Make sure the students understand the question, understand what is asked, how to answer it. What we're doing now [with 21CLD] is we try to make them understand the concept.

This is a stark reminder that what Elliott (2014) refers to as the cultural script of teaching, the educational practices shaped by the national context can constrain teachers' development. The Brunei education system is competence-based. Teachers are assessed on 17 core competencies of the Teacher Performance Appraisal (TPA). Students' achievements are described in terms of "the six students" cognitive skills according to Bloom's Taxonomy' (Department of Schools Inspectorate, 2020).

Developing Teachers' Pedagogical Content Knowledge (PCK) Through Learning Study

This brief report focusses on a collaboration between the UBD Faculty of Education and the BD Teacher Academy. With its focus on PCK, it offers a solution to the problem arising from the perceived insufficiency of time to complete the syllabus experienced by many teachers in Brunei.

1. To what degree do you agree or disagree with the following statements?	Disagree ---------- Agree			
	1	2	3	4
A. The workshop was useful to me as a teacher.	-	-	15	34
B. I feel well prepared to modify my learning activities to incorporate the ideas from 21CLD.	2	7	33	7
C. The workshop helped me understand how I can work with my colleagues to discuss learning activities and student work.	-	4	29	16
D. The workshop helped me think about 21st Century teaching and learning more concretely.	-	1	25	23
E. This workshop helped me to think about ways to improve my teaching practice.	-	2	18	29
F. I plan to try the 21CLD ideas in my classroom this year.	4	9	27	9
G. Overall, I was satisfied with the workshop.	-	5	24	20

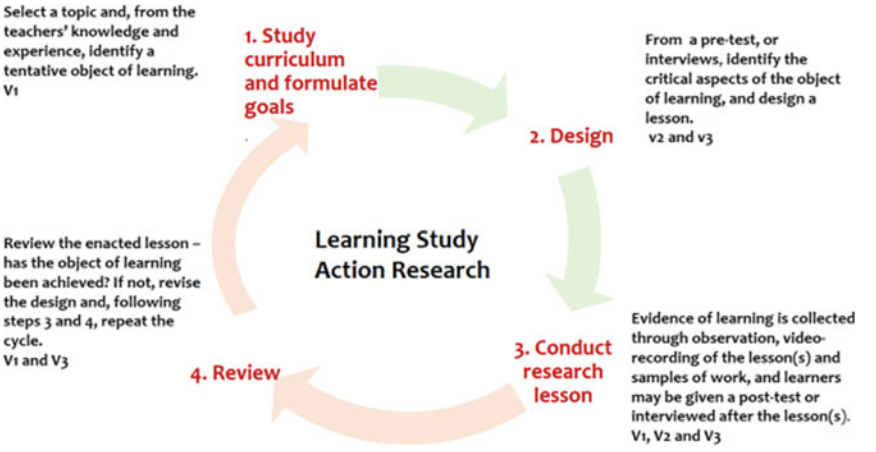
2. How useful did you find the ideas in each of the 21CLD dimensions?	Not useful ---------- Very useful			
	1	2	3	4
A. Collaboration	-	-	12	37
B. Knowledge Construction	-	-	12	37
C. Use of ICT for learning	1	5	17	26
D. Real World Problem Solving & Innovation	-	2	15	32
E. Introduction to Self-Regulation	-	5	20	24
F. Introduction to Skilled Communication	-	6	21	22

Fig. 39.5 Data from the 21CLD workshop evaluation conducted with Cohort 1 ($n = 49$)

Similar to lesson study, learning study is an action research activity with the significant difference that it is informed by a non-dualistic theory of learning—variation theory—in contrast to constructivist theories of learning. The focus in a learning study is on identifying the variation in students' ways of experiencing an object of learning and, with that insight, designing learning activities which, through an experience of contrast, lead students to experience more powerful ways of experiencing that object (see Fig. 39.7). In this process, teachers develop their repertoire of ways of handling objects of learning to support students' learning; that is, they develop their PCK (Marton, 2015).

Since 21CLD, teachers who participated in the programme:	Strongly Disagree	Disagree	Agree	Strongly Agree
A. meet more frequently to discuss teaching and learning	6	30	65	5
B. are more comfortable discussing classroom practice and teaching challenges with other teachers	5	10	80	11
C. are more comfortable sharing learning activities with other teachers	3	9	81	13
D. have more of a common language to discuss 21st century teaching and learning	3	25	67	11
E. work together more to improve teaching and learning at this school	2	12	80	12

Fig. 39.6 To what extent do you agree with the following statements about teacher community at your school? ($n = 106$)



V1: Variation in students' understanding of the object of learning

V2: Variation in teachers' understanding of and ways of handling the object of learning

V3: Using variation as a guiding principle of pedagogical design

Fig. 39.7 Steps in a learning study after Lo (2012)

In a recent learning study (Wood & Andrew, 2021), Brunei economics teachers came to see how they could teach a sophisticated understanding of price determination in a fraction of the time it had previously taken them by introducing students to supply and demand diagrams juxtaposed to bring to their awareness the effect on price of changes in supply and/or demand and changes in the elasticities (responsiveness) of supply and/or demand (Fig. 39.8). A pre- and post-test asked the students to explain why prices in a time series would show sometimes gradual and at other times steep changes under varying conditions prevailing in a market. Figure 39.9 shows the results before and after the teaching intervention.

In exit interviews, the teachers reflected on their ways of handling the object of learning price in the learning study and compared this with their previous way of working with it. One reported:

> Teachers always want to catch up with the syllabus. From what I can see here, we just have to plan the activity structurally with a specific lesson objective, and then make sure the activity can connect to the next one, which I did. That's why it's faster for me now instead of lagging behind my syllabus … because my students get it. I'm really grateful that I am in this PD.

Another observed:

> For example, before we only teach what the scheme says. When we teach about demand, students only learn factors affecting demand, what causes demand to shift to the right and left … But when we attend [this LS], it's different … not only teachers are learning something different, students also learn … the knowledge is more expanded, more diversified … we are learning out of the box basically.

She went on to explain how the four integrated activities involving systematic variation in demand, supply, elasticity of demand, and elasticity of supply impacted on her role as a teacher:

> The activities 1, 2, 3, 4, they're all connected … I did not guide them [the students] all the way, it's just them doing it because it's connected … the activities do not stop halfway. Usually I cannot finish my lesson, I always have to carry forward … but here the students get it straight away … and I finish it.

These teachers appear to be confirming that learning study can be an effective means to develop teachers' PCK in so far as they learnt a new way of handling the object of learning price—in contrast to their usual textbook chapter sequential

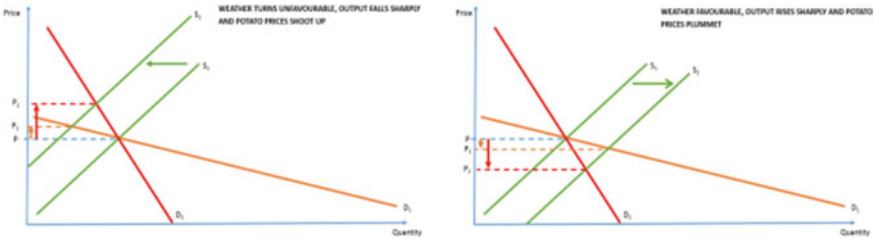


Fig. 39.8 Effect on price of varying supply in markets with different elasticities of demand

School:	A (did not focus on demand and supply)		B (focused on demand or supply)		C (focused on the interaction between demand and supply)		D (focused on the elasticity of demand or supply)	
	Pre	**Post**	Pre	**Post**	Pre	**Post**	Pre	**Post**
1 (Y9)	0	**0**	10	**2**	10	**1**	2	**19**
2 (Y9)	0	**0**	14	**5**	4	**11**	0	**2**
3 (Y9)	8	**0**	4	**0**	0	**4**	0	**8**
4 (Y9)	1	**0**	1	**0**	8	**0**	0	**10**
5 (Y11)	0	**0**	3	**1**	3	**2**	1	**4**
6 (Y11)	0	**0**	4	**0**	10	**0**	0	**14**
7 (Y10)	0	**0**	1	**1**	10	**2**	5	**13**
8 (Y11)	1	**0**	1	**0**	2	**1**	1	**4**
9 (Mixed)	0	**0**	6	**6**	18	**17**	0	**1**
No. of students	10 (8%)	**0 (0%)**	44 (34%)	**15 (12%)**	65 (51%)	**38 (30%)**	9 (7%)	**75 (59%)**

Fig. 39.9 Students' pre- and post-test conceptions of factors determining price

approach—which proved to be a powerful learning experience for their students, and others of their colleagues participating in the professional development activity concurred.

Conclusion

In Brunei, the provision of education has expanded rapidly after its independence in 1984. The Government of Brunei Darussalam has always been committed to educational success. SPN21 is the catalyst that has reinforced the MOE's commitment to evolve. Yet changes come slowly in Brunei as educational reform transits through principles, standards, and ingrained practices. Currently, the model for teacher education is based on the identification and assessment of seventeen competences for teaching. Stigler and Hiebert (1999) in *The Teaching Gap* explored the factors leading to successful teaching in the light of the Third International Mathematics and Science Study (TIMSS). They identified lesson study (or jugyō kenkyū) as the source of Japanese teachers' success. For example, observing, with reference to the subject of mathematics, that:

> In Japanese lessons, there is the mathematics … and the students … The students engage with the mathematics, and the teacher mediates the relationship between the two. In Germany, there is the mathematics as well, but the teacher owns the mathematics and parcels it out to students as he sees fit … at just the right time. In US lessons, there are the students and there is the teacher. I have trouble finding the mathematics; I just see interactions between students and teachers.
>
> (Stigler and Hiebert (1999) The Teaching Gap, pp. 25–26).

In a competence-based model of teaching, there is a real possibility that the importance of students' engagement with subjects—the importance of the development of teachers' pedagogical content knowledge of subjects—will be lost. In the two examples of lesson and learning study cited here, teachers report enthusiasm for the insights gained and reveal the constraints on their implementation. This is a major challenge for those wishing to improve learning and teaching.

References

Apong, A. B. (2013). *Message by the Minister of Education. The National Education System for the 21st Century: SPN21*. Ministry of Education.

Barber, M., & Mourshed, M. (2007). *How the world's best-performing school systems come out on top*. McKinsey & Company.

Botty, M. R., & Shahrill, M. (2015) A critical review of the school-based assessment in Brunei Darussalam. *International Journal of Education and Practice*, *3*(1), 17–27.

Brunei Darussalam Education Statistics and Indicators Handbook. (2018). Department of Planning. Development and Research, Bandar Seri Begawan: Ministry of Education.

Brunei Darussalam Statistical Yearbook. (2019). Bandar Seri Begawan: Department of Economic Planning and Statistics, Ministry of Finance and Economy.

Department of Schools Inspectorate. (2020). *Handbook for Brunei teachers' standards teacher performance appraisal 2.0*. Ministry of Education.

Elliott, J. (2014). Lesson study, learning theory, and the cultural script of teaching. *International Journal for Lesson and Learning Studies*, *3*(3).

Lo, M. L. (2012). *Variation theory and the improvement of teaching and learning*. Acta Universitatis Gothoburgensis.

Ling, M., & Amran, R. (2018). Advancing achievement through value-added measures: A study on English teacher preparation in Brunei. In S. Zein, & R. Stroupe (Eds.), *English language teacher preparation in Asia: Policy, research and practice*. Routledge.

Marton, F. (2015). *Necessary conditions of learning*. Routledge.

Ministry of Education. (2013). *Sistem Pendidikan Negara Abad ke-21*. Ministry of Education.

Ministry of Education. (2015). *Handbook for teacher performance appraisal (TPA): Accountability and performance management*. Ministry of Education.

Schleicher, A. (2012). *Preparing teachers and developing school leaders for the 21st century: Lessons from around the world*. OECD Publishing.

Shahrill, M., Jaidin, J. H., Salleh, S. & Jawawi, R. (2014). *Realising teacher quality at the M-Level*. Official

SRI International. (2013). *21 CLD learning activity rubrics*. Microsoft Partners in Learning.

Stigler and Hiebert (1999) *The teaching gap. Best ideas from the world's for improving education in the classroom*. The Free Press.

Wood, K., & Andrew, V. (2021). The development of teachers' pedagogical content knowledge through learning study. *Asia Pacific Journal of Education*, Forthcoming.

Wood, K., & Sithamparam, S. (2021). *Changing teaching, changing teachers: 21st century teaching and learning through lesson and learning study*. Routledge.

Chapter 40
Fast Growing Analog Economy and an Urgent Need to Improve Its Teacher Education Towards Digital Transformation of the Lao PDR

Phanhpakit Onphanhdala and Vanvisa Philavong

Abstract This chapter provides a review and an analysis of pedagogical education in Laos. Among the transition economies, Laos is a fascinating case study. This tiny, high indebted, and landlocked country has seven million inhabitants and shares its international borders with five neighbours. Currently, Laos is one of the fastest-growing economies, a result of natural resource exports. Also, this country reforms its international policies with regional integration, including China's BRI. Lao education development has remarkedly improved over the past decades but remains weak in ASEAN, considering historical background. In current progress, it has tremendous tasks to accomplish the SDGs. Throughout the difficulty, the Lao government aspires to enhance teachers' performance by improving pedagogical education. This situation in Laos presents a unique opportunity to consider previous and further national strategies and development plans of education, precisely teacher qualification. According to the 9th Five-Year National Education Development Plan 2021–2025, there is an attempt to upgrade teachers' performance by developing a pedagogical curriculum toward innovative digitalization. It aims to supply qualified teachers in four specific disciplines—science, technology, engineering, and mathematics—that must achieve national education development goals and elevate the teaching profession in Laos in order to catch up with the international education standards.

Keywords Laos · Pedagogical education · Transition economy · Innovation

Introduction

The Lao People's Democratic Republic (hereafter, Lao PDR) is the only landlocked country in the Southeast Asia surrounded by Cambodia, China, Myanmar, Thailand, and Vietnam. This country has been struggling to improve its economy since the country's revolution in 1975. After a major economic reform or *Chintanakaan Mai* (New Thinking) in 1986, also known as the New Economic Mechanism, Lao

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PDR witnessed substantial structural changes in the economy, transforming from a centrally planned economy to a market-oriented one and modernizing its human resource bases. Over the past decade, Laos managed to sustain economic growth with 5.5% in GDP on average (World Bank, 2021a). However, this country ranks among the highest debt service ratio in developing countries.

The Ninth National Socio-Economic Development Plan 2021–2025 (the 9th plan) continues to set out a number of strategies for furthering socio-economic development, industrialization, and modernization of the Lao economy. The 9th plan recognizes the importance of education and human resource development (HRD) in achieving the social and economic objectives. Continued modernization, the shift to a more knowledge- and technology-based economy, and increasing economic integration have ramification to improve the performance of its teacher education and higher education sector. For instance, the Asian Development Bank (ADB), in its recent analysis of the Lao economy and human resources, identified an increasing shortage of educated and skilled manpower as a critical constraint to inclusive growth in Lao PDR's transforming economy and a constraint on private sector growth and economic diversification (ADB, 2011, 2012). Human development index shows that Laos ranks at the medium level of human development (HDI, 2021).

However, Lao PDR has made considerable progress in lifting access to education in response to increasing social demand and setting a lower secondary education for compulsory education in 2015 (Law on Education, 2015). It further needs to improve the quality and relevance of the teacher education system and institutions. One of the key reasons affecting the low quality of education in the Lao PDR is the shortage of qualified academic staff. Due to low salaries paid to academic staffs, education institutes have difficulty retaining skilled and experienced academic personnel. It is leaving institutes with too many young, underqualified, and inexperienced academic staff. Lack of academic staff with advanced degrees is a key constraint on undertaking research in innovative education development. This chapter examines the current situation and future directions of development of Lao teacher education system and institutes.

Teacher Education in Brief

Education During the French Colonial, 1893–1954

The traditional education of Lao society was centred in the village Buddhist temple (Wat), known as the "temple education". The Buddhist Monks (Sangha) taught children in reading and writing. On the other hand, many Lao boys spent several months as novices to study the Pali scripts of the Buddhist sutras (Cohen, 1975; Langer, 1971; Noonan, 2014). After France intervened in 1893, Laos's public education system changed by using a French model. The Laotian public education system was administered by the Ministry of National Education that followed the French

pattern. The education system served a small group of Laotian elites for administration. According to Cohan (1975), the French made the first effort to initiate a teacher training program in Vientiane, the capital city of Laos, in 1909. The program aimed to train Laotian teachers and retrain Buddhist monks for the secular educational system. It was followed by three more teacher training schools in Luang Prabang, Savannakhet, and Pakse in 1911 (Roberts et al., 1967; Cohan, 1975). In 1928, the first teacher training school to train teachers for three-class primary schools from grade 1 to grade 3 opened (Cohan, 1975). French was a communication language at both primary and secondary schools. But Lao language was used in most elementary schools as the medium of instruction, while students also needed to study French. It implied that Lao teachers could communicate in French, while foreign teachers came from France and other Indochina colonial countries. After the Laotian first independence and immediate intervention of the USA in the 1950s, education sector assistance began with the US Operation Mission (USOM) Education Program 1956–1961 for teacher training (Noonan, 2014).

At the 1950s, the most important teacher training establishment was the Upper Institute of Pedagogy (École Supérieure de Pédagogie) at Dong Dok, Vientiane, by the French (Robert et al., 1967; U.S. Department of Labor, 1970; Weidman, 1999). This institute offered four years of teacher training for the primary school. It also had seven years and nine years of training courses for the secondary classes. In 1962, teacher training schools in Luang Prabang and Pakse offered 1-year program of teacher instruction. In 1966, there was a teacher training school in Savannakhet called "École Normale Savannakhet", which established or probably reestablished from a teacher training school since 1911. This school was confronted with training programs for primary school teachers covering two provinces—Savannakhet and Khammouane[1] (the central provinces). There were four teacher training schools in the academic year 1962/63 and increased to eight schools in 1968/69. In June 1969, there were about 6000 primary school teachers and a total of 7089 public and private school teachers at all levels (U.S. Department of Labor, 1970).

Lao Education Initiative in Liberated Zones—The Pathet Lao, 1947–1975

The liberated zone (Khet Potpoy) is the name given by the Pathet Lao[2] to those independent areas from the French under their control till December 1975 Revolution. In 1947, the first illiteracy eradication campaign was launched in Xamneua, Houaphanh province, where it was the most crucial liberated zone. The significant action of education development during this time was the establishment of the

[1] See more information from http://savannakhet-ttc.edu.la/history/.

[2] "Land of the Lao [people]". Term originating the early 1950s referring to areas liberated from French control. In the 1950s through 1975 it was widely used in Western literature to denote the Lao revolutionary movement as a whole (Noonan & Noonan, 2021).

first 4-grades primary school. More importantly, in 1962,[3] the first teacher training school was established to meet the educational purposes of the Pathet Lao's direction (Sichaloen, 1994). It offered 1-year teacher training program for primary school teachers. The first academic year had 59 pedagogical students. Three years later, the teacher training school offered 2-years program to train secondary school teachers. It aspired to fulfil the needs of education promotion in liberated zones (Onphanhdala, 2010).

Education was gradually expanded to other liberated zones, namely Xieng Khouang, Phongsaly, Luang Prabang, and Khammouan provinces. It was an attempt to promote literacy for all. As Langer (1971) stated, education was designed to serve a dual mission. It must convey knowledge and skills while fomenting a revolutionary spirit in the pupil. The first upper secondary school was established in Houaphanh in 1968 and expand to Xieng Khouang in 1969 (Sichaloen, 1994). The number of enrolments increased, which showed a significant improvement under the Pathet Lao governance. In addition, the launching of the three-year educational development plan was a milestone of education development during this period. The first three-year plan was published in 1967 (Zeck, 2017). The Education Sector Development Congress in Liberated Zone[4] was first launched in 1965, and the second one was held in 1974.

Lao Education Under the Lao PDR Governance, 1975–Present

In 1975, it was the year of Laos's revolutionary and the introduction of Lao's People Democratic Republic (Lao PDR). Teacher training schools in liberated zones, and those from a legacy of the French colonial were combined. Under the centrally planned government, the "École Supérieure de Pédagogie" merged with the Normal School of Viengsay (Houaphanh province) to become the University of Pedagogical Institute (UPI), providing 4-year programs for the upper secondary school teachers. The main campus was at Dong Dok, Vientiane, while there were two other campuses in Luang Prabang and Savannakhet (Can, 1991; Weidman, 1999). During this time, the education sector's main challenge was a lack of teacher and teaching material (Onphanhdala, 2015; Onphanhdala & Suruga, 2006, 2007). After the major economic reforms in 1986 (the policy known as Chintanakaan Mai or New Economic Mechanism), the Lao government began to transform the economy from the centrally planned one to a market economy. Human resource development to meet the socio-economic development needs was the immediate educational policy in Lao PDR (MacKinnon & Thepphasoulithone, 2014). Educational policy focused on secondary and vocational education (Onphanhdala, 2015; Onphanhdala & Suruga, 2006, 2007).

[3] Vongsa (2018) stated that the first teacher training school was established in 1962.

[4] *Kong Pa XoumGnayViek Ngan KanSeuksa You Khet Potpoy.*

Before the mid-1990s, only teacher training colleges had teacher education programs. Under the Prime Minister's Decree on Establishing the National University in 1995, the National University of Laos (NUOL) was established in 1996. This higher educational institute offered a bachelor's degree in pedagogy at the Faculty of Education, which maintained the stature of UPI. In the academic year 2012/13, two more public universities offered teacher education programs: Champasak University (the southern part) and Souphanouvong University (the northern part). A few years later, Savannakhet University (the central part) initiated education faculty.

Teacher Education Institutes

At present, there are three types of teacher education institutes in Laos: (i) teacher training college (TTC), (ii) specialized teacher training college, and (iii)Faculty of Education (FED) at four public universities.[5] There are eight TTCs, including Luang Prabang TTC (since 1959), Dongkhamxang TTC (1960), Pakse TTC (1962), Khangkhay TTC (1962–63), Savannakhet TTC (1966), Bankern TTC (1968), Luang Namtha TTC (1968–1969) and Salavan TTC (1970). Five specialized TTCs include: Fine Arts TTC and Physical Education TTC; other two Buddhist colleges are Ongtue Buddhist TTC and Champasak Buddhist TTC; and the Vocational Education Development Institute (VEDI). While TTCs have played a crucial role in teacher education, public universities have a shorter history starting from the mid-1990s. Four public universities confront with a degree-level program and continuing programs for general and higher education. There are National University of Laos (NUOL), Champasak University (CU), Souphanouvong University (SU), and Savannakhet University (SKU). These public universities offer a degree-level program for upper secondary teachers. Only the NUOL has a master's degree of education in three programs: (i) educational management, (ii) curriculum and teaching, and (iii) educational locality development (Table 40.1).

Teacher Training Colleges supply teachers for general education up to the upper secondary class. The number of teacher-students up to secondary education from TTCs increased significantly since 2010/11 (Table 40.2). Educational policies were promulgated to promote primary and secondary education. Teacher training colleges increased a number of teacher-student enrolment in an attempt to solve an insufficient teacher nationwide. The teacher education plan addressed this issue by increasing the number of pre-school teachers, pre-service of primary and secondary school teachers. From 2010/11 to 2014/15, there were more than forty thousand trained teachers. Although, teacher allocation only covered in urban areas, and several teachers were in waiting-recruitment. In 2019, the MOES intended to reduce new enrolment by around 14%[6] and promote training quality for in-service teachers up to secondary education. It also promulgated handbooks for teacher qualification assessment as

[5] For more details see Noonan & Noonan (2021), pp. 94.

[6] MOES (2019).

Table 40.1 Number of pedagogical institutes and teacher staffs

		2005/06	2007/08	2010/11	2012/13	2014/15	2015/16	2017/18	2019/20
TTCs [1]	No.	8	8	8	8	8	8	8	8
	No. Staff	679 (297)	606 (275)	1,053 (487)	1,064 (520)	1,114 (548)	1,117 (555)	1,132 (601)	1,198 (618)
Specialized TTCs [2]	No	–	–	2	2	2	2	2	2
	No. Staff	–	–	90 (34)	94 (45)	168 (67)	113 (34)	109 (58)	107 (38)
Buddhist TTCs [3]	No	–	–	–	1	1	2	2	2
	No. Staff	–	–	–	60 (14)	36 (8)	65 (13)	85 (14)	87 (7)
Public Universities [4]	No	1	1	1	3	4	4	4	4
	No. Staff	193 (137)	193 (137)	N/A	339[a] (197)	368[b] (164)	224[a] (145)	228[a] (175)	281[c] (113)
TECs [1] + [2] + [3]	No	8	8	10*	11**	11	12***	12	12
	No. Staff	679 (297)	606 (275)	1,143 (521)	1,218 (579)	1,318 (623)	1,295 (602)	1,326 (673)	1,392 (663)
Total	No	9	9	11	14	15	16	16	16
	No. Staff	872 (434)	799 (412)	1,143 (521)	1,557 (776)	1,686 (787)	1,159 (747)	1,554 (848)	1,673 (776)

Source Ministry of Education (MOE) and Ministry of Education and Sports (MOES), Annual Reports (various years)

Remarks: Females in parentheses. Number of staffs includes both teachers and administrators but excludes invited scholars. [a]excluding SU and SKU, [b]excluding SU, SKU, and CU, [c]excluding SKU; *including Music and Arts TTC, and Physical Education TTC, **including Ongtue Sangha TTC, ***Champasak Sangha TTC

Table 40.2 Number of enrolments–total pedagogical students (TTCs)

	2000	2005	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Pre-school	129	297	1209	1227	1218	1436	1759	1803	1601	624	527	441
Primary	1981	3213	1968	1939	3664	4901	4839	1607	552	336	429	388
Secondary*	2242	9861	11,893	16,817	16,621	16,328	14,896	1960	1904	1861	1707	575
Physical	230	258	998	5823	5716	5238	3628	218	236	166	131	156
Fine arts	126	209	549	998	1127	928	824	154	137	172	151	154

Source Ministry of Education (MOE) and Ministry of Education and Sports (MOES), Annual Reports (various years)
Remarks *Included both lower and upper secondary pedagogical students

a guide to improve teaching quality. All eight TTCs improved teacher education curriculum for primary school by adding two more weeks of practice from 10 to 12 weeks. More advanced teaching materials such as natural science experimental equipment, and audiovisual rooms were also settled (Table 40.3).

Four public universities run pedagogical programs to train general education teachers up to secondary grades and higher education. They offer a bachelor's degree and a diploma (continuing programs) to graduates. As the government aspired to improve higher education between 1996 and 2010, which counted as *public and private higher education institutes growth's period* (Onphanhdala, 2015; Onphanhdala & Suruga, 2006, 2007). Several higher education institutes remarkably increased in quantity. In 2011, however, education policy shifted to reduce private higher education institutes. The numbers of pedagogical students from education faculty still increased since the mid-2000s, and this number stayed around two thousand for a half-decade. In 2010/11, there were more than four thousand (Table 40.4). It implied a policy implementation delayed due to low demand and inappropriate supply of pedagogical students in higher education institutes. Since 2016, enrolments then gradually declined (Table 40.5).

Governance

Institute Governance

MOES is the line ministry primarily responsible for governance and management of the Lao PDR education system as stipulated in the Education Law 2015 (amended version). MOES must: (i) formulate laws, decrees, policies, regulations; (ii) develop a strategic plan and related plans, and a framework, including National Education System Reform Strategy (MOE, 2008), Education Sector Development Framework (MOE, 2009), Teacher Education Framework and Development Plan (MOE, 2010), 5 Years Development (MOES, 2011, 2015, 2020), annual reports, and plans for next academic year; (iii) approve curriculum design, academic standards, the design of educational facilities, the management and training of teachers, the quality of educational provision, and the establishment of new programs and institutes (Fig. 40.1).

The governance of pedagogical institutes in Laos is quite complicated. For instance, four public universities are under the Department of Higher Education (DHE) management, MOES. Meanwhile, the Department of Arts and Physical Education (DAPE) supervises two specialized TTCs—Fine Arts TTC and Physical Education TTC. Two Buddhist colleges fall under the supervision of the Buddhist Fellowship Organization of Lao PDR.

Based on the Minister's decision on teacher education department establishment in 2018 (amended version), the Department of Teacher Education (DTE) works under the MOES supervision (Minister of Education and Sports, 2018). It is responsible for

Table 40.3 Number of enrolments—total graduates

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Pre-school	925	603	1037	2028	1928	1720	1413	1245	439	660
Primary	1192	749	1506	2195	2101	1655	619	480	117	501
Secondary*	5407	6118	6180	4549	4598	3721	3546	1278	1294	767
Physical	–	194	377	277	313	263	155	144	130	139
Fine Arts	67	97	188	122	139	162	154	159	155	133

Source Ministry of Education (MOE) and Ministry of Education and Sports (MOES), Annual Reports (various years)
Remarks *Included both lower and upper secondary pedagogical students

Table 40.4 Number of enrolments–total students from faculty of education (Universities)*

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
NUOL	4118 (2013)	3868 (1991)	2766 (870)	3852 (2017)	2044 (988)	2605 (1306)	2215 (1068)	1789 (963)	1575 (899)	1402 (848)
SKU	–	–	–	–	168 (128)	273 (199)	431 (309)	496 (326)	546 (342)	410 (253)
SU	N/A	1180 (560)	1008 (482)	973 (493)	975 (448)	895 (408)	843 (273)	737 (309)	564 (260)	426 (208)
CU	N/A	765 (399)	765 (409)	693 (398)	559 (321)	594 (346)	725 (426)	917 (557)	976 (650)	868 (596)

Source Ministry of Education (MOE) and Ministry of Education and Sports (MOES), Annual Reports (various years)
Remarks *Bachelor degree. Females in parentheses

Table 40.5 Number of enrolments–total new enrolment from faculty of education (Universities)*

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
NUOL	647 (302)	741 (388)	891 (463)	892 (454)	334 (135)	580 (278)	551 (256)	456 (267)	363 (212)	303 (210)
SKU	–	–	–	–	97 (76)	90 (61)	124 (82)	144 (77)	115 (78)	52 (29)
SU	N/A	244 (107)	204 (102)	281 (147)	284 (104)	162 (71)	158 (66)	175 (82)	135 (63)	68 (44)
CU	N/A	121 (63)	153 (93)	197 (122)	86 (47)	139 (75)	314 (178)	448 (283)	277 (188)	168 (115)

Source Ministry of Education (MOE) and Ministry of Education and Sports (MOES), Annual Reports (various years)
Remarks: *Bachelor degree. Females in parentheses

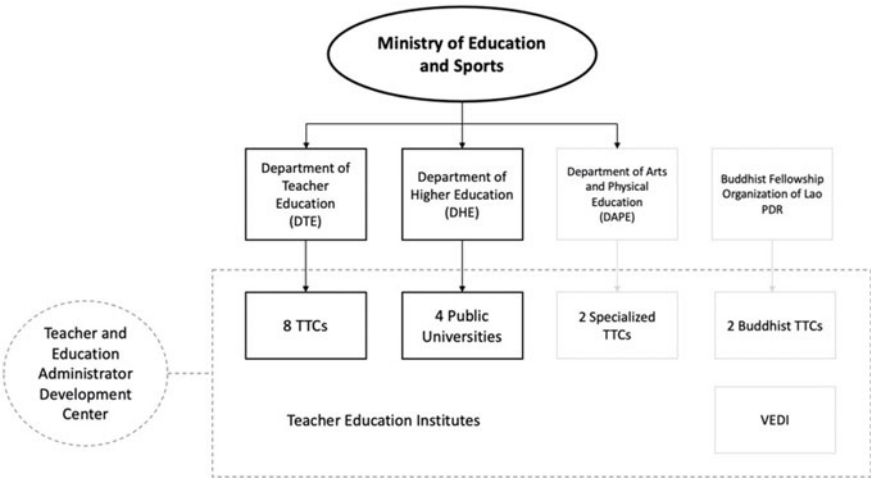

Fig. 40.1 Governance structure of teacher education institutes in Lao PDR. Source: Authors' compilation from Prime Minister (2020), Minister of Education and Sports (2018), Minister of Education and Sports (2020a, b, c), Ministry of Education (MOE) and Ministry of Education and Sports (MOES)

teacher education, train, continuing to develop the teaching profession. Its responsibility must align with the ministry's education sector development plan. Under this department, the eight TTCs responsible for implement pedagogical teaching, training, and developing the teaching profession. All types of TTCs share the same structure regarding the Minister's Decision on an Establishment and Implementation of Teacher Training College in 2020 (Minister of Education and Sports, 2020c).

Teacher education institutes also work with the teacher development centre in order to enhance Lao teachers' competency and ensure education quality. This chapter examines Lao teacher education's current situation and future direction by focusing on eight teacher training colleges and four public universities. Specialized TTCs are excluded.

Public Spending

As a proportion of GDP, public expenditure on education increases from 1.5% in 2000 to 2.8% in 2010 and 3.5% in 2015. However, Lao PDR still ranks among the lowest in ASEAN member states regarding education spending relative to GDP (World Bank, 2021b). Public expenditure on teacher education was relatively small, represented 2.2% of education expenditure and only 0.3% of total government expenditure. In the same circa, public spending on higher education showed the highest share in education spending, which accounted for around 6.0%, and 0.8% of public spending. More than 90% of teacher and higher education spending is recurrent spending,

Table 40.6 Proportion of teacher education expenditure

	2009/10	2011/12	2013/14	2015/16
% of Education sector	1.71	3.19	2.77	2.18
% of Government expenditure	0.22	0.38	0.37	0.27
% of GDP	0.05	0.10	0.12	0.08

Source Ministry of Education (MOE) and Ministry of Education and Sports (MOES), Annual Reports (various years)

Table 40.7 Proportion of higher education expenditure*

	2009/10	2011/12	2013/14	2015/16
% of Education sector	14.88	8.89	7.99	5.96
% of Government expenditure	1.91	1.05	1.06	0.75
% of GDP	0.44	0.27	0.35	0.21

Source Ministry of Education (MOE) and Ministry of Education and Sports (MOES), Annual Reports (various years)
Remarks *Total higher education spending

with the bulk of that spent on salaries. Despite this, the salary level is insufficient in order to attract and retain qualified teaching staff. Resources for maintenance, renovation, infrastructure improvement, and academic and staff development are virtually nonexistent (apart from external aid). It is one of the major constraints to improve research and innovative education (Tables 40.6 and 40.7).

The National Teacher Education Setting

Curriculum

The basic education system changes to "5 years of primary + 4 years of lower secondary + 3 years of upper secondary, or 5 + 4 + 3" from "5 years of primary + 3 years of lower secondary + 3 years of upper secondary, or 5 + 3 + 3". It is a result of an additional grade of lower secondary education since 2010/11. Therefore, the pedagogical education system is designed to support students who graduate with 11-years and 12-years of schooling. Eight TTCs offer pre-service training for future pre-school, primary, and secondary school teachers with a certificate, diploma, and bachelor degree. It implies that, during years at TTCs, pedagogy is provided to train teacher–students for general education.

As shown in Table 40.8, the "9 + 3" system is a TAFE diploma program offering a pedagogical certificate to graduates. It requires nine schooling years (5-years of primary + 4-years of lower secondary) and 3-years of studying at TTCs. An additional two years of training is a continuing program for more pedagogy practical

Table 40.8 Teacher education programs at TTCs

	Title	Schooling Required on Entry	Years Required at TTC	Upgrading/Continuing
Diploma	5 + 3 + 2	5-years primary education	3	2
Diploma	9 + 3	5-years primary education + 4-years lower secondary education	3	-
Diploma	9 + 3 + 2		3	2
Higher Diploma	12 + 2	5-years primary education + 4-years lower secondary education + 3-years upper secondary education	2	
Bachelor Degree	12 + 4		4	
Higher Diploma	12 + 2 + 2		2	2
	11 + 5	5-years primary education + 3-years lower secondary education + 3-years upper secondary education	5	
	11 + 1 + 2	5-years primary education + 4-years lower education + 1–3-years professional education	1	2
	11 + 3 + 2		3	2
	11 + 3 + 2 + 3		3	2 …

Source Lao Government (2015), MOES (2021)
Remarks *No distinction between lower and upper secondary teachers, **at two Sangha TTCs
[a]Natural science, social science, and English; [b]Math, chemistry, and English; [c]to teach Buddhism principle, Lao literature, mathematics, and English at secondary education

experience. The "12 + 2" system also provides a higher diploma that requires 12 schooling and 2-years of teacher training. On the other hand, the bachelor's degree is the "12 + 4" system at both TTCs and four public universities nationwide. Due to an inadequate teacher allocated in ethnic villages, the "5 + 3 + 2" system offers a five-grade curriculum for teachers to teach girls from ethnic groups in rural areas. New enrolees who graduated with 11 years of schooling can entrance the "11 + " system, which primarily confronts continuing programs. For instance, the "11 + 3

+ 2" system requires 11 schooling years, three years of teacher training, and two more years for upgrading courses.

According to the 2019/20 MOES annual report, there are more than ten thousand teachers nationwide. Pre-school pupils–teacher ratio is 17, a ratio at primary education level is 22, a ratio at lower secondary education level is 12, and a ratio at upper education level is 6. The ratio is lower than the benchmark stated in the Teacher Education Framework and Development Plan (MOE, 2010). It is true in some advanced schools in an urban area, but it shows a different story in rural areas where teachers are insufficient to provide education to children.

Qualifications

General Education Teachers

Teacher qualification requires advanced teaching competency for fulfilling education sector purposes on broadening access to quality education for all. A teaching qualification is the minimum requirement of teachers' practising. It ensures teacher education quality to improve the teaching profession and performance. Several teacher qualification handbooks are edited by the teacher education department, MOES, with international organizations' assistance.

Regarding the development and implementation of the national new curriculum for grades 1–5, a primary school teacher's handbook was approved under the Decree on an Approval of Experiment of Teaching Qualifications of Primary Education Teacher in 2019 (Minister of Education and Sports, 2019). This handbook consists of improving teacher education and strengthening support systems such as planning, management, and monitoring of teaching guides under the DTE's supervision, with support from the BEQUAL.[7] The guidelines and framework were edited based on lessons from many models such as the Australian professional standards for teachers, the SEAMEO teaching competency standards; the Singaporean teacher education model for the twenty-first century; and the US teacher assessment, and core teaching standards.

There are four dimensions and 11 qualifications as a benchmark to advance teacher quality and assess teaching performance (Table 40.9). Teachers can use the standards to recognize their current and developing capabilities, professional aspirations, and achievements. The standards also confront four career stages to guide the preparation, support, and development of teachers. (i) *Graduate teachers* have completed a qualification that meets the requirements of a national program of initial teacher education. It is for improving graduates' knowledge to become competent teachers. (ii) *Proficient teachers* create effective teaching and learning experiences for their students. (iii) *Highly accomplished teachers* are skilled classroom practitioners to

[7] Basic Education Quality and Access in Lao PDR, see more information: http://www.bequal-laos.org/about-bequal/overview/.

Table 40.9 Teaching standards of primary school teachers

4 Dimensions	11 Qualifications
1. Knowledge about students	1.1. Know students 1.2. Know how students learn 1.3. Develop positive and safe learning environments
2. Knowledge about each subject and curriculum objective	2.1. Subjects 2.2. General education curriculum (this case is primary education curriculum)
3. Knowledge about teaching	3.1. Planning and implementing an efficient teaching program 3.2. Teaching approach—delivery lessons and contents to students 3.3. Assessment, recommendation, and reporting of students' performance
4. Teaching profession responsibility	4.1. Expression of career attention 4.2. Ethics of the teaching profession 4.3. Support peer profession, child parents/carers*, and community

Source DTE (2019)

advance their own practice. (iv) *Lead teachers* are skilled in mentoring teachers and pre-service teachers that develop knowledge, practice, and professional engagement in others.

Basic approaches to assess teacher standards are teaching materials, teaching records, students' papers, examination results, and director's reports.

Higher Education Teachers

Table 40.10 shows the qualifications of faculty and staff members in four universities in 2014/15. Due to data availability, only the NUOL displays information in 2019/20. It is obvious that most members hold only a bachelor's degree in all universities, which accounts for around 44.8%. While PhD holders account for approximately 6.7%, most of them belong to the NUOL. It is similar to master's degree holders that also belong to this oldest university. It implies that teaching staff's qualifications in the other universities remain low and insufficient. Although all data for general education institutes[8] are not available, based on TTCs' curriculum and enrolment, teaching staffs' qualifications are mixed between TAFE, TAFE diploma, higher diploma, and hold a bachelor's degree. These higher education institutes tend to have a lower qualification of academic staff comparing to the MOES strategy that requires 30% of PhD staffs (actual is 6%), 60% of master degree staffs (actual is 40.3%), and 10% of bachelor degree staffs (actual is 44.7%).

[8] Pre-, primary, lower secondary, and upper secondary schools.

Table 40.10 Qualifications of faculty and staff members in four public universities, 2014/15

	PhD	Master	Bachelor	Others	Total
NUOL*	182 (40)	969 (410)	572 (345)	54** (35)	1,777 (830)
SKU	4 (0)	20 (6)	201 (90)	37 (25)	378 (178)
SU	4 (0)	106 (20)	266 (81)	15 (7)	391 (108)
CU	6 (2)	83 (19)	272 (103)	20 (8)	381 (132)
Total	196 (42)	1,178 (455)	1,311 (619)	126 (75)	2,927 (1,248)

Source MOES, Annual Report 2015, *NUOL (2020)
Remarks: *the academic year 2020/21, **4 of them holds a postgraduate. Females in parentheses

On the other hand, there is an insufficient academic staff who has an advanced academic title. For instance, at the NUOL, only two lecturers hold *professor* title and 83 lecturers hold *associate professor* title. More than 70% of staff members do not have pedagogical certificates. For TTCs, the teaching staff qualification is also mixed. For example, at Savannakhet TTC, only one lecturer has PhD, 24.3% of staff hold a master's degree, and 57.9% of staff hold a bachelor's degree (the academic year 2018/19). At Bankern TTC, its staff members who hold master degree accounts for around 35.0%, 46.7% of all staffs have a bachelor's degree, and only one lecturer has PhD, as in the same academic year. Most overseas scholarships go to general students, while a few Lao teachers receive these scholarships to enhance their capabilities. Therefore, teacher training programs are operated domestically.

Innovation and Professional Development

The Lao government initially focused on improving teacher quality and broadening access to education since the beginning of the market economy reform in 1986. MOES increasingly paid more attention to the quality of teacher education and higher education by setting the National Quality Assurance Framework for Teacher Education (NQAF-TE), as shown in Fig. 40.2. Quality assurance (QA) relates to a continuous process of evaluating (assessing, monitoring, guaranteeing, maintaining, and improving) the quality of education system, institutions, or programs, mainly in higher education[9] (UNESCO, 2006).Besides, MOES also joined the projects in which in networking with the Greater Mekong Subregion (GMS), in collaboration with the Southeast Asia Ministers of Education Organization-Regional Center for

[9] Teacher Training Colleges are counted as higher education institutes.

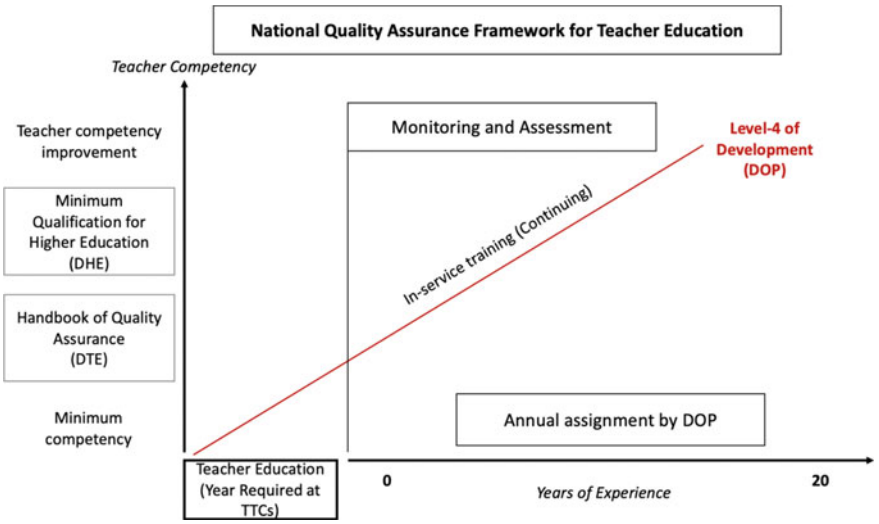

Fig. 40.2 National quality assurance framework for teacher education. Source DTE (2016)

Higher Education and Development (SEAMEO-RIHED), and established the Education Standards and Quality Assurance Center (ESQAC) in 2008. A decade later, the ESQAC changed to Department of Education Quality Assurance regarding the decision of Minister of Education and Sports (2020d).

Besides MOES assessment through ESQAC, NUOL implemented a QA framework modelled on the ASEAN University Network (AUN), namely ANU-QA (Moxom & Hayden, 2015). Educators from the Lao PDR first joined AUN-QA training in 2002. Since then, several trainings and awareness on QA have risen within MOES and NUOL. Unofficially, NUOL has translated AUN-QA Manual into the Lao language, and five faculties in NUOL have completed self-assessment according to AUN-QA Manual (AUN, 2007). Up-to-date, only NUOL has implemented the QA framework of AUN, while remaining public universities are yet fully involved in this process (Inui & Onphanhdala, 2013).

Based on the National Quality Assurance Framework for Teacher Education (NQAF-TE),the minimum teacher education QA for TEIs consists of 10 standards and 50 indicators: (i) vision, mission, and goal (3 indicators), (ii) governance and management (6 indicators), (iii) personnel development (8 indicators), (iv) curriculum (5 indicators), (v) teaching performance (3 indicators), (vi) student enhancement (7 indicators), (vii) learning environment and knowledge sources (8 indicators), (viii) information and communication technology (3 indicators), (ix)internal QA system (4 indicators), and (x) research and academic performance (3 indicators). Each indicator has 5 scores from 1 to 5 where 5 denotes excellent, 4 denotes good, 3 denotes moderate, 2 denotes poor, and 1 denotes very poor. There is a doubt that this minimum requirement is a sufficiency in teacher education qualification, while teachers' academic performance remains poor. It is suggested that the

MOES should enhance regional and international cooperation in order to reform and improve the teacher education sub-sector.

An idea to promote TTCs and higher education institutes to the *Center of Development (COD)* or the *Center of Excellence (COE)* occurred in the late 1990s. It received much attention a decade later. The MOES initiative implemented TTC quality development in early 2007 and drafted the first TTC quality assessment handbook in 2008. For all this time, the MOES also published plans, manuals, qualification guidelines to improve teacher education, assessment, assignment, and quality assurance. For instance, (i) teacher education institute quality assurance handbook (DTE) in May 2010, (ii) minimum qualification of higher education institute guideline in July 2013, (iii) teacher assignment plan handbook in December 2013, (iv) teacher performance monitoring and assessment (TPME) handbook, December 2013, (v) teacher education institute assessment handbook (DTE), amended in July 2013 and April 2014. However, there were no clear standards, indicators, and guidelines for QA frameworks. The slow implementation showed the release of the latest version of the COD and COE handbook in April 2016 by the Department of Teacher Education (DTE, 2016; Minister of Education and Sports, 2016).

Based on the COD and COE handbook, there are four levels to reach COE development: preparation stage, initiative stage, Center of Development, and Center of Excellence. In order to promote TEIs to become the Center of Excellence, it requires 100 scores that consist of 50 scores in teaching quality criterion, 25 scores in research and publication, 20 scores in dissemination and integration, and another 5 scores in institution qualification at national and internally levels. The Center of Development requires 80 scores. However, TTCs' performance is poor, and the development process is slow that difficult to catch up with the international standard. For example, at Savannakhet TTC, an institute assessment in 2016, shows that this TTC is at an initial stage with a score lower than 50. According to the ASEAN Citation Index (ACI), the bibliographic records and the citations of all quality ASEAN research outputs in the ASEAN scholarly journals, only Lao journal publications show no citation. In contrast, Cambodian journal articles show two citations, Myanmar has two citations, and Vietnamese journals have 20 citations.[10] It implies a slow and poor process in innovative education in Laos.

Discussions and Future Directions

The Lao PDR has determined to break away from its status as the least developed country by 2025 and aims to secure a full-fledged position within the ASEAN community. However, the teacher and higher education in this country are categorized as latecomer. Considering the current situation of teacher education development, it is not relevant to make any judgements. Lao PDR is far from the start-line regarding

[10] See more details from https://asean-cites.org.

the international standards. Teacher training programs are mainly available domestically, while scholarship winners are non-pedagogical pupils studying aboard. Only a few teachers have advanced academic titles such as *professor* and *associate professor.* An advanced qualified teacher is insufficient to ensure teaching quality at all levels. It is available only at NUOL that the oldest public university in the country. Moreover, several higher education teachers never attained teacher training programs. It implies the qualifications of teaching staff that remain low and insufficient. Based on the ASEAN Citation Index (ACI), Lao academic publications at the regional level do not have any citations. On the other hand, the COE development process is slow. It takes almost a decade to upgrade TTCs, but most of them are at initial stage. It relates to public expenditure on the teacher and higher education as its proportion of GDP ranks among the lowest in ASEAN.

Such quality improvements must be accelerated to pave the way towards narrowing development or human resource gaps between Lao PDR and other ASEAN countries. In addition, it is essential to receive an attention by external assistance agencies and foreign universities, which would be able to offer scholarships for postgraduate degrees to teacher-students. Besides, the Lao government should establish student loan or scholarship schemes for studying abroad. It should be strengthened and consolidated by conducting governance and management, teaching and research capacity development activities with universities at the subregional level. This is promoting harmonization among member universities in the GMS in terms of QA and credit transfer systems, which complements networks of universities, most importantly, the AUN.

There are many challenges in Lao education development. Although teacher education such as curriculum, manuals, and methods are improved, it is still slow to meet current requirements and its implementation is limited. There are trained and upgrade in-service teachers domestically, but lesson contents delivery is poor. Several teaching staffs are unqualified to create and implement new curriculum to meet social demand. The cooperation between public and private sectors is inefficiency. The level of incentive is also insufficient to attract qualified entrants for pre-service teachers and to retain qualified teaching staffs.

MOES further intends to reform the general education to build a strong fundamental of education. It includes curriculum improvement, in-service teacher training, and teaching standards setting. Regarding the education sector development strategy, it plans to separate curriculum for upper secondary education into two programs such as natural science and social science. It aims for preparing students' readiness to continue studying in higher education program. For academic performance, it is essential to upgrade teaching staff quality for developing curriculum and meeting national teaching standards both in regular curriculum and international curriculum. It aspires to reform education scheme to attract qualified entrants and retain qualified teachers. The plan aims to upgrade teacher training colleges to teacher training institutes. In order to further advance education sector, vocational education also matters. MOES perceives to improve its in-service teacher, curriculum, and institutes (Special Report, 2021). The curriculum intends to develop an entrepreneurial concept among

its students which would encourage graduates to become entrepreneurs. For vocational education teachers, the QA should be implemented in vocational institutes to ensure teaching quality as well as higher education institutes.

References

ADB. (2012). *Technical assistance report, Lao People's democratic republic: Support for the human resource development strategy*. ADB.

ADB. (2011). *Critical constraints to growth in the Lao PDR*. Vientiane.

Can, L. T. (1991). Higher education reform in Vietnam, Laos, and Cambodia. *Comparative Education Review, 35*(1), 170–176.

Cohen, D. N. (1975). *EFL Instruction at the Lycee de Vientiane, 1973–1974* [Unpublished doctoral dissertation]. The Ohio State University.

DTE. (2016). *Center of development and Center of excellence for teacher education handbook*. Department of Teacher Education, Ministry of Education and Sports, Lao PDR.

DTE. (2019). *Teaching standards of primary education Teacher Handbook*. Department of Teacher Education, Ministry of Education and Sports, Lao PDR.

HDI. (2021). *Human development index trends, 1990–2019*. Retrieved March 31, 2021, from http://hdr.undp.org/en/composite/trends

Inui, M., & Onphanhdala, P. (2013). Chapter 7: Quality assurance of higher education in Lao PDR. In K. Yamauchi, K. Hara (Eds.), *Student's academic performance and quality assurance of higher education* (Part II, pp. 119–142). Gakubunsha Publishing. [*In Japanese Language*].

Langer, P. F. (1971). *Education in the communist zone of Laos*. RAND Corporation. https://www.rand.org/pubs/papers/P4726.html

Lao Government. (2015). Lao Government's decree on higher education, No. 177/GOV, issued date on 5 June 2015.

Law on Education. (2015). Law on education, No. 62/NA, issued date on 16 July 2015.

MacKinnon, A., & Thepphasoulithone, P. (2014). Educational reform in Laos: A case study. *International Journal of Educational Studies, 1*(1), 19–34.

Minister of Education and Sports. (2016). Minister of Education and Sports' Decision on an approval of experiment of center of development and center of excellence for teacher education handbook, No. 1195/MOES.DTE, issued date on 9 March 2016.

Minister of Education and Sports. (2018). Minister of Education and Sports' decision on an establishment and implementation of department of teacher education, No. 503/MOES, issued date on 2 February 2018.

Minister of Education and Sports. (2019). Minister of Education and Sports' decision on an approval of experiment of teaching qualifications of primary education teacher handbook, No. 197/MOES, issued date on 17 January 2019.

Minister of Education and Sports. (2020a). Minister of Education and Sports' decision on an implementation and responsibility of department of higher education, No. 4512/MOES, issued date on 5 October 2020.

Minister of Education and Sports. (2020b). Minister of Education and Sports' decision on an implementation and responsibility of department of sports, physical education and arts, No. 4666/MOES, issued date on 12 October 2020.

Minister of Education and Sports. (2020c). Minister of Education and Sports' decision on an implementation and responsibility of teacher training colleges, No. 6808/MOES, issued date on 17 December 2020.

Minister of Education and Sports. (2020d). Minister of Education and Sport' decision on an implementation and responsibility of department of legislation and education quality assurance, No. 2923/MOES, issued date on 17 July 2020.

Ministry of Education (MOE) and Ministry of Education and Sports (MOES). *Annual report* (Various Issues). MOES.
MOE. (2008). *National education sector reform strategy, 2006–2015*. MOE.
MOE. (2009). *Education sector development framework, 2009–2015*. MOE.
MOE. (2010). *Teacher education framework and development plan, 2010–2015*. MOE.
MOES. (2011). *Education sector development plan (ESDP), 2011–2015*. MOES.
MOES. (2015). *Education and sports sector development plan, 2016–2020.* MOES.
MOES. (2019). *Implementation and development plan of education and sports for academic year 2018–2019, and development plan for academic year 2019–2020* (Publication July 2019, Ministry of Education and Sports, Lao PDR). [in Lao language].
MOES. (2020). *The 9th 5-years education and sports development plan, 2021–2025*. MOES.
Moxom, N., & Hayden, M. (2015). Higher education in the Lao people's democratic Republic: A profile and some contemporary challenges. *Asia Pacific World, 6*(1), 67–79.
Noonan, R. (2014). US Aid to education in Laos, 1955–1975: A contribution to historical comparative education embedded in time and space. *Journal of International and Comparative Education, 3*(1), 153–169.
Noonan, R., & Noonan, V. (2021).*Glossary—Historical glossary of education development in Lao PDR.* Samizdat.
NUOL. (2020). *National university of laos implementation summary in 2020 and development plan in 2021, No. 2984/NUOL, issued date 29 December 2020.* Vientiane. [in Lao language].
Onphanhdala, P., & Suruga, T. (2006). *Education and earnings in Laosregional and gender differences.* Graduate School of International Cooperation Studies Working Paper Series No.4. Kobe University, Kobe.
Onphanhdala, P., & Suruga, T. (2007). Education and earnings in transition: The case of Lao. *Asian Economic Journal, 21*(4), 405–424.
Onphanhdala, P. (2010). Chapter 8: A transformation of modern education system in Lao PDR—Quantitative expansion status. In N. Yamada (Ed.), *Lao PDR: Chintanakaan Mai (New Thinking) New policy development. Research report*. Institute of Developing Economy. [In Japanese Language].
Onphanhdala, P. (2015). Education demand in development: Investment in education and the labor market over the transition of Laos. GSICS, Kobe University.
Prime Minister. (2020). Prime Minister's decree on an implementation and responsibility of Ministry of Education and Sports, No. 253/PM, issued date on 26 May 2020.
Roberts, T. D., Carroll, M. E., Kaplan, I., Matthews, J. M., McMorris, D. S., & Townsend, C. (1967). *Area handbook for Laos.* U.S. Government Printing Office.
Sichaloen, O. (1994). KanSeuksa yu Khet Potpoy Samay KanPativat Sat Pasathipatay 1945–1975 (Education in liberated zones during the nation revolutionary for democracy, 1945–1975). *PavatKanSeuksa Lao (Lao Education History)* (pp. 101–118). PhanaekSeuksasatChittavithanyaMahavithanyalay Sang KheuViang Chan [in Lao language].
Special Report. (2021). Advancing human resource development quality to meet the needs of new development era. Special Report. Vientiane. [in Lao language].
U.S. Department of Labor. (1970). *Labor, law and practice in the Kingdom of Laos* (Publication No. BLS Report 381).
UNESCO. (2006). *Making basic choices for external quality assurance systems (Module 1).* International Institute for Education Planning, UNESCO.
Vongsa, P. (2018). *KanSeuksa Nai Khet Potpoy Lao Man Pheun Than KanSeuksa Mai Laos (Education in liberated zone is a fundamental of new education of Lao PDR).* Manthatulath. [in Lao language].
Weidman, J. C. (1999). Chapter 8: Restructuring the university pedagogical institute of Laos: An outsider's view. In L. W. Paula (Ed.), *Higher education in the Post-communist world: Case studies of eleven Universities* (pp. 269–287). Garland.
World Bank. (2021a). *GDP growth (annual %)—Lao PDR.* Retrieved March 31, 2021, from https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=LA

World Bank. (2021b). *Government expenditure on education, total (% of GDP)—Lao PDR*. Retrieved March 30, 2021, from https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS

Zeck, J. (2017, September 17). *Education in Laos (Part II)—Parallel education systems during the Lao Civil War (1954–1975)*. The Laos Experience. http://www.thelaosexperience.com/2017/09/17/education-in-laos-part-ii/

Chapter 41
Renovation in Curriculum Design and Training Programs for Teacher Education in Vietnam

Cuong Huu Nguyen, Hai Thi Thanh Pham, and Huong Thi Pham

Abstract As a transition country in the Asia–Pacific Region, Vietnam has experienced changes and innovations in almost aspects of the society. Education in general and teacher education in particular in this country are no exception. This chapter first briefly presents the national education system of Vietnam, especially the general education system. Then, the chapter focusses on presenting some historical features and analysis on the genesis of the teacher training system in Vietnam associated with specific conditions of the political and institutional system as well as an overview of its curriculum for teacher education from 1945, when the country gained independence to present. The analysis will highlight milestones for the major system and program changes associated with general education reforms. The genesis of the general education program 2018 along with the new approach is also clarified in the chapter. Finally, the chapter analyses the changes required to the teacher training program in general and changes in curriculum for teacher education in particular in response to the new general education curriculum as well as the current development of science and technology.

Keywords Education reform · Teacher education · Curriculum development · Teacher training program · Transition economy

Introduction

In 2019, the total population of Vietnam reached 96.2 million people. Over one third (36.5%) of the people from 15 years old get upper secondary education. The youth literary rate is 98.41% (GSO, 2019). As a country in Asia and following

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Confucianism, Vietnam highly values and respects education. In the school year 2018–2019, there are 5.4 million children involved in pre-primary education, 8.8 million children studying in primary schools, 5.7 million children studying in lower secondary schools, 2.7 upper secondary students, and 2.2 college and university students. The total number of teachers in all education levels (from preschool education to higher education) is over 1.2 million people (MOET, 2020).

Teachers have always played a vital role and been respected in Vietnamese society. The proverb *"Không th`ây đ´ô mày làm nên"* (Literal translation: "Nothing can succeed without the help of the teacher", meaning: "No guide, no realization") has been remembered by almost all Vietnamese people from generations to generations. Consequently, teacher education received special attention from the government and society. Together with higher education institutions offering teacher training programs, Vietnam has dozens of universities and colleges specializing in teacher training. By law, students enrolling in teacher education programs are exempt from tuitions fees and get allowance (The Government, 2020).

Teacher education in Vietnam has experienced changes during the past few decades. In the past, teacher training programs had to follow curriculum frameworks issued by the Ministry of Education and Training (MOET). In recent years, universities are autonomous to develop their own teacher training curricula. However, these curricula must submit to MOET for approval. The new general educational curriculum promulgated by MOET in 2018 and Education 4.0 have significantly affected policies and practices of teacher education in Vietnam. A project at the national level has been carried out by MOET to re-plan the network of teacher training institutions in Vietnam (Pham et al., 2020). This chapter focusses on dicussing renovation in curriculum design and training programs for teacher education in Vietnam.

An Overview of Vietnam's National Education System

In 2016, the Vietnamese Prime Minister introduced new regulations on the structural framework of the national education system and the national qualification framework. The structural framework of the national education system includes formal education and continuing education. The education and training levels of the national education system include: (a) preschool education including kindergarten and kindergarten education; (b) general education including primary education, lower secondary education, and upper secondary education; (c) vocational education training for elementary, intermediate, and college levels; (d) higher education training for bachelor, master's, and doctoral degrees (Prime Minister, 2016a). Figure 41.1 highlights the national education system of Vietnam. The national qualification framework includes eight levels: Level 1—Elementary I, Level 2—Elementary II, Level 3—Elementary III, Level 4—Intermediate, Level 5—College, Level 6—Bachelor, Level 7—Master, and Level 8—Doctor (Prime Miniser, 2016b).

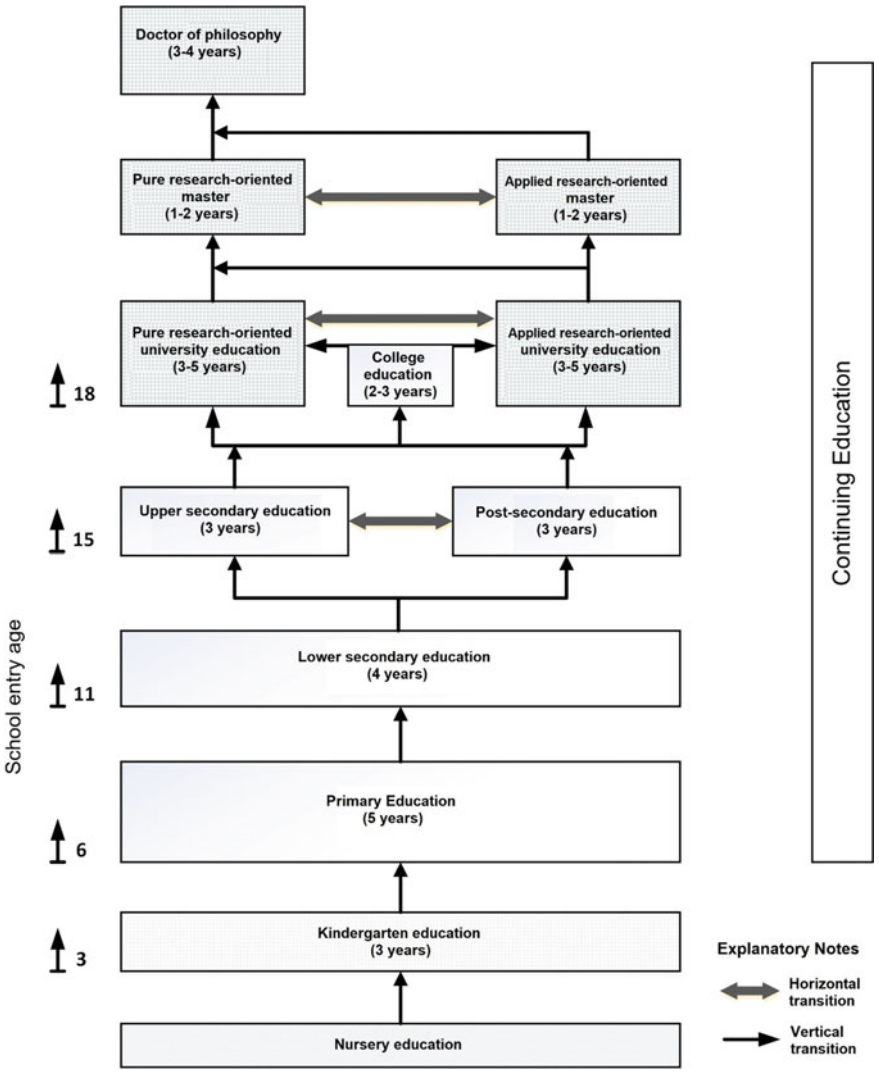

Fig. 41.1 Structure framework of Vietnam's national education system (Prime Minister, 2016a)

During the past ten years, general education in Vietnam has made significant improvement in school enrollments. The enrollment rates at the correct school entry age for primary education, lower secondary education, and upper secondary education reached 98.0%, 89.2%, and 68.3%, respectively (GSO, 2019). Table 41.1 presents statisictics of preschool education, primary education, lower secondary education, and upper secondary education in the school year 2018–2019.

Vietnamese higher education includes both colleges and universities. There are 30 teacher training colleges and 28 others offering teacher training programs. There are

Table 41.1 Statistics of Vietnam's general education (MOET, 2020)

Education level	Number of institutions	Number of students	Number of teachers	Student/class ratio	Student/teacher ratio
Preschool education	15,476	5173,192	326,332	29.24	16.85
Primary education	13,970	8506,562	390,754	30.49	21.77
Lower secondary education	10,911	5455,875	294,097	35.90	18.55
Upper secondary education	2,842	2563,431	141,853	38.59	18.07

236 universities (172 public institutions and 65 private institutions) with 1,526,111 students and 73,312 full-time lecturers (MOET, 2020).

Education Reform in Vietnam After "Doi Moi" (Renovation)

Vietnam carried out the renovation (*Doi moi*) from the years 1985–1986 with the viewpoint of developing a planned commodity economy, many sectors moved to socialism, and reformed education. Then, the education sector had policies to promote the national education to adapt to the new conditions (Dang & Pham, 2019). Many countries around the world consider investment in education and give top priority to the development of the country. Comprehensive human education is an inevitable trend (Ha & Tran, 2013). There are many trends in educational development and innovation such as the trend of education globalization, the trend of continuing education and lifelong education, reform of education curriculum, and methodology innovation in teaching (Dang, 2017).

The socio-economic development strategy from 2011 to 2020 focusses on improving the quality of human resources. Obviously, good quality human resource development is a strategic breakthrough. Vietnamese education implements a fundamental and comprehensive renovation towards standardization, modernization, socialization, democratization and international integration, and education and training with the mission of improving the population knowledge, human resource development, talent fostering, making an important contribution to developing the country and building Vietnamese culture and people (Vietnam Central Executive Committee, 2013).

Every year, the Government of Vietnam invests about 20% of the national budget in education. This amount is distributed to teachers' salaries and other activities (usually 90% and 10%, respectively). However, there is no formal audit system in place, and these rates sometimes vary from school to school.

General education aims to comprehensively develop learners in terms of morality, intelligence, physicality, aesthetics, basic skills, personal capacity development, dynamism and creativity, forming the socialist Vietnamese human personality and civic responsibility; preparing learners for continuing their higher education, vocational education or participating in labour, building, and defending the country (National Assembly, 2019).

Recent studies show that the Vietnamese education system is generally relatively homogeneous. Results from PISA 2012 reveal that Vietnam exhibits above-average parity in educational opportunities. The difference in the effectiveness of student education related to the difference in socio-economic status is below average. Additional evidence from youth life studies shows that the impact of family origin on differences in educational attainment in Vietnam is lower than in India and Peru. In the same school, students with difficult circumstances still have as much effort to study as their friends (Rolleston, 2014). However, Vietnam's general education still has many shortcomings. The quality of education is low and has not really met the needs of learners. It has not kept up with the changes of the country in the period of industrialization, modernization, and international intergaration (Dang, 2015). The general education program heavily emphasizes on absorbing a lot of general knowledge, and not much focus on the development of the competencies of learners. Therefore, a comprehensive fundamental reform of education in Vietnam is oriented; education and training development is to enhance people's knowledge, to train human resources, and to foster talents (Vietnam Central Executive Committee, 2013).

Before 2018, MOET issued the Education and Training Program to be used nationwide. The current curriculum for high school includes curriculum at each grade level (primary, lower secondary, and upper secondary). Each curriculum level includes: (i) general issues, objectives, scope, structure and content requirements of education, method and form of organization of educational activities, assessment of the education results at different educational levels; (ii) curriculum of subjects and educational activities at the educational level; and (iii) standard knowledge, skills, and attitude requirements for learners. According to Dang (2015), the basic ideology of fundamental and comprehensive education reform consists of: (1) moving from the way of educating the content to the education of capacity development for learners; and (ii) moving from passive learning, waiting for teachers' knowledge transmission, knowledge reappearance in exams to proactively building knowledge, developing practical action capacity.

From 2018, Vietnam has renewed the general education program in order to meet the goals of a fundamental and comprehensive change in the quality and efficiency of general education. Some main features of this new program include (1) combining literacy, human education, and career orientation; (2) contributing to moving an education on imparting knowledge to an education that develops comprehensively in both qualities and abilities; (3) harmonizing morality, mind, body, beauty; and (4) promoting the best potential of each student (National Assembly, 2014).

The new general education program after 2018 concretizes the goals of general education, helps students master general knowledge to know how to effectively apply knowledge and skills in life and lifelong self-study. This new program is also expected

to help students to choose a suitable career, know how to build and develop harmoniously social relationships, have a rich personality and spiritual life, thereby having a meaningful and contributing life. Consequently, students can actively participate in the development of the country and humanity (MOET, 2018). The government and MOET set a road map for implementing reform of general education. The new general education curriculum and textbooks for each education level (primary and secondary education) would start to apply from the school year 2018–2019.

New General Education Curriculum (2018 Curriculum)

National Policies Related to the Development of New General Education Curriculum

As other countries in the world, Vietnam has continually innovated its education to improve the quality of the country's human resources with abilities to adapt to all variables and the dynamics of nature and society as well as to ensure sustainable development (Nguyen, 2017). The government promulgated Resolution No. 29/NQ-TW on fundamental and comprehensive reform of education and training. The resolution aims to take actions to industrialize and modernize the country based on the socialist-oriented market economy and internationalization. Two follow-up key government documents were then promulgated to actualize the Vietnam Communist Party's Resolution. First in 2014 Resolution No. 88/2014/QH13 was issued in an attempt to renovate K12 textbooks and curriculum. A year later, in 2015, the Prime Minister issued Decision No. 404/QD-TTg approving a plan for reforming general education curriculum (GEC) and textbooks. Since then, the country started to design a new general education curriculum based on the competence approach. The educational reform aims at creating a learning environment for students and encouraging them to harmonize both physical and mental development. Students are expected to learn actively and be confident in learning and personal growth with good qualities and necessary competences to be responsible citizens. In addition, they will be trained to become industrious and creative citizens and hence can meet the needs of personal and professional development to re-identify and defend the country during the age of globalization and the new industrial revolution (Nguyen, 2017).

As a result, in 2018, MOET officially announced the new GEC for K12 education for the entire country (MOET, 2018). The new competence-based curriculum is divided into two phases: (1) from grade 1 to grade 9—basic education and from grade 10 to grade 12—professional orientation. As of October 2021, the new curriculum has been implemented for two years at the elementary level and first year for Grade 6. In 2022, the new GEC will be implemented at the upper secondary level. It is expected that the new GEC will replace the 2006. Figure 41.2 demonstrates the implementation road map of the new curriculum.

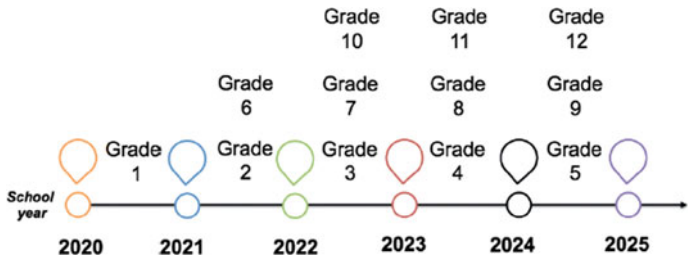

Fig. 41.2 Road map of the new curriculum implementation (Nguyen et al., 2020)

Some Characteristics of the New Curriculum

As discussed in Sect. 4.1, on the purposes of the new GEC (so called 2018 GEC), the new curriculum was expected to set a stone in reforming K12 education that focusses more on practice and application of knowledge to real life as well as on extra-curricular activities (MOET, 2018). This has led to the reduce of subjects in the 2018 GEC. For the elementary level, there are nine subjects: the Vietnamese language, math, a foreign language, lifestyle and ethics, nature and society, history and geography, science, computer science and technology, and physical education and arts. It is the first time, computer science and technology will be introduced at this level. At the lower secondary level, student are required to take one more subject: civic education. For the upper secondary, students is required to learn Vietnamese literature, math, a foreign language, physical education, and defence and security. At this level, as the name of this stage—professional orientation, students will have several pathways to select. They can choose among social sciences, natural sciences, technology, and arts. It is also noted that student can select additional ethnic minority language to study at all levels (Nguyen, 2017). In comparison with the 2006 currilum, the new one has fewer subjects (13 vs. 17. 2018 GEC integrates various science subjects into one at the lower secondary level (Nguyen et al., 2020) (see Nguyen et al., 2020 for more details about the curriculum for all grades). Another difference between the 2016 and 2018 GECs is that more than one textbooks sets are allowed (Table 41.2).

As regards teaching and learning approaches, schools are required to organize real life and experimental learning activities and topics instead of chunks of knowledge. It was reported that due to the heavy workload (17 subjects) and knowledge required to be taught, K12 teachers mainly use lectures to teach students. With fewer subjects required in 2018 GEC, teachers are expected to change their teaching methods and are now being trained to shift their teaching approaches for the new GEC. The government is also trying to improve the working conditions to ensure the quality of general education in Vietnam (Nguyen et al., 2020).

According to Nguyen (2018), the new curriculum requires schools to arrange more time for outdoor and entertainment activities for students, as well as for developing competences in practical areas. In addition to the required subjects, high school

Table 41.2 Comparison between 2016 and 2018 GEC

No.	Aspects	2006 GEC	2018 GEC
1	Orientation	Content	Competences
2	Stages	One stage	Two stages: – Grades 1 to 9: basic education – Grade 10 to 12: professional orientation with two types of subjects compulsory and elective
3	Approach to science subjects	Individual ones for lower and upper secondary levels	– For the the lower secondary level: integrated science subjects/Natural Science – For the upper secondary level: Individual ones: Physics, Chemistry, Biology
4	Textbooks	One set	Many sets approved by MOET
5	Number of subjects	17	13
6	Teaching and learning approach	Teacher-centred Limited experimental learning	Student-centred More experimental learning

students will also be able to choose optional subjects in social science, natural science, technology, and arts. The new curriculum is believed to be designed to ensure basic and compulsory contents for students across the country while allowing localities and schools necessary autonomy in developing educational plans based on the local contexts including teaching and learning facilities. For students, it is expected that they are active in exploring the lessons and applying the knowledge and skills in practice. For teachers, their role will be shifted from knowledge delivers to facilitators of the learning process to help students develop predefined qualities and competences. Teachers are also granted autonomy in planning their schedule and selecting suitable teaching methods in line with curriculum objectives and appropriate to students' current levels and specific conditions.

Qualities in the New Curriculum

Related national policies and documents on the reform of general education curriculum and textbooks, including the Resolution 29, Resolution 88, and Decision 404, clearly state the requirements for the general education curriculum, qualities, and competences of learners. The Resolution 88 by Vietnam Congress XIII identifies that

> Reform of general education curriculum and textbooks is to make radical and comprehensive changes in the quality and effectiveness of general education; combining teaching knowledge, teaching people and orienting careers. It should contribute to the transformation of the education system from a knowledge-oriented one into the comprehensive education with the aims of developing learners' qualities and competences, harmony of mind and body, and the best potential of each student. (Vietnam Congress XIII, 2014)

Nguyen (2017) argues that the concept of quality is defined as morality by the Vietnamese Goverment for the new curriculum of general education. The requirement of "*comprehensive development in both qualities and competences*" is understood of building a comprehensive human being with virtue, which is assessed by behaviour, while competence is judged by the effect of action.

The new curriculum identifies five main qualities: patriotism, compassion, diligence, honesty, and responsibility for K-12 students. The rationale for deciding these main qualities are the qualities of the Vietnamese people as set forth in the Party documents on Vietnamese culture and people, including the Resolution No. 03-NQ/TW dated 16 July 1998 on the development of a Vietnamese culture deeply imbued with the national identity and the Resolution No. 33-NQ/TW dated 9 June 2014 on developing a Vietnamese culture and Vietnamese people for the country's sustainable development. The Resolution No.3 defines five groups of qualities that Vietnamese people possess:

- The patriotism and self-reliance of the nation, the strive for national independence and socialism, the will to lift the country out of poverty and backwardness; solidarity with the people all over the world during the struggle for peace, national independence, democracy, and social progress;
- Collective consciousness, solidarity, striving for common interests;
- A healthy lifestyle, a smart way of living, saving money, honesty, humanity, respect for national laws and community conventions; a sense of protection and improvement for the ecological environment;
- Being hard-working, having technical, creative and high-productivity mind for the sake of oneself, of the family, and of the society;
- Continuous training and development forprofessionalism, aesthetic, and physical strength.

The Resolution No. 33 lists seven characteristics of the Vietnamese people: patriotic, compassionate, honest, solid, hard-working, and creative. Various discussions have been taken place to combine these goverment policies and decide what qualities the new curriculum should develop for students. Patriotism, compassion, diligence, honesty, and responsibility are officially declared as five qualities of K-12 students in Vietnam (MOET, 2018).

Competencies in the New Curriculum

Nguyen (2017), the leader of the reform project in his article, also explains how competence is conceptualized in the new curriculum. His team has reviewed related literature related to the concept of competence, including the concept of competence as defined by OECD, by D. Tremblay, in the Quebec-Canada High School Education Program, and in studies by Hoang Hoa Binh and by Nguyen Lan Phuong. Based on the results of literature review, the general education curriculum (2017) explains the concept of competence as follows: "*Competency is an individual attribute formed and developed by virtue of availability and the process of studying and practicing allowing people to synthesize knowledge, skills and other personal attributes such as excitement, belief, will, etc., to successfully implement one type of activity to achieve the desired results in specific conditions*" (MOET, 2018).

From the above definition, Nguyen (2017) argues for the key features of competence defined in the new curriculum:

- Competency is the combination of available substances and the learning and training process of the learner;
- Competency is the integration of knowledge, skills, and other personal attributes such as excitement, faith, will;
- Competency is formed, developed through activity, and reflected in success in practical activities.

Therefore, students' core competences are set in the new curriculum as follows:

- Generic competences for all academic subjects and activities that contribute to the formation and development of autonomy and self-study; communication and cooperation; problem-solving and creativity for students.
- Professional competences are formed and developed through specific subjects and educational activities such as language, mathematics, natural and social studies, technology, computer science, and physics (Nguyen, 2017).

Nguyen (2017) believes that new general education curriculum also contributes to developing students' special abilities (talents).

In summary, the three generic capacities and seven specialized competences of the new general education curriculum in Vietnam are basically consistent with the concept and list of core competencies identified in documents reviewed by the team in chrage of the reform which are autonomy and self-learning, communicationand collaboration, problem-solving and creativity, language, mathematics, science, technology, computing, aesthetics, and physics (Nguyen et al., 2020).

Changes in Teacher Education in Vietnam in the Education 4.0

Education 4.0

In the World Economic Forum in 2016 in Switzerland, the Industrial Revolution 4.0 (IR 4.0) was the first time mentioned. Since then, IR 4.0 has led our world to a revolution of changes in the way we live, work, and relate to one another (Schwab, 2016). Education 4.0 is a new term, and there is no standard definition yet. It means a general approach or trend to prepare the future workforce for IR 4.0. which creates an environment where computers, automation, and humans will work together in completely new ways (Salmon, 2019). Furthermore, interests of twenty-first century learners and skills for twenty-first century teachers are believed to be the cause of the trend of Education 4.0 (Anealka, 2018). In addition, Education 4.0 uses a different methodology and approach for universities to tailor services and curricula for graduates in response to IR 4.0 (Bonfield et al., 2020).

The Fundamental and Comprehensive Education Reform in Vietnam

The Vietnamese Governemnt has implemented the Fundamental and Comprehensive Education Reform (FCER) since 2013, which focusses on meeting "the requirements of industrialization and modernization in the socialist-oriented market economy and international integration" (Vietnam Central Executive Committee, 2013). The FCER changes the approach to education, from content to competences development for students. Therefore, the readiness of the teacher plays a key role to success of educational reform. Teachers need to actively learn expertise, update new knowledge, appropriate teaching methods, and new assessment methods to meet the requirements of general education reform. In order for Vietnam to successfully conduct educational reform, the training of in-service and in-service teachers needs to be redesigned and have a specific strategy.

Teachers play a particularly important role in the education reform. Meanwhile, training teachers who meet the standards of quality and quantity in all subjects and levels of educations is a difficult task which takes place in many years. Therefore, reforming the pedagogical system to find a suitable and high-quality teacher training model is a very important task and should be considered a prerequisite, needing to apply immediately to prepare for Vietnamese comprehensive education reform (Hoang & Nguyen, 2020).

Teacher Training Models in Vietnam

In Vietnam, there are two models of teacher training: the traditional model of teacher training of pedagogical universities or colleges or small departments in those universities such as Hanoi National University of Education, Thai Nguyen University of Education, or Vinh University. The current teacher training programsin pedagogical universities are mostly depended on the curriculum framework issued by MOET. Under this framework, the pedagogical knowledge accounts for only 15–20% of the total training duration. This framework belongs to the preprofessional stage which is contradictory with the new thinking in developing and promulgating teachers' professional standards. The second model of teacher training has appeared in Vietnam since 2009. Unlike the four-year type of teacher training applied in most pedagogical universities, the A + B model is currently implemented at the University of Education, Vietnam National University, Hanoi (VNU-UEd). With this model, students get credits of science knowledge (means A) from other Vietnam National University, Hanoi (VNU) university members such as VNU University of Social Science and Humanities and VNU University of Science, and other credits of pedagogical knowledge (means B) are trained in VNU-UEd. The advantage of this model is that it can provide teacher candidates with professional knowledge as they have already gained that knowledge during three or four years of universities (Do, 2011). Since the school year 2012, VNU issued regulations on the training of teachers at VNU-UEd that implements the A + B model. This is a combined model to ensure interoperability, linking to implement comprehensive management (VNU, 2012). It is important to note that most countries in Europe train teachers in a serial training model. Students must first participate in subjects or modules of basic science and sometimes subjects in education, then continue to learn professional subjects and teaching practice (Bünning & Shilela, 2006). These two teacher training models create a diversity of training methods, support teachers to develop their professional competencies and pedagogical expertise, and increase choices for learners who want to become teachers and keep up with the general trend of higher education in the world.

Curriculum Development for Pre-service Training

In recent years, the teacher training programs in pedagogical universities and colleges in Vietnam have been adjusted, but they are still academic. The connection of specialized knowledge with teaching content in school is not yet tight and effective. In the education reform, in order to improve the quality of teacher training, pedagogical universities need to have a comprehensive innovation in terms of program objectives, content, teaching methods, exams, tests, and evaluation of student learning results (HNUE, 2015). Curricular changes require teachers to develop methods of professional practice. Teachers achieve innovation in curricula and pedagogical goals that

help pedagogical practices improve. Continuing professional development by regularly identifying and implementing these new methods, teachers have the skills to innovate teaching methods themselves (OECD, 2018). In the Vietnamese case, in order to train teachers with sufficient qualifications and capacity to implement the 2018 curriculum, pedagogic universities need to have short-term and long-term plans to implement this curriculum (Dau, 2020; Hoang & Ninh, 2017).

In-service Teacher with Continuous Professional Development (CPD) in Vietnam

In Vietnam, teachers need to attend annual training for continuous professional development (CPD). The regular training program for teachers consists of three block contents which focus on professional development. In total, each teacher needs to take the annual course for CPD of 120 periods per school year, in which some are in face-to-face courses, others by themselves (MOET, 2019). In response to education reform, the National Program to Advance Teacher Education was established to provide CPD programs to teachers and school administrators in a variety of ways, such as: selecting education experts for training; appointing these education experts to continue training teachers and education administrators; selecting key teachers and education administrators to support teachers and education administrators in the localities; developing e-learning programs to foster teachers and education administrators; building Learning Management System to help teachers and education administrators CPD; and deploying a nationwide CPD assessment system. This program will close at the end of 2021.

Conclusion

In Vietnam, teaching is considered the noblest profession among noble professions. Consequently, teacher education has always received great attention from the government and society. At present, there are 114 higher education institutions offering teacher training programs in Vietnam. Teacher training programs in these institutions are following either the parallel model or consecutive model. The parallel model means that the knowledge of basic sciences and knowledge and skills of pedagogy are provided to students simultaneously. Whereas, with the consecutive model, the basic scientific knowledge is trained first, and pedagogical knowledge and skills are provided to students later (Pham et al., 2020). Currently, there are more programs in favour of the parallel model; however, it is predicted that the consecutive model will be implemented by more and more teacher training programs.

The quality of teacher education determines the quality of the entire national education system. In the context of Vietnam, Education 4.0 and the general education curriculum create opportunities as well as force Vietnamese higher education institutions to change their teacher training programs. As MOET is undertaking a project to re-plan the network of teacher training institutions, it is suggested that this should follow international trends in teacher education. Specifically, the ratio of theoretical training and practical training should be recalculated to help teacher candiates achieve learning outcomes as well as meet the professional standards of teachers.

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References

Anealka, A. H. (2018). Education 4.0 made simple: ideas for teaching. *International Journal of Education & Literacy Studies*, 6(3), 92–98.

Bonfield, C. A., Salter, M., Longmuir, A., Benson, M., & Adachi, C. (2020). Transformation or evolution? Education 4.0, teaching and learning in the digital age. *Higher Education Pedagogies*, *5*(1), 223–246. https://doi.org/10.1080/23752696.2020.1816847

Bünning, F., & Shilela, A. (2006). *The Bologna declaration and emerging models of TVET teacher training in Germany.* https://unevoc.unesco.org/fileadmin/user_upload/pubs/Bologna_02_08_06.pdf

Dang, Q. B., & Pham, M. G. (2019). *The flow of Vietnamese education from tradition to modernity: recording - reflecting—harvesting.* Information and Communication Publishing House.

Dang, T. A. (2015). *Vietnam's new school model—from a theoretical and practical perspective.* Vietnam Education Publishing House.

Dang, T. A. (2017). *A new model of Vietnamese school - education method*. Vietnam Education Publishing House.

Dau, T. T. (2020). Develop teacher training programs to meet the requirements of general education. *TNU Journal of Science and Technology, 225*(4), 15–20.

Do, H. (2011). The teacher training program is not reasonable. https://tienphong.vn/chuong-trinh-dao-tao-giao-vien-chua-hop-ly-post562604.tpo

General Statistics Office (GSO). (2019). Press release on results of the population and housing census 01/4/2019. https://www.gso.gov.vn/en/events/2019/12/press-release-on-results-of-the-population-and-housing-census-01-4-2019/

Ha, N. T., & Tran, H. H. (2013). *Education development trends*. Publishing House of Pedagogical University.

Hanoi National University of Education (HNUE). (2015). *Plan for improvement of general teachers' training curriculum.*

Hoang, T. M. H., & Nguyen, V. N. (2020). Training history teachers at pedagogical universities from the orientation of improving students' capacity to satisfy the new program of high school education—a view from the experiences of the Republic of France. *TNU Journal of Science and Technology, 225*(3), 193–202.

Hoang, T. T., & Ninh, T. H. (2017). Developing the teacher training programs to meet the requirements of general education innovation in Vietnam. *VNU Science Journal: Education Research, 33*(2), 52–60.

Ministry of Education and Training (MOET). (2018). *Circular No. 32/2018/TT-BGDDT dated 26/12/2018 on promulgation of the new general education curriculum.* https://moet.gov.vn/van-ban/vanban/Pages/chi-tiet-van-ban.aspx?ItemID=1301

Ministry of Education and Training (MOET). (2019). *Circular No. 17/2019/TT-BGDDT dated 1/11/2019 on promulgation on training program for teachers of general education institutions.* https://moet.gov.vn/van-ban/vanban/Pages/chi-tiet-van-ban.aspx?ItemID=1324

Ministry of Education and Training (MOET). (2020). *Vietnam education and training 2019*. Hanoi. https://moet.gov.vn/thong-ke/Pages/to-gap.aspx?ItemID=6638

National Assembly. (2014). *Resolution Number 88/2014/QH13 dated 28/11/2014 on curriculum and textbook for general education reform.* http://vbpl.vn/bogiaoducdaotao/Pages/vbpq-van-ban-goc.aspx?ItemID=144398

National Assembly. (2019). *Education law*. http://vanban.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=1&_page=1&mode=detail&document_id=197310

Nguyen, H. T. (2018). Designing experiential activity themes in teaching Maths to lower secondary students congruent with the new general education curriculum in Vietnam 2018. *American Journal of Educational Research., 6*(5), 396–402.

Nguyen, M. T. (2017). Learners' quality and competence-based reform of general education program. *Vietnam Journal of Education, 1*, 1–6.

Nguyen, V. H., Nguyen, V. B. H., Vu, T. M. H., Hoang, T. K. H., & Nguyen, T. M. N. (2020). Vietnamese education system and teacher training: Focusing on science education. *Asia-Pacific Science Education, 6*(1), 179–206.

OECD. (2018). *Curriculum flexibility and autonomy in Portugal—an OECD Review*. https://www.oecd.org/education/2030/Curriculum-Flexibility-and-Autonomy-in-Portugal-an-OECD-Review.pdf

Pham, H. Q., Ha, T. P., & Nguyen, D. N. (2020). Teacher training models in some countries and experience lesson for Vietnam. *Vietnam Journal of Education, 466*(2-11/2019), 6–11.

Prime Minister. (2016a). *Decision No. 1981/QD-TTg dated 18/10/2016 on approving the structural framework of the national education system.* http://vanban.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=2&mode=detail&document_id=187037

Prime Minister. (2016b). *Decision No. 1982/QD-TTg dated 18/10/2016 on approving the Vietnamese national qualification framework*. http://www.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=2&_page=2&mode=detail&document_id=186972

Rolleston, C. (2014). Learning profiles and the 'skills gap' in four developing countries: A comparative analysis of schooling and skills development. *Oxford Review of Education, 40*(1), 132–150.

Salmon, G. (2019). May the fourth be with you: Creating Education 4.0. *Journal of Learning for Development, 6*(2), 95–115.

Schwab, K. (2016). *The fourth Industrial Revolution: What it means, how to respond*. https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/

The Government. (2020). *Decree No. 116/2020/ND-CP dated 25/9/2020 on regulation of policies for supporting tuition fees and living allowances for pedagogical students.* http://vanban.chinhphu.vn/portal/page/portal/chinhphu/hethongvanban?class_id=1&_page=1&mode=detail&document_id=201084

Vietnam Central Executive Committee. (2013). *Resolution No. 29-NQ/TW on fundamental and comprehensive renovation of education and training, meeting the requirements of industrialization and modernization in the conditions of socialist-oriented market economy and international integration.*

Vietnam National University Hanoi (VNU). (2012). *Decision No. 3079/QD-VNUHN on regulations on organizing university training under the combined model—next at VNU*.

Chapter 42
Special Teacher Education in China: Based on Teacher Roles Reorientation and Professional Development in China

Nan Zhu, Jiaojiao Wang, Li Shi, and Zihui Li

Abstract Learning in Regular Classroom (LRC) is an indigenised form of inclusive education in Chinese context. Children with special needs have become increasingly visible in regular schools after three-decade practice of LRC. Presently, the progress of special education in Mainland China has gradually entered into the transformation period of "improvement" and "perfection" from the period of "promotion" and "acceleration" in the beginning of the twenty-first century. The pursuit of quality and equity has become the strong theme of special education in this period (Ministry of Education, PRC. (2017). *Second Special Education Promotion Plan (2017–2020).* Ministry of Education.). The overall goal of the development of special education is comprehensive promotion of inclusive education. However, most of special teacher education programs are still limited to training special education teachers working in special education schools, and a large number of special education resources are concentrated in special education schools. Against this background, with the comprehensive promotion of inclusive education, the function of special education school acting as a regional special education "resource centre" is increasingly prominent, thus triggering the reorientation of teachers' roles in special education schools. Part of teachers has to take charge of guiding and promoting the LRC program in regular school acting as special education itinerant teachers. Parallel to the role's reorientation is the reform of special teacher education. Meanwhile, as the promotion of the national-wide program of "LRC", the teacher education for general education teachers needs to be reformed. This chapter aims to gain insights into the reform of teacher education for special education teacher and inclusive education teacher in Mainland China, regarding its review, its policy system, its history of development, its strategies. This chapter is concluded with some implications for policy, research, and practice as pertinent to teacher education in Mainland China.

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Keywords Special teacher education · Teacher roles reorientation · Professional development · Inclusive education · China

Introduction

China has the largest population with disabilities (Hampton, 2001; McLoughlin et al., 2005; Piao et al., 1995; Sonnander & Claesson, 1997), the education of this group has been paid much attention by researchers at home and abroad. Special education in China has always attracted the attention from international community. Special education teachers include all teachers who are directly engaged in special education, such as teachers in special education schools, teachers (resource teachers, etc.) engaged in special education work in regular schools, and itinerant special education teachers (Ministry of Education, 2015). As the organizers, service providers, and direct supporters of special education activities, special education teachers have a direct influence on the execution of various policy objectives and play a crucial role in improving the overall quality of special education. Therefore, training an adequate number of high-quality and professional special education teachers has become an inevitable demand for the continuous promotion of special education in China in recent years. A large number of studies have been published in Chinese journals to discuss professionalism of inclusive education teacher (Wang et al., 2018) and the factors affecting teacher retention and loss (Payne, 2005). However, it is difficult for non-Chinese native speakers to understand the education status of special teachers in mainland China with the help of such Chinese studies. At the same time, although a few English journals have published relevant studies on this topic, they only briefly introduce part of the content of special teacher education in mainland China, which is difficult to help readers to have a comprehensive, systematic, and profound grasp of the overall picture of special teacher education in mainland China.

This chapter presents the following parts: (1) An overview of the existing research on special teacher education; (2) literature review the policy of special teacher education in China under the background of inclusive education; (3) exploring the historical context of special teacher education in China; (4) analysing the special education teachers in the era of teacher roles reorientation; (5) considering several relations that should be reasonably dealt with in future special teacher education.

Special Teacher Education: An Overview of the Literature

With the great attention of the Communist Party of China, special education in China has made great strides since the reform and opening up, especially since the new century. Special education teachers are the key figures to promote the sustainable development of special education. It is of great significance to establish and perfect

a group of high-quality and professional teachers. Through the ages, special teacher education in mainland China has made significant progress, but there are still many challenges.

The Construction of Special Education Teachers Encountered Difficulties

The construction of special education teachers faces two dilemmas: quantity and structure. First, the quantity aspect: according to the Higher Education Assessment Center of the Ministry of Education, at least 90 higher education institutions on the Chinese mainland have set up special education majors in order to guarantee special education teachers (Wang & Zhu, 2019). However, from the horizontal comparison of different regions in China or different countries in the world, Taiwan has a population of more than 23 million (which is roughly equivalent to the permanent resident population of Beijing and Shanghai). Currently, the number of colleges and universities offering special education majors in Taiwan reaches 13 (Wu, 2019), which is more than twice the number of the largest provinces in the mainland. The USA has less than a quarter of China's population, but in 2015, at least 237 colleges and universities offered bachelor's, master's, and doctoral degrees in special education (Li, 2015). The high student–teacher ratio also reflects the shortage of teachers, which limits the role of special education teachers in future development of inclusive education and special education in China. According to data released by the Ministry of Education in 2020, there were 320,775 special education students and 76,415 full-time special education teachers in China, with a student–teacher ratio of about 4.20 (Ministry of Education, 2021), obviously higher than the existing policy documents for the blind, deaf, mentally retarded three types of school student–teacher ratio specific provisions (Ministry of Education, 2012). At the same time, the recruitment of special teachers and the high turnover rate have become the block factors restricting the development of special education (Tang & Wang, 2019). Many researches and studies reveal that the level of professional identity (Chen & Yang, 2018) and professional commitment of normal university students majoring in special education (Liu & Zhang, 2018; Zhang, 2013) is not high, which affects their choice of employment (Lei, 2019); in-service teachers undertake tedious and complex work tasks (Zhu, 2021), showing a high level of occupation pressure (Wang, 2009) and professional job burnout (Li, 2014; Wang & Zhang, 2015), leading to a high turnover rate.

Second, the structural aspect: the structural imbalance is another problem facing the construction of special education teachers. First of all, from the perspective of school period, the current special education teachers are majorly concentrated in the compulsory education stage, and the shortage of special education teachers in the pre-school education and high school education stage has become an indisputable fact (Xu & Wang, 2019; Zhu, 2021) which will inevitably limit the various policies in recent years that require special education to be extended to both ends of the

development goal. Secondly, from the consideration of role types of special education teachers, majority of the existing special education teachers are specialized in teaching in special education schools, and there is a lack of rehabilitation teachers such as behaviour therapy, physical therapy, and speech therapy (Wang et al., 2012). Moreover, the number and specialization of resource teachers, itinerant teachers who provide guidance and support to ordinary schools have aroused concern (Feng & Zhu, 2018; Zhang & Wang, 2019). Since the number of special children continues to rise, the degree of obstacles and the improvement of the quality of inclusive education become the key factors, special education teachers with reasonable role types and structure will become one of the key factors restricting the development of special education. Finally, from the perspective of regional distribution, compared with large eastern cities such as Beijing and Shanghai, which have more sufficient special education teachers, the central and western regions and rural areas lack special education teachers (Zhao, 2012), which affects the overall development of special education in this region.

Contradiction Between Knowledge and Practical Demand of Special Teacher Education

Recently, many higher education institutions have invested much time and energy to train qualified special education teachers and expand the contingent of special education teachers in China, but they are also faced with some problems. First, special education schools in mainland China, represented by schools for the deaf and the blind still adopt the teaching model based on subjects. Most special education schools concern more about the teaching skills of candidates in specific subjects when recruiting teachers (Zhao & Zhang, 2019). At the same time, under the impetus of the trend of inclusive education, special education teachers who teach in regular schools should also have relevant subject teaching knowledge and skills (Zhu, 2021). However, the current higher education institutions that train special education teachers seldom set up subject teaching courses (Wang et al., 2013), the special education teachers trained often have a good theoretical foundation of pedagogy and psychology, but lack of "subject background" in general education (Xu & Wang, 2019), which made the gap between the supply of teachers and the actual demand obvious. Second, the current special education teacher training for normal colleges and universities still stays at preparing teachers for special schools such as schools for the blind, schools for the deaf, and schools for the intellectual disabilities. The curriculum focuses on general knowledge and emphasizes the mastery of various types of knowledge in the special education field. The trained special education teachers do not yet have the ability to engage in refined work, and it is difficult to implement highly specialized rehabilitation training and other activities (Deng & Zhao, 2013; Zhao & Zhang, 2019). The current situation is contrary to the

high demand for various types of therapists and rehabilitation service personnel for special students in China under the background of inclusive education.

Challenges in Special Education Teachers Post-service Training

Post-service training is needed for the development of education and is the guarantee for the cultivation of high-quality teachers and a significant way for the professional development of special education teachers (Yuan, 2015). Special education teachers' post-service training can adopt multiple training methods such as teacher advanced training, school-based training, remote training, short-term training, and workshops (Qu & Jiang, 2018). Researchers believe that there are obvious challenges in the post-service training of special education teachers in China. First, from the perspective of the content of post-employment training, researches and studies investigating Jilin (Zhang et al., 2014), Yunnan (Wang, 2014), Shanxi (Feng & Feng, 2011), Beijing (Zhu & Sun, 2011), and other provinces and cities have shown that the content of special education teacher training focuses on the teaching of special education theories and lacks case teaching on practical problems in education and teaching. It presents a trend of emphasizing education theory and neglecting teaching practice, resulting in a low degree of conformity between training content and teachers' actual needs, and affecting the effectiveness of post-service training. Second, from the perspective of post-employment training, the forms of post-employment training for special education teachers are mostly offline thematic lectures and short-term training. The technical advantages have not been fully utilized to establish a rich and effective online training community for special education teachers, and the form is relatively simple (Feng & Zhu, 2018; Hu, 2018). Third, from the perspective of post-employment training targets, relevant policies emphasize and guarantee the full coverage of post-employment training for teachers in special education schools. Although the post-employment training of resource teachers, itinerant instructors and teachers in regular classes have attracted the attention of the government and other personnel, some studies have found that the above three types of teachers have fewer opportunities to receive post-employment training, time is scattered, and quality is difficult to guarantee, which is not conducive to improve their professional knowledge and skills (Feng & Zhu, 2018; Ma & Tan, 2010). Fourth, from the perspective of the relationship between post-employment training and pre-employment training, the pre-service training and post-service training of teachers are implemented by the normal university and the education college, respectively. They are out of touch with each other, the institutions are separated, and the curriculum system is separate, which lacks transition and continuity (Qu & Feng, 2005; Qu & Jiang, 2018; Zhao & Zhang, 2019). In addition, the evaluation standards for post-service training of special education teachers have not been established, and the management is not standardized (Hu, 2018).

Policies and Legislation for Special Teacher Education

The construction of the contingent of teachers is the core element of the development of special education, and the training of teachers for special education is an crucial cornerstone for promoting the development of special education in China. Special education teacher training is inseparable from policy guarantee and support. Since the reform and opening up, China has promulgated corresponding special education teacher training and team building-related policies and regulations to ensure the development of special education schoolteachers. This part reviews the policy changes and future development trends of special teacher education in China under the background of inclusive education by sorting out the policies of special teacher education issued at the national level.

Policies for Preparing Special Teachers for Special Education Schools

Since the reform and opening up, the introduction of a series of policies related to teacher training in special education schools has greatly promoted the establishment and improvement of China's special teacher education system and laid the foundation for the transformation of the teacher training model of special education schools in China (2018 report). The five-year Program of Work for Disabled Persons in China (1988–1992), issued in 1988, was the first normative document in China that stipulated the training of teachers in special education schools. promulgated in 1988 is the first normative document in China that stipulates the training of teachers in special education schools. By the 1990s, a total of 7 policies had made corresponding regulations on the training of teachers in special education schools during this period.

In the twenty-first century, the state continues to issue relevant policies for teacher training in special education schools, mainly aimed at improving the imbalance of regional teacher development and strengthening the construction of teachers in special education schools. The Recommendations for Further Promoting the Reform and Development of Special Education during the Tenth Five-Year Plan Period issued in 2001 ushered in a new stage of the construction of special education teachers in China in the twenty-first century. The Recommendations for Further Accelerating the Development of Special Education issued in 2009 pointed out that it is necessary to strengthen the training and training of special education teachers, improve the professionalism of teachers, and strengthen the construction of my country's special education teachers. The policy also mentions the need to have sufficient teachers to ensure the normal teaching and management of special education schools.

After 2010, the national policy-making began to take the construction of high-quality professional teachers as the core goal. Subsequently, in 2012, the Recommendations for the Development of Special Teacher Education was issued, which for the first time made a comprehensive plan for the construction of special education

teachers and addressed the problems in the system and mechanism of special teacher education. It puts forward the goal of forming a team of special education teachers with sufficient numbers, reasonable structure, high quality, and caring in 2020. The second part of the document emphasizes the need to formulate professional standards for teachers in special education schools and improve the professionalism of special education teachers.

In 2014, the Ministry of Education and other departments jointly promulgated the Special Education Promotion Plan (2014–2016), which pointed out the need to improve the professional level of teachers. Establish a professional certification system for special education teachers and gradually implement special education teachers with certificates; at the same time, it is also proposed to formulate professional standards for teachers in special education schools. The Recommendations of the Ministry of Education on the Implementation of the Excellent Teacher Training Plan promulgated in the same year put forward relevant requirements for "composite" special education teachers, focusing on exploring classification and promoting the reform of the excellent teacher training model.

Moreover, both the Second Special Education Promotion Plan (2017–2020) promulgated in 2017 and the Teacher Education Revitalization Action Plan (2018–2022) promulgated in 2018 pointed out the need to improve the training level of special education teachers and strengthen the construction of professional special education teachers.

China's special education teacher training policy goals have gone from solving the problem of insufficient special education teachers to improving the imbalance of regional teacher development and then to the problem of teacher role transformation facing the core goal of building a high-quality professional teacher team. Since the reform and opening up, laws, regulations, and policies in China at all levels have formed a corresponding legal framework for the construction of special education teachers.

Policies for Preparing Special Teachers for Regular Schools

Affected by the idea of inclusive education, to solve the problems in the popularization of compulsory education for special children in the process of popularizing compulsory education in China, ordinary classes have become the main form of solving the enrolment rate of special children in China. Resolutely taking the road of integrated education is the strategic goal and policy direction of China's special education development in future. In 1988, the first national special education work conference put forward for the first time the development pattern of China's special education "with a certain number of special education schools as the backbone and a large number of special education classes and regular classes as the main body". Since then, the construction of teachers for regular class learning (LRC) began to appear in related policies.

Protection Law for Individuals with Disabilities promulgated in 1990 proposed that normal universities offer special education courses or teach related content to enable general education teachers to master the necessary special education knowledge, which is the training of students' special education competency appeared in the law for the first time. Since then, successively issued policy documents have emphasized that normal universities have plans to set up special education compulsory courses or elective courses so that students can master the necessary basic knowledge and skills of special education and graduate from teaching to meet the needs of working in regular classes.

In the twenty-first century, with the sustaining promotion of the policy of inclusive education and learning in regular classes, the attention and requirements for special education ability in the training of general education teachers are clearer and the requirements for the opening of special education courses are more standardized. The Recommendations for Further Accelerating the Development of Special Education issued in 2009 called for strengthening the training of teachers engaged in special education work in ordinary schools, children's welfare institutions or other institutions, and itinerant teachers of special education schools. The Special Education Promotion Plan (2014–2016), issued in 2014, mentions the ability of special education candidates to guide disabled students in their classes. The Guidance to the Construction of Classrooms for Special Education Resources in Ordinary Schools (Ministry of Education, 2016) issued in 2016 states that:

> Resource classrooms should be equipped with appropriate resource teachers to ensure that the resource classrooms can function normally. In principle, resource teachers must have special education, rehabilitation, or other related professional backgrounds, meet the educational requirements stipulated in the Teachers Law, have the corresponding teacher qualifications, meet the requirements of the Special Education Teacher Professional Standards, have undergone pre-job training, and have special Basic theories, professional knowledge and operational skills of education and rehabilitation training. Resource teachers are included in the management of special education teachers, and they are given preference in performance appraisal, appraisal, and evaluation of positions (titles).

The training of teachers in regular classes has shifted from the "optional courses" or non-systematic lectures required in the relevant policy texts of the last century to "compulsory", and from knowledge-based lectures to systematic and standardized courses. Special education competency training and promotion have become necessary content for the professional development of general education teachers.

With the advancement of inclusive education and LRC, policy and documents issued by relevant departments reflect China's unode on the construction of LRC teachers. The state has successively issued corresponding policies concerning the cultivation of special education competency of general education teachers, as well as the provision of resource teachers and itinerant instructors. In the context of inclusive education, the national policy level pays more attention to the rational structure of teachers in regular classes.

Development of Special Teacher Education: A Historical Review

Special Teachers for Special Education Schools

Before the 1980s, China did not have specialized special education teacher training institutions and training programs. The pre-service training of special education teachers was in a blank state. To ensure the expansion of the special education scale, a large number of regular school teachers and normal university graduates entered special education schools. At that time, the special education competency of teachers in special schools is not satisfying.

Since the reform and opening up, under the influence of corresponding policies, the pre-service training system for teachers in special education schools has been established, improved, and gradually expanded. By the end of the 1980s and early 1990s, China had gradually established a three-level teacher training system for special education teachers. Special education majors at normal school, college, and undergraduate levels. Special education normal schools have flourished. By 1998, 35 secondary special education normal schools (departments and training centres) and seven higher special education specialties had been established nationwide, forming a special education system covering most regions of the country at the middle and higher levels. At the same time, the scale of teachers in special education schools has gradually expanded and the allocation of teachers has become more reasonable. The shortage of teacher resources in special education schools has been alleviated to a certain extent. The size of teachers in special education schools in the central and western regions has been gradually improved under the influence of policies in recent years (Wang & Zhu, 2018b).

Since the mid to late 1990s, with the overall adjustment of the layout of normal universities in China, under the influence of policies, the training system for special education teachers has gradually been reformed from the third level to the second level and the training level of special education teachers has been continuously improved. Many secondary normal schools have been upgraded within the system or transformed outside the system.

In the twenty-first century, under the influence of the two important changes of upgrading the level of normal colleges and the policy of free normal university students (Wang & Mu, 2014), the scale of pre-service training for teachers in special education schools has been rapidly expanded and the quality and level of teachers have been gradually improved. The number of special education normal majors offered by universities has increased significantly, and the training scale of special education talents has continued to expand. At the same time, the types of colleges and universities that undertake the training of special education teachers are gradually expanding , with more diversified training modes. After nearly 40 years

of development, China's special education teacher training has formed a multi-level and multi-type complex structure covering postgraduate, undergraduate, and junior college education, including general higher education, adult higher education, and distance education.

Special Teachers for Regular Schools

Since China implemented the policy of studying with classes, it has begun to concentrate on the problem of teachers for regular classes. At the First National Conference on Special Education in 1988, it was first proposed that the development pattern of special education in China should take a certain number of special education schools as the backbone and a large number of special education classes and students in regular classes as the main body. In the late 1980s and early 1990s, followed in the face of carrying out the early professional followed in the lack of teachers and teachers' pre-service training system of the status of the blank, special education teachers in our country will strengthen policy along with the class teachers' pre-service training and on-the-job training, promote common special education schools teachers basic knowledge and skills as a basic policy goal, by clarifying the responsibilities of education administrative departments at all levels and special education schools, and strengthening the training of teachers studying in classes, the shortage of basic knowledge and skills of special education teachers in ordinary schools can be solved (Wang & Zhu, 2018b). In the past three decades, the goal of pre-service education for in-class teachers in China has been to improve the special education competency of general education teachers, from the time when Learning in Regular Class was first proposed in 1988 to its nationwide promotion in 1994. In the first ten years of the twenty-first century, the content of inclusive education in the pre-service training of teachers in general education is still relatively scarce. However, after 2010, the promulgation and implementation of intensive policies effectively promoted and accelerated the popularization of the special education content in the pre-service training of teachers in general education. With the promulgation and implementation of Teacher Education Curriculum Standards (Trial) in 2011 and the promulgation of the Special Education Promotion Plan (2014–2016), more and more normal colleges or comprehensive colleges have added special education-related courses to the pre-service training of primary and secondary school teachers. Normal universities directly under the leadership of the Ministry of Education, provincial normal colleges, and local normal colleges have carried out the construction of curricula related to special education quality of normal university students one after another (Feng et al., 2016b).

The Strategy of Special Teacher Education in the Era of Teacher Roles Reorientation: Pre-service Education and In-service Training

Teacher Training Strategies in Special Education Schools

The pre-service training of teachers in special education schools has always attracted much attention in the areas of policy and practice. At present, the pre-service training institutions for teachers in special education schools in our country are mainly specialized special education normal colleges and special education departments of normal universities. As of 2020, a total of 93 colleges and universities in China have opened special education programs (Gong & Lei, 2021). In 2021, the Ministry of Education will include integrated education as one of the new majors in the undergraduate professional catalogue of ordinary colleges and universities (Ministry of Education, 2020).

With the continuous development of inclusive education, in the face of the changing needs of teachers in special education schools, special education teachers' pre-service training goals, models, and curriculum settings have all made certain responses. First of all, the training goal. In the past ten years, the improvement of the quality of special education has become the core. The development of a group of outstanding special education teachers with compound knowledge and skills is the main training goal (Wang & Zhu, 2018b). Following the 2012 Recommendations on Strengthening the Construction of Special Education Teachers (Ministry of Education, et al., 2012) for the first time specifically pointed out "training outstanding special education teachers with compound knowledge and skills", the 2014 Recommendations of the Ministry of Education on the Implementation of Excellent Teacher Training Programs (Ministry of Education, 2014) emphasized Promote the Cultivation of Excellent Special Education Teachers. Afterwards, the 2017s Special Education Promotion Plan (2017–2020)" (Ministry of Education, 2017) and the 2018 Teacher Education Revitalization Action Plan (2018–2022) (Ministry of Education, 2018) also made corresponding provisions for it. Second is the training model. The goal of training excellent special education teachers based on compound knowledge and skills, the reform and training model of higher education institutions, and the policy level, 2012 "Opinions on Strengthening the Construction of Special Education Teachers" (Ministry of Education, et al., 2012b), 2014 "Ministry of Education's Implementation of Excellent Teacher Training The Opinions of the Plan (Ministry of Education, 2014a) all pointed out to explore the joint training mechanism of normal colleges and medical colleges, special education knowledge and skills and discipline education and teaching integration training mechanism, adhere to the combination of theory and practice, and promote interdisciplinary; 2017s Special Education The Promotion Plan (2017–2020) (Ministry of Education, 2017) and the 2018 Teacher Education Revitalization Action Plan (2018–2022) (Ministry of Education, 2018) both emphasize the increase in the training of postgraduates majoring in special

education. At the practical level, some normal colleges have begun to implement the "post-bachelor teacher training model", such as the "4 + 2" teacher training model (4 years of undergraduate education in related disciplines + 2 years of graduate-level teacher training in a certain obstacle professional education), "4 + 3" teacher training model (4 years of undergraduate education in related disciplines + 3 years of post-graduate level teacher training), etc. (Zhao & Zhang, 2019). Finally, the curriculum includes four major sections (general education, subject foundation, professional education, and teacher education). General education courses are mainly designed to enable future special education teachers to have a broader culture of humanities and social sciences. Such courses mainly include compulsory courses and elective courses. General compulsory courses mainly refer to the courses provided by the Ministry of Education, including the "two courses" (ideological and moral training and political theory courses), foreign language, computer, physical education, and military courses. Elective general courses are mainly based on the characteristic courses offered by the faculty of each school, involving humanities, natural sciences, art history and other disciplines. Subject basic courses usually cover basic knowledge of pedagogy and psychology. Some colleges and universities also offer basic courses in 55 related subjects such as human anatomy and physiology, curriculum and teaching theory, and advanced mathematics. Professional education courses are the main courses in special education majors. They are both theoretical and practical. Due to the differences in training goals and training programs, there are wide-ranging differences between universities. Teacher education courses aim to improve students' educational practice and skills, usually covering educational research and internships, with a specific duration of about 10–20 weeks.

Special education school teachers' in-service training is an crucial way for their professional development, and it has also been valued in policy and practice. In the period of role change, teachers in special education schools are no longer just traditional teachers, but can instead provide support and services for the implementation of inclusive education in regular schools. At the policy level, the 2009 Recommendations on Further Accelerating the Development of Special Education (State Council, 2009) mentioned that "It is necessary to strengthen the training of teachers who are engaged in special education work in ordinary schools, child welfare institutions or other institutions and special education school roving instructors"; In 2017, the Second Special Education Promotion Plan (2017–2020) (Ministry of Education, 2017) also specifically emphasized that the provincial level undertakes special education school teacher training, and the county level undertakes teachers of inclusive education in Regular class and resources Teachers and Homebound Instruction Teachers training to enhance the pertinence and effectiveness of training. At the practical level, the post-employment training of special education teachers is managed by local education authorities, and training courses are set up in accordance with the Ministry of Education's Special Education Teacher Professional Standards (Trial) (Ministry of Education, 2015). The training method emphasizes the organic combination of theory and practice, the combination of special study and exchanges and discussion, the combination of observation and investigation and reflection experience, and the integration of various methods. At the same time, Beijing, Shanghai, and

other places take the lead in launching special training for resource teachers, requiring resource teachers to undergo five major module courses such as special education courses, psychology courses, rehabilitation courses, educational practice, and assessment and evaluation before taking their jobs. They will continue to discuss after work. Regular on-the-job training in the form of conferences, workshops, teaching and research activities, and participation in education and teaching skills improvement training classes such as language training, movement training, and structured teaching to improve rehabilitation skills (Wang & Xiao, 2017). Full-time tour instructors also need short-term trainings organized by universities designated by provinces and cities to improve their professional knowledge and skills (Zhang & Wang, 2017).

Strategies for Training Teachers in Regular Classes

Pre-employment training is the initial stage of the formation of teachers' professional competence. The professional competence generated by normal students at this stage affects to a certain extent the educational attitudes, teaching activities and teaching effects of the diversified educational target groups after entering the job. The continuous advancement of inclusive education has changed the educational objects and educational environment of regular schools. It is inevitable to incorporate special education capabilities into the pre-service training content of teachers in regular classes, which is reflected in various policies and practices. On the one hand, general education policy documents in the twenty-first century have paid attention to this issue. In 2011, the Teacher Education Curriculum Standards (Trial) promulgated by the Ministry of Education included the Special Child Education module in the teacher education curriculum (Ministry of Education, 2011). The special education policy documents make more detailed regulations and requirements. In 2012, the Recommendations on Strengthening the Construction of Special Education Teachers (Ministry of Education, 2012) clearly stated that "support normal colleges and other institutions of higher learning to generally offer special education Curriculum in normal majors"; 2014 Special Education Promotion Plan (2014–2016) (Ministry of Education, 2014c) re-emphasized in the main measures "…Encourage colleges and universities to offer special education courses in normal majors, cultivate the inclusive education concept of normal students, and guide students with disabilities to teach in regular classes". The Regulations on Education for Persons with Disabilities (State Council, 2017) revised in 2017 and the Second Special Education Promotion Plan (2017–2020) (Ministry of Education, 2017) promulgated by the Ministry of Education and other departments also emphasized that "ordinary normal colleges and universities and comprehensive Teachers' majors in colleges and universities should generally offer special education courses". It is worth noting that the Special Education Promotion Plan (2014–2016) (Ministry of Education, 2014c) and the Second Special Education Promotion Plan (2017–2020) (Ministry of Education, 2017) clearly require that "a certain proportion of Special education-related content".

It can be seen that improving the special education competence of ordinary normal students has become the core of many policies.

On the other hand, normal colleges and universities have opened courses related to special education competence of ordinary normal students, which is an important measure for pre-employment training. With the help of special education courses, the subordinate normal colleges, provincial normal colleges, and local colleges help ordinary normal students to cotton on the significance of special and inclusive education, master the knowledge of the physical and mental characteristics of children with disabilities, and acquaint the basic theories of special education (Feng et al., 2016b). At the same time, Special Child Development and Learning has also become the first special education competence training course for ordinary normal students to appear in the national excellent resource sharing resource courses, providing support for the majority of ordinary normal students to learn special education content.

In-service training is an important way to improve the current lack of special education competence of teachers in regular classes. The series of policies promulgated in the past ten years has made a number of provisions on in-service training, clarifying the content of in-service training for teachers in regular classes at the county level, and specifying the managers, implementers and targets of in-service training. For example, the Regulations on Education for the Disabled (State Council, 2017) and the Second Special Education Promotion Plan (2017–2020) (Ministry of Education, 2017) revised in 2017 both emphasized that "the county level undertakes teachers of inclusive education in regular classes training"; 2012 The Recommendations on Strengthening the Construction of Special Education Teachers (Ministry of Education, 2012) first proposed to carry out "full-staff training for teachers undertaking inclusive education".

Several Relations that Need to Be Dealt with Reasonably in Special Education Teacher Education

Presently, the development of special education in China has gradually entered a transitional period of "upgrading" and "perfecting" from the "promotion" and "speeding up" period in the early new century (Yang, 2018). Quality improvement has become the general goal of special education development in the new era, and the construction of high-quality professional special education teachers are the key force to promote quality improvement. Therefore, a reasonable response to the several relationships of special education teacher education is a rational response to the demands for high-quality development of special education. Therefore, it is imperative to deal with several relations of special education teacher education reasonably.

The Relationship Between the Training of Multi-qualified Special Education Teachers and Different Types of Special Education Teachers

Properly handling the relationship between multi-qualified special education teachers and categorized special education teachers is an inevitable demand for pre-service training of special education teachers during the role change period and is a fundamental measure to improve the quality of special education teachers from the source. On the one hand, it focuses on cultivating compound special education teachers who are capable of special education, general education, subject teaching, and rehabilitation at the same time. They can be roughly divided into a compound of "special education + subject teaching" and "special education + general education". The combination of "special education + rehabilitation"; on the other hand, according to the different roles of special education teachers in practice, different work fields and the characteristics of their positions, clarify the focus and highlight of their professional qualities To meet the practical needs of special education development, it is necessary to set up relevant majors in relatively mature colleges and universities and more specifically explore the training models of different types of special education teachers such as tour instructors, resource teachers, and rehabilitation teachers in regular classes.

The Relationship of Teacher Training Between Non-compulsory Education and Compulsory Education

"Extending from both ends" to pre-school education and high school education is one of the important trends and key tasks for the further development of special education in China. Handling the relationship between non-compulsory education and compulsory education of special education teachers is a further solution to my country's special education. The key measure of the unbalanced structure of teacher team building. First of all, for special education teachers in the pre-school education stage, on the one hand, pre-school special education can be set under the special education major, focusing on the development of early assessment, early intervention and rehabilitation of different types of special children, and at the same time increasing pre-school hygiene and infant psychology. On the other hand, the pre-school inclusive education direction can be set under the pre-school education major to supplement the physical and mental development characteristics of special children and intervention strategies and other knowledge and skills to enhance the inclusive education quality of pre-school teachers. Secondly, for high school special education teachers, on the one hand, explore the joint training model for teachers of special education majors and vocational education-related majors (cooking, auto repair, Chinese medicine, art, computer, etc.) for special students, so that special education teachers have basic vocational education. At the same time, vocational education teachers should have

relevant knowledge of students with special needs, and supplement high-quality teachers for the development of secondary vocational education for students with special needs; on the other hand, exploring the joint training model of special education majors and professional teachers in various disciplines should further enhance the special education teachers' subject teaching ability provides sufficient teaching and support for students with disabilities to receive general high school education and participate in the college entrance examination, and promote the development of general high school education for students with special needs.

The Relationship Between Pre-service and In-service Training of Special Education Teachers

Gradually paying attention to and promoting the inclusive construction of pre-service and in-service training of special education teachers are an effective way to achieve high-quality professional special education teachers. At present, the special education teacher education system in China has the disadvantages that pre-employment training and post-employment training are out of touch, and they are independent of each other. Therefore, the state should focus on strengthening the integration of the two. First of all, the integration of educational concepts, that is, whether it is pre-service training or in-service training, it emphasizes "to cultivate a broad knowledge base, high humanistic Competence and comprehensive quality, strong practical ability, and multi-qualified and applied special education teachers; secondly, the integration of educational mechanisms requires top-level design and overall planning of lifelong education for special education teachers based on the commanding heights of the development of special education, and implementation of pre-service training and in-service training. At the same time, effectively coordinating the education departments, administrative departments, and special education normal colleges, and other forces is an inevitable requirement for strengthening the relationship between pre-service training and in-service training to ensure good results (Meng, 2014).

The Relationship Between Teachers in Regular Classes and Teacher Education in Special Education Schools

In future, special education teacher education should pay attention to the relationship between teachers in regular classes and the construction of teachers in special education schools. On the one hand, it is crucial to reform the special education teacher training model and improve the system and mechanism of special education teacher team building. On the other hand, it is still necessary to continue to focus on strengthening the training and improvement of teachers' inclusive education Competence in

regular classes. First, promote the establishment of general teacher-trained professional general inclusive education courses, scientifically construct and continuously optimize the content of the courses, and uphold the principle of consistency with practical requirements; second, include the related content of inclusive education into the ordinary teacher qualification examination for the admission of ordinary teachers enhance their inclusive education competence; finally, arrange, regularize, and institutionalize inclusive education-related content in a planned way in teacher in-service training, promote the continuous and stable professional growth of ordinary teachers, and the internalization and generation of integrated education competence.

References

Chen, L., & Yang, Q. (2018). 特殊教育师范生专业认同与学习倦怠、学习效能感的关系研究 [The relationship between special education normal school students' professional identity, learning burnout and learning efficacy]. 中国特殊教育 *[Chinese Journal of Special Education]*, *211*, 39–45.

Deng, M., & Zhao, M. (2013). 融合教育背景下我国高等师范院校特殊教育师资培养模式改革的思考 [The reflection on the reform of special education teacher preparation in higher education institutions for teacher preparation in China in the context of inclusive education]. 教育学报 *[Journal of Educational Studies]*, *9*, 75–81.

Feng, J., & Feng, M. (2011). 陕西省特殊教育教师专业发展现状的调查研究 [On the investigation into the current professional development of special education teachers in Shaanxi Province]. 中国特殊教育 *[Chinese Journal of Special Education], 127*, 65–69.

Feng, Y., Li, A., & Wang, Y. (2016). 我国普通师范专业融合教育课程现状的调查研究 [An investigation into the present inclusive education curriculum in general pre-service teacher education programs in China]. 中国特殊教育 *[Chinese Journal of Special Education], 1*, 9–15+29.

Feng, Y., & Zhu, N. (2018). 随班就读资源教师专业化发展的现状与对策 [Present situation and countermeasures of professional development of resource teachers studying in regular classes]. 中国特殊教育 *[Chinese Journal of Special Education], 212*, 45–51.

Feng, Y., & Zhu, N. (2018).随班就读资源教师专业化发展的现状与对策 [Inclusive education-related resource teachers' professional development: The current situation and suggestions]. 中国特殊教育. [*Chinese Journal of Special Education*], 2, 45–51.

Gong, H.,& Lei, J.(2021). 美国高质量特殊教育教师培养的特点及启示—以范德堡大学特殊教育专业本科培养项目为例 [The characteristics and enlightenment of the training of high-quality special education teachers in the United States—Taking Vanderbilt University special education undergraduate training program as an example]. 教育学报 [*Journal of Educational Studies*], *2*, 26–37.

Hampton, N. Z. (2001). An evolving rehabilitation service delivery system in the People's Republic of China. *Journal of Rehabilitation, 67*, 20–28.

Hu, S. (2018). 我国特殊教育教师职后培训研究现状与趋势 [Status and trends of research on post-employment training of special education teachers in China]. 教师教育论坛 *[Teacher Education Forum]*, *31*, 26–29.

Lei, L. (2019). 特教专业应届毕业生专业认同对就业选择的影响研究 [A study on the impact of professional identity of special education graduates on employment choice]. 现代特殊教育 *[Modern Special Education]*, (08), 59–67.

Li, Y. (2014). 特殊教育教师工作压力与工作倦怠:心理资本的调节作用 [Occupational stress and job burnout among special education teachers: the moderating effect of psychological capital]. 中国特殊教育 *[Chinese Journal of Special Education]*, *168*, 78–82.

Li, S. (2015). 美国高校特殊教育专业发展现状及启示 [A review of the current development of special education at institutions of higher learning in the U.S. and its implications]. 中国特殊教育 *[Chinese Journal of Special Education]*, *179*, 21–26.

Liu, W., & Zhang, Y. (2018). 西北地区特殊教育师范生专业承诺现状及提升策略—基于西北师范大学的调查数据 [The status quo and promotion strategies of professional commitment of special education normal students in Northwest China—Based on the survey data of Northwest Normal University]. 教育理论与实践 *[Theory and Practice of Education]*, *38*, 32–35.

Ma, H., & Tan, H. (2010). 上海市随班就读教师现状调查 [A survey of the status quo of Shanghai teachers for special students learning in regular classes]. 中国特殊教育 *[Chinese Journal of Special Education]*, *115*, 60–63.

McLoughlin, C. S., Zhou, Z., & Clark, E. (2005). Reflections on the development and status of contemporary special education services in China. *Psychology in the Schools, 42*, 273–283. https://doi.org/10.1002/pits.20078

Meng, F. (2014). 特殊教育师资职前职后培养一体化探析 [A probe into the integration of pre- and post-employment training for special education teachers]. 中国教育学刊 *[Journal of the Chinese Society of Education]*, *8*, 91–94.

Ministry of Education PRC. (2011). *Opinions on vigorously promoting the reform of teacher education curriculum.* Ministry of Education.

Ministry of Education. (2012).《特殊教育学校建设标准》发布实施 [The "standards for the construction of special education schools" was promulgated and implemented]. 11 January, 2012. http://www.moe.gov.cn/jyb_xwfb/gzdt_gzdt/s5987/201201/t20120111_129316.html

Ministry of Education, PRC. (2012a). *Recommendations on strengthening the construction of special education teachers.* Ministry of Education.

Ministry of Education PRC. (2012b). *Opinions on strengthening the construction of special education teachers.* Ministry of Education, National Development and Reform Commission, National Development and Reform Commission, et al.

Ministry of Education, PRC. (2014a). *Opinions of the Ministry of Education on the implementation of excellent teacher training programs.* Ministry of Education.

Ministry of Education, PRC. (2014b). *Special education promotion plan (2014–2016).* Ministry of Education.

Ministry of Education. (2015). 教育部关于印发《特殊教育教师专业标准(试行)的通知》[Notice of the Ministry of Education on printing and distributing the professional standards for special education teachers (Trial)]. http://www.moe.gov.cn/srcsite/A10/s6991/201509/t20150901_204894.html

Ministry of Education, PRC. (2017). *Second special education promotion plan (2017–2020).* Ministry of Education.

Ministry of Education, PRC. (2018). *Teacher education revitalization action plan (2018–2022).* Ministry of Education.

Ministry of Education, PRC. (2020). *Notice of the Ministry of Education on announcement of the results of the filing and approval of undergraduate majors in regular colleges and universities.* Ministry of Education.

Ministry of Education, PRC. (2021). 2020年全国教育事业发展统计公报 [Statistical bulletin on the development of education in China in 2020]. http://www.moe.gov.cn/jyb_sjzl/sjzl_fztjgb/202108/t20210827_555004.html

Ministry of Education, PRC. (2016). 普通学校特殊教育资源教室建设指南 [The guidance to the construction of classrooms for special education resources in ordinary schools]. http://www.moe.gov.cn/srcsite/A06/s3331/201602/t20160216_229610.html

Payne, R. (2005). Special education teacher shortages: Barriers or lack of preparation? *International Journal of Special Education, 20*, 88–91.

Piao, Y., Gargiulo, R. M., & Yun, X. (1995). Special education in the People's Republic of China: Characteristics and practices. *International Journal of Special Education, 10*, 52–65.

Qu, T., & Feng, Z. (2005). 专业化:教师教育的理念与策略 [Professionalism: An essay on the idea and strategy of teacher education]. 教师教育研究 *[Teacher Education Research]*, *17*, 10–15.

Qu, T., & Jiang, T. (2018). 改革开放40年特殊教育师资队伍建设的回顾与反思 [Construction of special education teachers over the past forty years of reforms]. 河北师范大学学报(教育科学版) *[Journal of Hebei Normal University/Educational Science Edition]*, *20*, 41–48.

Sonnander, K., & Claesson, M. (1997). Classification, prevalence, prevention and rehabilitation of intellectual disability: An overview of research in the People's Republic of China. *Journal of Intellectual Disability Research, 41*, 180–192. https://doi.org/10.1111/j.1365-2788.1997.tb00694.x

State Council PRC. (2009). *State Council forwards the opinions on further accelerating the development of special education.* State Council.

State Council PRC. (2017). *Regulations on education for the disabled*. State Council.

Tang, J., &Wang, Y. (2019) 特殊教育教师职业认同感与离职意向:工作满足感的中介作用 [Special education teacher' professional identity and turnover intention: The mediating role of job satisfaction]. 中国特殊教育 *[Chinese Journal of Special Education]*, *224*, 58–65.

Wang, H., & Xiao, H. (2017). 随班就读资源教师工作及其专业培训的思考 [Reflections on inclusive education- related resource room teachers' work and their professional training]. 中国特殊教育 *[Chinese Journal of Special Education], 6*, 33–36.

Wang, M., & Zhang, M. (2015). 特教教师心理资本与职业倦怠的关系研究 [On the relationship between special education teachers' psychological capital and job burnout]. 中国特殊教育 *[Chinese Journal of Special Education]*, *183*, 49–57.

Wang, Y., & Zhu, N. (2019). 70年的跨越: 特殊教育学学科发展 [The development of the discipline of special education over the past 70 years]. 教育研究 *[Educational Research]*, *40*, 27–40.

Wang, Y., Wang, Z., & Zhu, N. (2012). 全国特殊教育学校职工队伍结构及需求情况调查 [An investigation of the staffing and demands of special schools in China]. 中国特殊教育 *[Chinese Journal of Special Education]*, *149*, 5–8.

Wang, Y., Li, H., &Mo, C. (2013). 当前我国高等院校特殊教育专业人才培养现状分析及其启示 [Research on the implement of special education programs of Universities in China]. 教师教育研究 *[Teacher Education Research]*, *25*, 28–34.

Wang, Y., Huang L., & Wang, Y. (2018). 对国内随班就读教师融合教育素养研究的分析与展望 [Research review of inclusive education competence of the teacher in regular class in Mainland China]. 教师教育研究 *[Teacher Education Research]*, *30*, 26–32.

Wang, Y., & Mu, G. M. (2014). Revisiting the trajectories of special teacher education in China through policy and practice. *International Journal of Disability, Development and Education, 61*(4), 346–361.

Wang, Y., & Zhu, N. (2018b). *中国特殊教育教师发展报告 [Special education teacher development report of China 2018]*. Beijing Normal University Press.

Wang, L. (2009). 特殊教育教师职业压力的调查分析 [An investigation into the professional stress of special education teachers]. 中国特殊教育 *[Chinese Journal of Special Education]*, *110*, 57–60+96.

Wang, L. (2014). 云南省特殊教育教师队伍现状调查研究 [An investigation into the current situation of special education teachers in Yunnan Province]. 中国特殊教育 *[Chinese Journal of Special Education]*, *169*, 45–51.

Wu, W. (2019). 台湾地区特殊教育专业发展与前瞻 [Critical issues of professional development in special education in Taiwan]. 现代特殊教育 *[Modern Special Education]*, (22), 3–12+43.

Xu, Z., &Wang, Y. (2019). 学习《全面深化新时代教师队伍建设改革的意见》—加快建设高素质专业化特殊教育教师队伍[On the opinions of "comprehensively deepening the reform of teaching staff construction in the new era"—Speeding up the construction of high-quality specialized special education teachers]. 教师教育研究 *[Teacher Education Research]*, *31*, 24–30.

Yang, K. R.(2018). 改革开放40年我国特殊教育政策的顶层设计与战略推进 [Top-level design and strategic advancement of my country's special education policy during the 40 years of reform and opening up]. 中国教育学刊 *[Journal of the Chinese Society of Education]*, *5*, 31–35.

Yuan, Y. (2015). 特殊教育教师在职培训应实现的三个基本转向 [Three Change on the special education teacher' in-service training]. 教育科学 *[Education Science]*, *31*, 63–66.

Zhang, M. (2013). 特殊教育师范生学习倦怠现况及其与专业承诺的关系研究 [On the learning burnout of special education-related normal school students and its relationship with their professional commitment]. 中国特殊教育 *[Chinese Journal of Special Education]*, *156*, 3–8.

Zhang, Y., & Wang, M. (2017). 随班就读巡回指导教师制度研究进展和建议 [Research progress and suggestions on touring instructor system in regular classes]. 中国特殊教育 *[Chinese Journal of Special Education]*, *209*, 3–7+13.

Zhang, S., Jia, J., & Li, H. (2014). 吉林省特殊教育教师队伍现状调查报告 [An investigation into the current situation of special education teachers in Jilin Province]. 中国特殊教育 *[Chinese Journal of Special Education]*, *174*, 60–65+13.

Zhang, Y., Wang, M., Wang, Y., & Li, J. (2019). 随班就读巡回指导工作现状及反思:巡回指导教师的视角 [The status and reflection of itinerant teaching for students with special needs in regular class: Itinerant teacher's perceptive]. [基础教育] *Journal of Schooling Studies, 16*, 63–72.

Zhao, B., & Zhang, Y. (2019). 新中国七十年特殊教育师资培养:成就、问题与走向 [70 years of special education teacher training in China: Achievements, challenges and trends]. 中国特殊教育 *[Chinese Journal of Special Education], 11*, 3–9.

Zhao, X. (2012). 中国特殊教育学校教师队伍状况及地区比较—基于2001–2010年《中国教育统计年鉴》相关数据 [Status and regional comparison of teachers in special education schools in China—Based on the relevant data of China education statistics yearbook from 2001 to 2010]. 中国特殊教育 *[Chinese Journal of Special Education]*, *146*, 49–59.

Zhu, L., & Sun, Y. (2011). 北京市特殊教育师资培训现状调查 [An investigation into the current teacher training for special education in Beijing]. 中国特殊教育 [*Chinese Journal of Special Education*], *134*, 20–24.

Zhu, N. (2021). 转型时期特殊教育学校教师专业发展内容再探讨——基于教师角色变革的视角 [Issues on the contents of professional development for special education teachers]. 教育学报 *[Journal of Educational Studies], 17*, 62–73.

Chapter 43
The Precarious Politics of Teacher Education in Myanmar

Elizabeth J. T. Maber, Khin Mar Aung, Hla Win May Oo, and May May Win

Abstract Political transitions in Myanmar have been accompanied by wide-ranging sectoral reforms over the last decade, including at times contentious reforms of the state education sector through the Comprehensive Education Sector Review (CESR), the National Education Law (NEL), and the subsequent National Education Strategic Plan (NESP) 2016–2021. These substantial reforms across all areas of education have necessitated a significant renegotiation of the roles of state teachers within the education sector and within society more broadly, moving away from authoritarian expectations towards more inclusive pedagogies and more equitable teacher training and management. The reforms have therefore constructed a renewed image of who a teacher is expected to be within Myanmar society. However, while the effect of these reforms is just beginning to be evident within classrooms and teacher education institutions, the education system has been thrown into turmoil first by COVID-19 and subsequently the military coup of February 2021. These recent crises indicate how precarious reforms within the education sector can be and also point to the central roles that teachers and teacher education play in navigating political turbulence and transforming education systems. They have also challenged the discourses of teaching as a profession, with new narratives and identities emerging. Drawing attention to this shift in the relationship between teachers, students, communities, and the state, in this chapter we explore the role of teachers and teacher education in responding to these challenges.

Keywords Myanmar · Reforms · Strategic plan · COVID-19 · Pedagogy

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Introduction

Teachers in Myanmar have experienced substantial changes within the education system during the last ten years while also navigating oscillations in national politics where the education sector has been central in national policy and reform debates. Although individually diverse, as a collective group teachers have been positioned within public discourse as both responsible for upholding traditional cultures of authority, duty, and respect, while also demonstrating leadership in embracing new skills, pedagogies, and technologies: expected to be simultaneously conservative and future oriented. Recent political turbulence however has seen many teachers across the country disentangle themselves from these restrictive narratives and take a more overt political stand than previously witnessed. In this chapter, we look at the effects of shifting narratives and expectations of teachers' roles through recent education sector reforms and discuss the extent to which reforms to teacher education may be affecting responses to two recent crises affecting the sector.

Recent political upheaval in Myanmar has once again seen a return to overt authoritarian rule and militarization accompanied by brutal police crackdowns of protests and civil opposition movements. This shifts back to military rule, initiated by the coup of 1 February 2021, marks an abrupt diversion in the trajectory of Myanmar's politics, which has seen significant steps towards democracy, albeit partial, over the last ten years. The military coup has been widely resisted among the general population through widespread protests and demonstrations across all regions of the country and a coordinated Civil Disobedience Movement (CDM) aiming to reject the authority of the coup leaders and disrupt the functioning of state services. In return, the military has responded with force, leading to the deaths of over 700 protestors by May 2021, arbitrary arrests, and intensified assaults in ethnic states. After experiencing over half a century of oppressive military rule, drawing to an end in 2010 with the election of a nominally civilian government, the violent response of security forces to opposition is familiar to many within Myanmar and beyond.

However, the current political crisis is also unfamiliar in several ways, including the visibility of the crackdown to outside audiences through social media and the mobilization of transnational alliances through regional solidarity with protest movements in Thailand, Hong Kong, and elsewhere. Likewise, protest movements have been both highly political in their rejection of the military regime and also beyond affiliations to political parties, with many protestors not simply calling for the detained NLD[1] leadership to be reinstated but also for a more radical reshaping of the political landscape to challenge ongoing conflicts, continued discrimination, and the persecution of minority groups. The crisis also falls against a backdrop of social and economic reforms which have had a significant impact on Myanmar's young population, intensifying the resistance to restrictions on civil freedoms and

[1] The National League for Democracy (NLD) is the ruling political party lead by Aung San Suu Kyi, first elected in 2015 and re-elected in 2020.

the desire for a more inclusive society. After having experienced expanded opportunities and access to goods, employment, education, travel, and technology, many are reluctant to accept a return to limitations which have become unfamiliar.

The education sector has been a key part of this transition, with reforms to curriculum, pedagogical expectations, teacher education and management influencing the dynamic of relationships between students, teachers, and parents. While students have historically taken leading roles in the country's democratic opposition movements, teachers, at least within the state sector, have tended to be seen as allied to the ruling authority and responsible for maintaining rather than challenging social norms and expectations. The recent reforms of the sector, as outlined in this chapter, have seen a repositioning of the roles and expectations of teachers which, it is argued, is accompanied by a shift in their perceived political positioning within the current crisis. This period of flux comes at a time when Myanmar's education system, like those across the globe, has been reacting to the global coronavirus pandemic, forcing the closure of schools. With students and teachers working remotely from home, the dynamic of educational relationships has shifted again and strained the skills and resources of both learners and teachers.

In this chapter, we bring together our perspectives as four scholars of education policy and implementation within Myanmar and our experiences as consultant in the reform process, teacher educator, and teacher to reflect on the shifts we have witnessed over the last ten years. We draw on our experiences of navigating the education reforms as well as the political transitions and their impacts on teacher education. These reflections complement analysis of the reforms undertaken by the authors between 2015 and 2020,[2] including a review of the National Education Law, the National Education Strategic Plan (NESP) 2016–2021, and UNESCO's Strengthening Pre-Service Teacher Education in Myanmar (STEM) programme reports which outline developments in teacher education practices. The chapter is structured as follows: we begin with an overview of the political transitions and reforms of the education sector in recent years. We then highlight the features of the reform process which have affected the development of teacher education, identifying competing discourses of the roles and expectations for teachers within the political transitions. Finally, we suggest that two recent crises facing the sector, the COVID-19 pandemic and the military coup of February 2021, have challenged the simplistic narratives of teachers as future oriented and/or conservative and tested the emerging effects of teacher education reforms on the profession.

Political Transitions and Education Reforms

When the military aligned Union Solidarity and Development Party (USDP) took office in 2011 following the contentious elections of 2010, doubts were expressed at the potential for significant political change to occur (Hlaing, 2012; Than, 2015; UN,

[2] See also Maber and Aung (2019), Lopes Cardozo and Maber (2019), and Shah et al. (2019).

2010). Having orchestrated a controlled transition to partial democracy, the military retained substantial power and influence in government through the USDP under the presidency of the former general Thein Sein and through a portion of parliamentary seats reserved for military appointees. Somewhat to the surprise of international audiences, however, President Thein Sein initiated wide-reaching reforms across multiple sectors, including economic development and trade, media and telecommunications, and education, alongside pursuing a Nationwide Peace Agreement (Than, 2015). This ambitious platform of reforms, outlined in the 2012 Framework for Economic and Social Reform (FESR), proved to be contentious in its implementation; however, it nonetheless signalled a substantial shift in internal and external relations amid a climate of optimism in Myanmar's democratic development.

Reforms to the education sector were pivotal within the renewed development of social services outlined in the FERS. The state education sector had long been used as a tool for maintaining social control, constructing a singular national identity narrative and promoting dominant cultural and religious values aligned with the majority Buddhist Bamar (or "Burman") ethnic group (Salem-Gervais & Metro, 2012; Walton, 2013). This pattern of "Burmanization" in state schools, at both primary and secondary levels, has been reinforced through practices including daily Buddhist prayers, curriculum texts glorifying Bamar military victories and outlining religious expectations of gendered behaviour, and through the use of Burmese and English languages as media of instruction excluding the use of the multiple ethnic minority languages. Rote learning has been the standard pedagogical approach, supported by liberal use of corporal punishment and a rigid examination system based on assessing accurate regurgitation rather than the development of critical thought or problem-solving. While individual teachers of course vary considerably in their attachment to such practices,[3] the role of teachers as a collective workforce, as further explored below, has been central to the project of Burmanization and the replication of narrow citizenship ideals (Tin, 2000). Amid an emerging recognition of the role that state education has played in contributing to social tensions and inequalities, teacher education then, along with teacher recruitment and deployment, is a primary component for the successful implementation of inclusive education reforms.

The Comprehensive Education Sector Review (CESR) was launched by the Ministry of Education in 2012 in response to the agenda set out by President Thein Sein and was accompanied by widespread consultation and substantial public debate surrounding changes to legislation and policy. Although state-run basic education schools make up the largest sector of education provision, there are also a number of other education providers including monastic schools, community schools, private schools, and ethnic education providers. These varied education stakeholders therefore felt strongly invested in contributing to the education reforms and ensuring

[3] Research undertaken by the authors in 2015 revealed a wide variety of strategies among teachers in navigating the challenges of teaching diverse students particularly in working across multiple languages within their classrooms (see Maber et al., 2019).

their perspectives and experiences were reflected. However, flaws in the consultation process, not least in the contextualization and incorporation of diverse perspectives into the nascent legislation, led to a feeling that the process aimed to inform stakeholders of decisions rather than seek their contributions and engage with their perspectives (Shah et al., 2019).

The process nonetheless opened up the space for debate about the role and priorities of state education within Myanmar. The strength of public debate and the desire for inclusion on the part of multiple education stakeholders became all the more evident with the resultant launch of the National Education Law in 2014. The law was met with public demonstrations and protests by students, teacher unions, and civil society organizations, who were frustrated that the law did not reflect the multiple views shared within the review or go far enough to disentangle education practices from the tight control of the unified, centralized state. In response to this public opposition, the law was amended in 2015 to refine stipulations on expenditure and languages of instruction.

While students, teachers, and civil society organizations, brought together through the National Network for Education Reform (NNER), campaigned for greater recognition and more meaningful consultation within the reform process, international and donor voices were already well represented. Seventy-two international and national consultants were engaged in the CESR phase 1 with multiple sub-sector studies undertaken, leading to a cacophony of perspectives representing multiple interests although often without substantial contextualization and localization (Shah et al., 2019). As explored further in relation to teacher education below, the plethora of competing agendas encountered throughout the reform process has consistently posed challenges for the implementation of the reforms with a tendency for the authority of international development institutions to be prioritized over national educational expertise, setting up enduring tensions between economic development and educational interests. Frequently, initiatives led by international development agencies, including JICA's revised primary curriculum and UNESCO's STEM project in Teacher Education Colleges both initiated in 2014, have predated wider policy discussions, adding to the impression that community perspectives have come second to international engagement.

The election victory later in 2015 of the National League for Democracy (NLD), headed by Daw Aung San Suu Kyi, led to a renewal of the optimism in democratic transition that had begun to wane. With the passing of the amended Education Law, work had already begun on the National Education Strategic Plan (NESP) to add detail to the frame provided in the law. With the incoming NLD government, inaugurated in 2016, attention was further drawn to the education sector as a priority for national development through the appointment of Daw Aung San Suu Kyi herself as the first Education Minister (before being succeeded by Dr Myo Thein Gyi), increasing the political weight of the Ministry of Education. The Education Law had introduced a commitment to steadily increase the education budget, and this was further consolidated with education allocations reaching 8.8% of the national budget in the 2018/19 financial year, up from 6.78% in FY 2015/16 and nearly six times the total expenditure of FY 2011/12 (Oxford Business Group, 2016, 2019, 2020).

Although still low, and well below the expenditure of regional counterparts,[4] the increases to the education budget have supported the initial implementation of the NESP, increases to teacher salaries, and improvements to school infrastructure.

The NESP 2016–2021, launched after much development in 2017, outlined the major overhaul of the education system through nine *transformational shifts* covering: preschool education; basic education (access, quality and inclusion); curriculum; assessment; teacher education and management; alternative education; TVET; higher education; and management, capacity development and quality assurance. Envisaged as the introduction to the reforms that would unfold over the subsequent 15 years, the NESP 2016–2021 outlines the strategies and outcomes intended for each area of the framework. It represents a highly ambitious undertaking to reshape the state education system in line with the liberal democratic ideals of the political transition. Teachers are positioned as central to achieving this vision, with reforms to pre-service teacher education fundamental to the repositioning of teachers' roles, as explored below.

Locating Teacher Education Within a Landscape of Reform: Opportunities and Challenges

Within the National Education Law, teachers are defined as "instructors who meet the established criteria for instructing at some educational level" (Union of Myanmar, 2014).This definition immediately establishes the centrality of teacher education and professional qualifications within the teaching workforce. The law goes on to stipulate:

> 50. Teachers:
>
> (a) shall be broad-minded to contribute to national and community development. They shall love, value, protect and develop democratic practices.
>
> (b) shall have a sense of responsibility regarding their job, love and value their occupation, and be good models for students.
>
> (c) to teach at the basic education level, shall have a teacher education degree, diploma, certificate or equivalent certification.
>
> 51. Qualification requirements for teachers at the pre-school, basic education, technological and vocational education, higher education, and training school levels will be spelled out in separate education by-laws.

[4] For example, Malaysia and Indonesia both allocate more than 20% of their national budget to education, while Thailand and Vietnam allocate 19.1 and 18.5%, respectively (Oxford Business Group, 2019).

> 52. The Ministry of Education and other relevant ministries shall work to improve teachers' qualifications and to give them international experience.
>
> 53. The Ministry of Education and other relevant ministries will establish the rights and responsibilities of teachers.
>
> (Union of Myanmar 2014)

Teacher education then, as further reinforced through articles 51 and 52, is positioned as a priority for reform, acknowledging the need to upgrade the support and preparation for teachers across all levels of state education. Likewise, within the NESP 2016–2020, teachers are immediately identified at the beginning of the plan as fundamental to the transformation of the education system, as one of three main driving logics underlying the NESP goal:

> 2. Teachers have a key role to play in implementation of NESP reforms
>
> There is convincing national and international research evidence that highlights the crucial role to be played by teachers in the successful implementation of the reforms outlined in the NESP. For example, in the basic education sub-sector teachers will play a key role in the successful roll-out of the new curriculum, as well as adoption of new interactive pedagogy and application of a new assessment system. Therefore, teachers have been placed at the centre of the NESP goal.
>
> (Ministry of Education, 2017, p. 11)

This commitment is then substantiated in area 5 of the plan, outlining improvements to teacher management, pre-service, and in-service training. Major shifts include the expansion and upgrading of Teacher Education Colleges and the extension of the education degree from two years to four years. Previously, pre-service teacher training had been provided through a patchwork of teacher training colleges, teacher training schools, and two Institutes of Education (located in Yangon and Sagaing) (Lall, 2020). These offered a one-year certificate in teacher education, a two-year diploma in teacher education, or a four-year bachelor of education degree at the institutes, which prepared teachers to teach at primary, middle, or secondary school levels, respectively (Higgins & Paul, 2019; Lall, 2020). Teacher education curricula was delivered in English and Burmese through static classroom instruction focusing on subject knowledge and theory, largely without practical opportunities to learn teaching skills. In this way, training colleges and institutes followed the same pattern of hierarchical transmission of knowledge as schools, perpetuating passive models of learning through replication. Consequently, they also reproduced the same exclusions from school to training college, whereby the language of instruction, metropolitan location of training colleges, entry requirements, and cost all stood as barriers to the participation of ethnic and religious minorities within the state sector (Maber & Aung, 2019).

The reforms to teacher education have seen the training colleges, schools, and institutes consolidated as 25 Teacher Education Colleges and three Universities of Education, now delivering a four-year diploma and a five-year bachelors, respectively (UNESCO, 2020a). The curricula of the new Education Colleges have received

a complete overhaul, to include a competency-based approach with focus on practice, classroom skills and pedagogy, as well as subject knowledge and theory (Lall, 2020; UNESCO, 2020a). The development of a Teacher Professional Development Programme also aims to strengthen in-service training to support the move to more interactive pedagogies and to support training in the newly designed basic education curriculum. UNESCO has been leading the implementation of these reforms within the Teacher Education Colleges through the project Strengthening Pre-Service Teacher Education in Myanmar (STEM) since 2014. STEM has supported the redevelopment of teacher education in the new four-year degree through the development of a teacher competency standards framework and the introduction of the new teacher education curriculum for student teachers along with support materials and guides for teacher educators. STEM has also aimed to strengthen the management and administration of the Education Colleges to ensure greater consistency across the 25 colleges in line with international standards (UNESCO, 2020a).

The prioritization of standardized qualifications however got off to a questionable start through the parallel implementation of a package of legislative measures commonly known as the "Quick Wins". Launched directly by the President's Office, rather than the Ministry of Education, these measures were designed to show immediate benefits under the Presidency of Thein Sein while the medium-term education reforms were under development. Largely relating to economic priorities, the Quick Wins included increasing teacher wages, through the provision of a monthly allowance of 30,000 kyat (approx. $30), effectively doubling teacher's salaries, with further increases for teachers working in remote and conflict-affected regions of the country in order to improve retention (Shah et al., 2019). Although a significant increase, teachers' salaries remain low, which has contributed to the feminization of the profession, the growth of private tuition classes offered after school and the loss of teachers from the state sector often into private education. However, a further Quick Win policy aimed to increase the number of teachers working at primary level to fill short-term gaps through engaging 72,000 daily wage teachers to boost the workforce capacity. These daily wage teachers were provided with one month of minimal pre-service training and were not required to be qualified to the level of permanent salaried teachers. As it is often schools in remote and conflict-affected areas that struggle to retain qualified teachers, the engagement of large numbers of daily wage teachers in these regions risks entrenching inequalities within education provision (Shah et al., 2019), increasing the precarity and vulnerability of teachers in these regions (Maber et al., 2019), and undermining the narrative of prioritizing teacher education and quality in the reforms.

This reflects a common theme in the landscape of reforms where multiple initiatives have been implemented by varied actors or authorities along differing timelines with often only partial coordination between them. The high number of international actors and development agencies both consulting in the reform process and subsequently delivering programmes has exacerbated this tension between priorities and agendas. So in the Teacher Education Colleges, we find UNESCO delivering the Strengthening Pre-Service Teacher Education in Myanmar (STEM) programme, funded by the governments of Australia, Finland, and the UK, alongside British

Council and VSO's English for Education College Trainers (EfECT) and Towards Results in Education and English (TREE) programmes funded by UK-AID, and JICA's training in the new primary curriculum they have developed through the Project for Curriculum Reform at Primary Level of Basic Education (CREATE), while within schools teachers may encounter UNICEF's School-based In-Service Teacher Education (SITE) programme and the UNICEF supported localized curricula (Higgins & Paul, 2019; Lall, 2020; UNICEF n.d.; UNESCO 2020a). Inevitably coordination across these multiple initiatives is challenging, while the reliance on donor funding for the implementation of the reforms also presents concerns over representation, motivation, and sustainability.

Likewise, just as encountered in the CESR, the NESP engaged a large number of international consultants in the drafting of its chapters, with the result that variations in tone, contextualization, and substantiation are evident, adding to the concerns of the NNER that local expertise has been sidelined. In relation to gender disparities in the education system for example, the NESP 2016–2020 Chap. 6 on Basic Education – Access, Quality and Inclusion states:

> Gender dynamics may mean that access, inclusion and quality issues are different for boys and girls; however, the lack of Myanmar-specific studies of gender and education means that very little is known about whether this is indeed the case.
>
> (Ministry of Education, 2017, p. 101)

This tone suggests a lack of engagement with the contextual realities of gender dynamics and experiences within Myanmar, despite considerable local attention to the issue and expertise, particularly among civil society organizations, in researching gender inequalities within the sector (GEN, 2015; Maber & Aung, 2019; RAINFALL, 2017). Likewise, while Chap. 9 on Teacher Education engages with the need for teachers to understand gender biases and their effects within their classrooms, no mention is made of the gendered nature of the teaching workforce or teachers' own gendered experiences within the profession. Teaching is a highly feminized sector, with over 80% of teachers in Myanmar being women (Ministry of Education, 2013), yet women remain poorly represented within leadership and decision-making roles including among head teachers, township education officers, and ministerial or departmental leads (Maber et al., 2019; Ministry of Education, 2013).

Similarly, despite a recognition from the Minister of Education Dr Myo Thein Gyi in the forward that "Education will play a key role in securing the lasting peace and security of the nation" (Ministry of Education, 2017, p. 7), the only references to the important contribution of education to conflict and peacebuilding within the nine priority areas come in Chap. 4 on Preschool and Kindergarten Education. No mention is made of the relationship between conflict, peacebuilding, social inequalities, and teacher education. Yet research conducted by the authors in 2015 and 2016 revealed educational inequalities, including recruitment, deployment, remuneration, resourcing, and training within the teaching profession, to be key grievances within the ethnic conflicts (Maber et al., 2019; Shah et al., 2019). Myanmar's plural education sector, with a variety of non-state actors providing alternatives to basic education schools and making up the shortfall in state education provision in more

remote areas, includes parallel education authorities such as the Mon National Education Committee (MNEC) or Karen Education Department (KED)[5] allied to ethnic armed groups (EAGs) in conflict-affected states. There is a key need to engage with community-based non-state education actors and to address conflict grievances across the sectors in order to support greater inclusion and cohesion through the education sector. The NESP 2016–2021 recognizes the need to strengthen educational partnerships across providers (Ministry of Education, 2017, p. 92); however, again within the detailed content of the chapters, there is little attention to how this will be achieved. The uneven attention and lack of contextualization of key issues such as gender and peacebuilding reflect the challenge of crafting a cohesive narrative across the variety of perspectives engaged, with inequalities seemingly reproduced in the attention given to dominant voices.

Positioning Teachers Within Shifting Discourses of Education

Despite the challenges of the reform process, there has been significant progress in the implementation of the NESP 2016–2021, particularly in the development of the new primary curriculum rolled out by JICA, work on local curricula components led by UNICEF, and the redevelopment of the Teacher Education Colleges supported by UNESCO. The implementation of these measures has prompted a shift in the expectations and assumptions of teachers' roles, but has also revealed differences between state discourses, development institutions, and public perception. There is also potential for tension between international agencies implementing many of the measures and state ideals as political agendas shift.

Returning to the text of the National Education Law outlined above, the framing within article 50 of the Law positions teachers as simultaneously responsible for the development of the nation ("*to contribute to national and community development*") as well as the development of their students ("*to be good models for students*")(Union of Myanmar 2014), retrieving the role of teachers as reinforcing the construction of national citizenship ideals, albeit ideals that are now more aligned to a liberal market economy. Teachers are therefore cast as representatives of the state, responsible for upholding and instilling national values. Although the state may have redesigned itself through the post-2011 reforms, moving away from overt authoritarianism towards liberal democracy, teachers are still positioned as loyal to the state and serving the development of the nation, demonstrated in the direction that "*they shall love, value, protect and develop democratic practices*"(Union of Myanmar 2014).

Likewise, the strong discourse of service attached to the profession ("*Teachers…shall have a sense of responsibility regarding their job, love and value*

[5] The schools set up by these authorities are known as ethnic education schools and largely operate as parallel, independent systems, developing their own curricula and teacher training or professional development programmes.

their occupation") reinforces traditions of duty and self-sacrifice. Within Myanmar Buddhist traditions, teachers are highly respected, and socially teachers have generally been afforded a relatively high social status. However, the discourse of service and connotations of religious duty have also tied into justifications for low salaries, which has conversely undermined teachers' position through necessitating additional sources of income (Maber et al., 2019). While this positioning of teachers evokes religious notions of duty, it is also gendered, reinforcing the expectation for women, who make up the overwhelming majority of the teaching workforce, to devote themselves to the service of others for little compensation. Similarly, women are frequently associated with the responsibility for preserving national culture and identity constructions while also working for the development of the nation (Laungaramsri, 2011), connotations which are reinforced through the discourse of the Education Law. As the underlying motivation for the reforms was arguably economic, teachers are tasked through the Education Law and the NESP with simultaneously maintaining conservative traditions and hierarchies while also supporting the economic development of the nation through modernizing education provision.

The discourse of modernization and marketization is evident in the NESP 2016–2021, with a strong emphasis on "*twenty-first-century skills*" (Ministry of Education, 2017). The new basic education curriculum, developed by JICA, is introduced as essential for students "to learn new knowledge and skills that will meet Myanmar's twenty-first century socio-economic development needs" (Ministry of Education, 2017, p. 115). These skills are intended to "meet the needs of a technology-based society facing rapid socio-economic development" (Ministry of Education, 2017, p. 114). While there is considerable ambiguity as to what these twenty-first-century skills and knowledge might translate to within the curriculum, the phrase is adopted from the Washington D.C.-based Partnerships for Twenty-First-Century Learning and draws on their model which proposes integrating "life and career skills", "learning and innovation skills", and "information, media, and technology skills" into core subject teaching (Partnerships for Twenty-First-Century Learning, 2009). The borrowing of international models developed in radically different contexts poses challenges for the education system and again raises questions about the preferencing of international expertise over local experience. Questions emerge as to what careers are being imagined for Myanmar's youth and how prepared teachers are to provide leadership in these areas, particularly in relation to media and technology skills. Many communities in Myanmar have limited electricity supplies and little access to Internet with significant disparities between metropolitan centres and rural, remote or conflict-affected regions. Within the NESP, however, there is little discussion of the resources needed to support media or ICT skills within schools classrooms.[6] These are new and unfamiliar fields for many teachers who require not only training in the

[6] Reference is made to upgrading computer and Internet access in relation to administrative reporting mechanisms in the chapter on management, capacity development, and quality assurance and in relation to e-learning at higher education institutes, but not in relation to basic education schools for teachers and students.

new curriculum but also a suitably equipped environment through the development of infrastructure and resources to support the modernization of classrooms.

While the discourse presented in the NESP may inadequately reflect the realities for many teachers across the country, it outlines a clear departure from traditions of rote learning to prioritize learner-centred approaches and the development of critical thinking skills. These priorities have been put into practice within the Teacher Education Colleges through UNESCO's STEM programme, which has also included investing in ICT support for teacher educators (UNESCO, 2020a). The impact of these measures is now beginning to be felt within the education system adding to the general shift in expectations and relationships across education stakeholders.

From our shared perspective as educators, over the last three to five years, we have seen the emerging discourse of teachers as "agents of change" translate into changes in practice, with teachers taking on new roles and renegotiating relationships. Teachers are now expected to be responsible for ensuring that their students "develop knowledge, skills, attitudes and competencies that are relevant to their lives, and to the socio-economic development needs of twenty-first century Myanmar"(Ministry of Education, 2017, p. 120). In this sense, the role of teachers is also changing from that of transmitters of knowledge to facilitators for learning. It is expected of the teachers to have a shift in perception, from teaching the textbooks to facilitating the learning of the students. Knowledge-wise, teachers need to be able to see beyond the classroom walls and are expected to have a global view for the content they are teaching. They are expected to be able to get familiar with not knowing the answers for some questions the students may ask in class and to feel comfortable with finding out the answers together. There are times therefore when the teachers are expected to take the role of learning partners with their students, reducing traditional hierarchies within the classroom and creating more horizontal learning spaces. This is a substantial shift in relations for teachers and prompts a redefinition of notions of respect within the community as well as the classroom, with many finding it challenging to adapt to these emerging norms.

As teachers, however, we have found that most students are quickly getting used to active participation in learning. For example, they are eager to ask questions, not just listening to whatever the teachers taught, like before. They are becoming autonomous learners as they are becoming familiar with the experience of learning beyond the prescribed textbooks. As explored below, however, two recent crises have shaken this emerging renegotiation of roles and tested the competing discourses that have emerged through the reform process.

The Precarious Nature of Education Reforms and Potential Repositioning of Teachers

In 2020, work was already underway to evaluate progress in the NESP 2016–2021 and to plan the second phase of implementation through the NESP II 2022–2027,

while also looking towards elections in November of that year. However, the COVID-19 coronavirus pandemic, which began to emerge as a global crisis early in the year, caused a major disruption to education provision with schools closing in March before the end of the school year.[7] Myanmar initially reported very few cases and managed to limit the spread of the virus through early lockdowns with the result that schools were able to reopen again in July. However, a rapid increase in cases in August led to school closures once again, remaining closed for the rest of the year. Learning shifted online; however, this has posed significant challenges for teachers struggling with gaps in the availability of technology and equipment as well as having to rapidly adjust to unfamiliar platforms and pedagogies. Learners have likewise found this shift challenging, as many in Myanmar do not have computers but access the Internet solely through their mobile phones.

The two crises then, of COVID-19 and the military coup, have tested the constructed discourses surrounding the teaching profession and the competing ideals of the teacher education reforms. The closure of schools and the shift to online learning or alternative platforms has strained the discourse of teachers as leaders of twenty-first-century skills, challenged the discourse of Myanmar as a "technology-based society" (Ministry of Education, 2017, p. 114), and drawn attention to the acute need for upskilling in digital literacy if teachers are to keep up with their more technologically adept students. In response to the evident gap in skills, the Ministry of Education and development partners including UNICEF supported training courses in 2020 which combined training in the new curriculum (Shimizu et al., 2020), while additional training was given by the University of Computer Studies to support the delivery of flipped or online classes. The new curriculum texts were made available on the newly developed Myanmar Digital Education Platform and guidance also provided via a designated YouTube channel. Content-subject training sessions were posted on the Ministry of Education Facebook page, uploaded to YouTube, and broadcast on the national television station MRTV, with the aim of reaching wider audiences. Nonetheless, in our experience many teachers have been unaware of or unable to access these resources. Likewise, while UNESCO's STEM programme has supported ICT development within the Teacher Education Colleges, which proved useful during the closure of colleges during the pandemic, beyond these institutional environments, teachers and student teachers have not had ready access to technology, or even consistent electricity supply in many cases, to facilitate remote learning (UNESCO, 2020b). Consequently, although the narrative of the NESP has placed responsibility on teachers for developing "twenty-first-century skills" among their students, the complications in achieving this during the pandemic have not only been with teachers' own knowledge-base but more so a weakness in infrastructure and resourcing, revealing inequalities in access to technology as well as digital literacy and technological dexterity.

The military coup of 1 February 2021 has also further underscored the incompatibility of these two discourses of teachers' roles: as Internet connections have been cut in the aftermath of the coup and digital resources such as the Myanmar

[7] Myanmar's academic year runs from 1 June to 31 March.

Digital Education Platform have been taken offline, it has become impossible for teachers to continue online instruction. Open access to technology and communications as well as the facilitation of horizontal, shared learning, run counter to the tight control exerted through authoritarianism reinforcing the opposition of military rule to the liberal market ideals of the NESP. However, the discourse of teachers as servants of the state and responsible for constructing model citizens in line with a state-sanctioned national identity narrative has also been radically challenged with teachers rejecting expectations of conservatism and political passivity. In 2015, when several of the authors conducted research with teacher educators and teachers in Yangon and Mon State (Lopes Cardozo & Maber, 2019; Maber et al., 2019), the state teachers interviewed overwhelmingly did not see themselves as politically motivated or their role as contributing to politics or peace processes. In 2021, however, teachers have emerged as key participants in the resistance to military rule, with over 300,000 teachers[8] taking part in the Civil Disobedience Movement (CDM) and many leading protests in towns across the country wearing their distinctive green and white uniforms to identify their profession and being seen protecting students (Aljazeera, 2021; Frontier, 2021; San, 2021). These scenes have indicated a shift in alignment of the notion of service to include a renewed emphasis on the duty to safeguard students' futures.

The collective participation in the protests may be read as an enactment of loyalty to the legitimate state, as the military has seized power on the pretext of fraud in the November 2020 elections which were overwhelmingly won by the NLD for a second term. However, protestors are not merely demanding the release from detention and return to office for the NLD political leadership, but rather a more substantial social transformation to also address continuing social tensions, exclusions, and conflict, indicating a more seismic re-alignment for teachers engaging in overt political critique. We suggest this shift reflects the changes that have been implemented in the profession through the education reforms and the broader socio-economic shifts witnessed in Myanmar. The move from teachers as sole authority within the classroom, responsible for the unidirectional transmission of knowledge, to facilitators of multi-directional learning through learner-centred pedagogies allies teachers more strongly with their students and with collective conscious raising. Likewise, the emphasis on critical thinking skills, debate, and problem-solving in the curricula of both basic education schools and Teacher Education Colleges has influenced teachers' self-perception as well as their relationships to students and to the wider community. As witnessed in the protests, teachers are claiming a more collective political and politicized identity. As a consequence, the relationship between state and teachers, foundational to the Education Law, has broken down with 125,900 teachers finding themselves suspended by the military government for taking part in resistance movements and opposing the coup[9] (Reuters, 2021). This fracture has also affected the non-state sector, with multiple private schools being forced to close by

[8] This figure represents roughly three quarters of Myanmar's 430,000 teachers (Reuters 2021).

[9] Additionally, 19,500 university staff have been suspended (Reuters 2021) and at least 41 staff members from the Ministry of Education (Irrawaddy 2021).

the military Council.[10] With the reopening of schools planned for the 1 June 2021, teachers have overwhelmingly rejected the authority of the military leadership and refused to return to school, joining their students in boycotting school spaces seen as tied to state authority.[11] This newly political stance among teachers and teacher educators also produces a tension with the multiple international actors delivering reform measures who are notoriously apolitical in their stance and rely on government approval for their work in the country, revealing the fragility in the prominent role of international organizations contributing to and implementing the reforms.

Participation in the CDM has also thrown up renewed perceptions of teachers within the community, retrieving old notions of self-sacrifice in teaching through a sense of noble sacrifice for the greater good. In this sense, teachers might earn more respect if they have gone through the test of courage and sacrifice, willingness to stand for justice not only for their students, and the schools but also for the community. Qualifications then are no longer a sufficient defining feature, but professional and social ethics are coming to the fore. However, for the majority female workforce, active participation in the protests and demonstrations is also presenting a disruption to gender roles with gendered expectations of loyal service, passivity, and women's duty in perpetuating national values being challenged and more women taking on active leadership roles. Through these movements then, a more complex and plural positioning for teachers in relation to students, communities, and the state is emerging than initially presented through the reforms.

Conclusions

Teachers and teacher educators in Myanmar have had to navigate significant changes to the education system over the last ten years, with reforms introducing a substantial shift in the expectations of teachers and their roles. While the majority of these reforms have been welcomed, they have nonetheless been contentious at times, and the high levels of international contributions and investment in the sector have brought both benefits and challenges to the process. Through the reforms, competing narratives have become apparent which reveal varied agendas in the conceptualization of teachers and their professional practice, expectations of the roles of teachers in society, and the assumed alignments and relationships between teachers, the state, students, and the community. The current dual crises affecting Myanmar, of the global coronavirus pandemic and the military coup, have tested the prominent narratives of teachers as future-oriented leaders of "twenty-first-century skills" and as loyal servants of the state revealing the shallowness of both discourses and their incompatibility. Through challenging the traditional hierarchies in education and promoting

[10] Thirteen private schools in Bago region for example have been forced to close as of May 2021, while a further ten have had to stop operating due to lack of funds.

[11] Anecdotally, only approximately 10% of students are reported to have been enrolled in school in Bago and 20% in Kachin state.

more learner-centred classrooms, teachers are stepping into a new social role and renegotiating relationships; however, challenges in the support structure and infrastructure, especially with regard to technology, remain. Nonetheless, we suggest that this new role for teachers has added to their sense of alliance with the wider community and created resistance to the expectation of serving state agendas. Particularly evident in resistance to the military regime, many teachers have emerged as central participants within protests claiming a new, politicized authority and aligning themselves firmly with students and communities in seeking to safeguard students' futures. This more strongly politicized identity for teachers also introduces new tensions, with the state, with international organizations, and with other teachers and education stakeholders who may align themselves differently. These frictions reflect the complex realities of teacher identities and alignments and are likely to have a lasting impact on the education system.

References

Aljazeera. (2021, February 5). *'We want coup to fail': Myanmar teachers condemn military.* Retrieved 23 June 2021, from https://www.aljazeera.com/news/2021/2/5/we-dont-want-this-military-coup-myanmar-teachers-join-protest

Frontier. (2021, June 15). *Teachers, students keep protests alive in 'f***ing stubborn' Monywa.* Frontier Myanmar. https://www.frontiermyanmar.net/en/teachers-students-keep-protests-alive-in-fing-stubborn-monywa/

Gender Equality Network (GEN). (2015). *Raising the curtain: Cultural norms, social practices and gender equality in Myanmar*. GEN.

Higgins, S., & Paul, N. T. K. (2019). Navigating teacher education reform: Priorities, possibilities and pitfalls. In L. Cardozo & Maber (Eds.), *Sustainable peacebuilding and social justice in times of transition: Findings on the role of education in Myanmar.* Springer.

Hlaing, K. Y. (2012). Understanding recent political changes in Myanmar. *Contemporary Southeast Asia, 34*(2), 197.

Irrawaddy. (2021, May 6). *Striking education staff fired by Myanmar Junta.* The Irrawaddy. https://www.irrawaddy.com/news/burma/striking-education-staff-fired-myanmar-junta.html

Lall, M. (2020). *Myanmar's education reforms a pathway to social justice?* UCL Press.

Laungaramsri, P. (2011). Imagining nation: Women's rights and the transnational movement of Shan Women in Thailand and Burma. In T. Salman & M. De Theije (Eds.), *Local battles, global stakes: The globalisation of local conflicts and the localization of global interests* (pp. 99–117). VU University Press.

Lopes Cardozo, M.T.A., & Maber, E.J.T. (Eds.) (2019) *Sustainable peacebuilding and social justice in times of transition: findings on the role of education in Myanmar.* Springer.

Maber, E. J. T., Oo, H. W. M., & Higgins, S. (2019). Understanding the changing roles of teachers in transitional Myanmar. In: Lopes Cardozo & Maber (Eds.), *Sustainable peacebuilding and social justice in times of transition: Findings on the role of education in Myanmar* (pp. 117–139). Springer.

Maber, E., & Aung, K. M. (2019) Gender, ethnicity and disability: approaching inclusivity in Myanmar's education reforms? In M. Schuelka, C. Cohnstone, G. Thomas, & A. Artiles (Eds.), *The Sage handbook on inclusion and diversity in education.* Sage.

Ministry of Education. (2013). *CESR rapid review of Myanmar basic education policy and proposed way forward. Phase 1.* Union of Myanmar Ministry of Education.

Ministry of Education. (2017). *National education strategic plan 2016–2021*. Union of Myanmar Ministry of Education.
Oxford Business Group. (2016). *Revitalising Myanmar's education system*. Oxford Business Group. https://oxfordbusinessgroup.com/news/revitalising-myanmar%E2%80%99s-education-system
Oxford Business Group. (2019). *Standards rising across the Myanmar educational system*. Oxford Business Group. https://oxfordbusinessgroup.com/overview/progress-makes-perfect-efforts-raise-standards-across-school-system-gather-pace
Oxford Business Group. (2020). *Increased budget and foreign investment to improve teaching standards in Myanmar*. Oxford Business Group. https://oxfordbusinessgroup.com/overview/future-focused-increased-budget-allocation-and-foreign-investment-teaching-standards-are-expected
Partnerships for 21st Century Learning. (2009) *P21 framework definitions*. Partnerships for 21st Century Learning
RAINFALL. (2017). *Gender fairness in curriculum*. RAINFALL.
Reuters. (2021, May 23). *Myanmar's military rulers suspend more than 125,000 teachers for opposing coup*. The Guardian. http://www.theguardian.com/world/2021/may/23/myanmars-military-rulers-suspend-more-than-125000-teachers-for-opposing-coup
Salem-Gervais, N., & Metro, R. (2012). A textbook case of nation-building: The evolution of history curricula in Myanmar. *Journal of Burma Studies, 16*(1), 27–78.
San, S. (2021, June 16). *Beyond the coup in Myanmar: Don't let the light of education be extinguished*. Just Security. https://www.justsecurity.org/76921/beyond-the-coup-in-myanmar-dont-let-the-light-of-education-be-extinguished/
Shah, R., Aung, K. M., & Lopes Cardozo, M. T. A. (2019). Education and policy challenges of a situation in flux. In Lopes Cardozo & Maber (Eds.), *Sustainable peacebuilding and social justice in times of transition: Findings on the role of education in Myanmar* (pp. 87–113). Springer.
Shimizu, I., San, M., Latt, K. L., & Naing, T. (2020). *Preparing to reopen schools better in Myanmar*. UNICEF. https://www.unicef.org/myanmar/stories/preparing-reopen-schools-better-myanmar
Than, T. M. M. (2015). Myanmar's economic reforms: Hard choices ahead. *Social Research: an International Quarterly, 82*(2), 453–480.
Tin, H. (2000). Myanmar education: Status, issues and challenges. *Journal of Southeast Asian Education, 1*(1), 134–162.
UN. (2010). *Statement attributable to the Spokesperson of the Secretary-General on Myanmar elections*. UN. http://www.un.org/sg/statements/?nid=4911
UNESCO. (2020b, June 9). *Myanmar's online pre-service teacher education reform offers new opportunity*. (n.d.). UNESCO Bangkok. https://bangkok.unesco.org/index.php/content/myanmars-online-pre-service-teacher-education-reform-offers-new-opportunity
UNESCO. (2020a). *Strengthening pre-service Teacher Education in Myanmar (STEM): Phase II final narrative report*. UNESCO.
UNICEF (n.d.) *Inclusive and quality basic education*. UNICEF. https://www.unicef.org/myanmar/education/inclusive-and-quality-basic-education
Union of Myanmar. (2014). *Pyidaungsu Hluttaw Law No. 41/2014—National education law (Burmese and English)*.Union of Myanmar.
Walton, M. J. (2013). The "Wages of Burman-ness:" Ethnicity and Burman privilege in contemporary Myanmar. *Journal of Contemporary Asia, 43*(1), 1–27.

Part V
Teacher Professional Development

Chapter 44
Writing for Higher Education Academy Fellowship Towards Professionalization of Teaching: Perspectives from University Teachers in Thailand

Mark B. Ulla

Abstract The internationalization of education, where the quality of teaching is often attributed to a qualified teaching force, has brought significant reforms in educational policy, and approaches in most educational institutions in the world. While these educational changes have directed teachers to develop in their profession, higher education institutions (HEIs) have also placed substantial attempts to improve the profession. Thus, with an increasing demand for quality of teaching, academics in most HEIs in the world are required to show evidence of professionalism and competence in teaching. In Thailand, a number of HEIs have employed the UK Professional Standards Framework (UKPSF) and have institutionalized the Fellowship application in Advance Higher Education Academy (Advance HE). Drawing on the concept of professionalizing teaching, this chapter explores university academics in Thailand and their perceptions of their profession as teachers and as fellows of the Advance HE. It also identifies the implications of professionalizing teaching on their profession, students, and their institutions. Although HEIs mainly apply the UKPSF of the Higher Education Academy in the UK and Europe, this chapter also considers and recognizes UKPSF and Advance HE's contributions towards the professionalization of teaching and teachers in Asia, particularly in Thailand.

Keywords Thailand · Higher education · Professionalization · Professional development

Introduction

With an increasing demand for quality of teaching in higher education institutions (HEIs), academics in most HEIs in the world are required to show evidence of professionalism and competence in teaching (Heron & Corradini, 2020a). Obtaining a teaching diploma, getting a postgraduate qualification, and attending various professional development workshops may no longer be enough to prove academics'

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teaching competency. As a result, universities across Europe and Australia are now institutionalizing approaches for developing effective teaching criteria and professional teaching standards among academics (Shaw, 2018). This change of ideological perspectives among HEIs can be attributed to the call for the internationalization of education, where it "can be seen as attempts to create border crossing activities" (Barkas et al., 2019, p. 803) and to the growing competition among universities in the world ranking (Goglio, 2016). It is assumed that a university should attract not only local academics, students, and researchers but also international scholars and education practitioners, which would significantly impact the university's visibility in the world ranking. Against this backdrop, the pressure is put on academics' shoulders to comply with the HEI's policy on professionalizing teaching and to ensure that quality classroom teaching is achieved. Thus, university academics are enforced to follow a teaching standard framework and ensure that they get recognition for their teaching practices (Heron & Corradini, 2020b). One such framework used to benchmark the teaching and learning effectiveness among academics in HEIs is the UK Professional Standards Framework (UKPSF).

The UKPSF, which is a teaching and learning framework, was developed and launched by the Higher Education Academy (now Advance Higher Education) in the UK to improve university academics' teaching competencies. Today, the framework gains worldwide recognition in that it is not only used by HEIs in the UK but globally. Additionally, the framework describes the teaching and learning dimensions that guide and support academics to have enhanced classroom teaching practices. Advance HE also uses the framework to promote the professionalization of teaching by giving academics the recognition of Associate Fellow, Fellow, Senior Fellow, and Principal Fellow depending on their qualifications. Such Fellowship recognitions require academics to write an application by reflecting on their classroom teaching and learning support practices.

In Thailand, the Advance HE has been collaborating and helping a number of HEIs through the Office of the Higher Education Commission and Thai POD Network to improve the teaching quality among academics in the country. In fact, 60 academics from 27 universities in the country attended the first module training on the Advance HE Certificate in Learning and Teaching in Higher Education (CLTHE) program in August 2018 (Advance HE, 2018). Furthermore, the UKPSF has also been used by a number of HEIs to assess their academics' teaching competency. University academics are encouraged to apply the framework of teaching and learning dimensions in their classroom teaching and write an application for Fellowship to the Advance HE. Such a Fellowship application is deemed necessary for HEIs academics to be recognized professionally. Although the consequence of not getting a Fellowship varies from one university to another, such as getting a low annual performance evaluation or getting their contract not renewed, the writing process entails time and commitment on the part of the academics. Today, the number of HEIs academics who were given Fellowships by the Advance HE continues to grow, making Thailand the sixth country with the highest number of Fellowships in the world, excluding the UK (Bangkok Post, 2018).

While previous studies (Heron & Corradini, 2020a, 2020b; Shaw, 2018; Spowart & Turner, 2020) tend to focus on the writing process and its impact on and experiences among academics in getting a Fellowship status from the Advance HE, these studies were only conducted in the context of HEIs in the UK. As the UK Professional Standards Framework has also been used outside of the UK, there is a need to explore university academics' perceptions of what it means for them to become Fellow of the Advance HE with regard to their profession as teachers, students, and their institutions. Drawing on the concept of professionalizing teaching (Maphosa & Mudzielwana, 2014), this study extends the work of Shaw (2018) as it attempts to explore the perspectives of university teachers in Thailand with regard to how they perceived themselves as Fellows and what it means for them to be recognized by the Advance HE professionally. Doing this study not only gives empirical data to support professional development among academics, but it also advances our understanding of professionalizing teaching. It is believed that this study will have an implication on teachers' development among HEIs outside of the UK, particularly in Asia and in Thailand.

The Professionalization of Teaching

McDonald (1956) emphasized that "teaching is, in fact, the mother of all professions" (p. 8) since all professionals have to start somewhere where they are taught formally or informally and become who and what they are now. Although Goodwin (2011) posited that teaching is a profession, seminal scholars (Addi-Raccah & Arviv-Elyashiv, 2008; Darling-Hammond & Goodwin 1993; Glazer, 2007; Horowitz, 1985; Wilson & Tamir, 2008) in the field of teaching and education claimed that teaching is still regarded as a semi-profession since it "falls short of the standing held by such professions as medicine and law" (Horowitz, 1985, p. 297). One such reason why other scholars held this kind of belief towards teaching is the ongoing debate on teachers' competency and the quality of their teaching practices in the classrooms. The questions remain on what makes a good teacher, "how is good teaching defined, and in what way do decisions about entry into the field, training and preparation, and standards of practice, shape whether teaching is perceived as professional or specialized work?" (Goodwin, 2011, p. 44).

Wiseman et al. (2016) maintained that expert knowledge, training and credentials, self-policing and ethical codes, occupational domain, and the workplace are the essential components towards the professionalization of a particular profession. This professionalization of a profession can be done through a process of legitimization, where academic institutions may create, adapt, and follow a structured and legitimate institutional program. In other words, "the primary characteristic of professionalization, then, is the development of a legitimate knowledge base through the development of specialized university degree or training programs" (Wiseman et al., 2016, p. 37). In education, these characteristics are evident in all HEIs, where a legitimate knowledge base is developed. Universities and colleges worldwide are

offering programs and teaching certificates, diplomas, undergraduate, graduate, and postgraduate degrees in teaching and education, which prepare teachers for the teaching profession. Through these programs, teachers are trained with pedagogical skills to carry out their teaching practices confidently and effectively in the classroom. Likewise, licensure examinations for teachers are also commonly held in some countries to professionalize teachers. There are also different international and national teaching and education professional organizations where teachers are provided with training programs to improve their teaching practices. These professional organizations continue to support HEIs academics towards becoming qualified and competent academics through conferences, teaching workshops, and seminars.

Consequently, the professionalization of teaching has also impacted the hiring process and the entry requirement among academics in HEIs. In fact, it can be noted that a number of educational institutions worldwide may have strictly imposed some guidelines in hiring teachers. These guidelines include a teaching certificate, diploma, and a relevant teaching degree. Teacher's qualifications, experience, professional development, and involvement in professional organizations may also be emphasized and may be required of the teachers when they seek entry into the teaching field. Fernández (2013) asserted;

> All teachers are required to be graduates from higher educationinstitutions; all teachers are required to have extensive subject knowledge, a good knowledge of pedagogy, the skills and competencies required to guide and support learners, and an understanding of the social and cultural dimension of education (p. 350).

However, when these teachers are already in the teaching profession, their teaching expertise and teaching ability are still questioned and subject to validation, either annually or quarterly. As a result, teachers continue to develop themselves professionally by attending various teaching workshops, conferences, and seminars to master their profession and be good at teaching. Maphosa and Mudzielwana (2014) indicated that being an expert in teaching may not be sufficient for a teacher to be called competent and qualified. Teachers should improve and update their pedagogical skills through teacher training and other professional development programs to understand their students and the broader context of education and teaching. Thus, teacher training has been noted by a number of scholars to be one of the essential aspects of professionalizing teaching and teachers. For Ulla (2018), teacher training can enhance a teacher's pedagogical skills and strategies. It can reduce anxiety and help teachers build their self-confidence and self-efficacy in the classroom (Innocente & Baker, 2018). It updates teachers with relevant teaching issues and solutions (Napal Fraile et al., 2018). Lastly, it acquaints teachers with the realities of teaching and enables them to have a sense of professionalism (Burton, 2020).

In Southeast Asia, while most of the educational reforms have been focused on building teachers' capacity to employ student-centred teaching methodologies and approaches that could promote effective teaching and learning (Ulla, 2018), there are also educational policies that are specifically geared towards addressing the demands of globalization, international integration, and professionalization in education. For example, in Vietnam, the education reform has centred on enhancing global and

practical life skills among its learners to prepare them for the world market and invite foreign investors to the country (Nguyen Thi Mai & Hall, 2017). Such an educational reform has prompted many schools to assess their curriculum, teaching materials, and teaching approaches to see whether these are aligned with the country's educational policies. Although teachers are at the forefront of this reform, the government and the schools have been very supportive in enhancing their teachers' skills. In fact, in Indonesia, the government "has paid serious attention to the quality of its teachers by instituting education policy reforms through Teacher and Lecturer Law No. 14 passed in 2005. [The said law was] aimed at enhancing teacher quality and professionalism through teacher education and professional development" (Harjanto et al., 2018, p. 212). In Myanmar, university and college teacher educators across the country attended the English for Education College Trainers Project (EfECT) program to improve teacher's language proficiency and classroom methodologies (Borg et al., 2018; Ulla, 2018).

Similarly, there have been many teacher training programs in Thailand that have been implemented to professionalize and help teachers in the HEIs, primary and secondary schools to improve their teaching practices. Ulla and Winitkun (2018) emphasized that.

> …sending the teachers to training, workshops, and conferences and letting them pursue professional development are just right as they make a significant contribution in the education system reform and in the learning of the students at schools (p. 1581).

However, despite the affordances of various teacher training programs in the country, there seems to be a lesser emphasis on the teaching methodologies and how they could be applied in the classroom. In a study by Ulla and Winitkun (2018) in Thailand, it was reported that most of the previous teacher training activities in the country were only focused on the theories rather than their actual applications in the classroom teaching. There was no engagement among the teachers regarding interactive classroom strategies and methodologies as these teacher training programs were only based on lectures and discussions. This practice suggests that teachers' classroom practices and how they approach their lessons, and their students should also be considered in professionalizing the teaching profession. By considering such pedagogical practices, teachers are expected to translate these into their actual classroom teaching where students may benefit from them.

Teacher's Characteristics and Their Pedagogical Practice

A number of research studies have been conducted to identify the characteristics of a good teacher. For example, Baier et al. (2019) investigated what skills and qualifications teachers in Germany need to possess to carry out a quality teaching practice. With the use of structural equation modelling, it was found that the teachers' cognitive and affective qualities had a direct influence on the quality of teaching. Although the study's findings were based on a quantitative data measurement, it

gives a different perspective of what characterizes a good teacher. Generally, the study highlights the significance of knowledge, motivation, and personality among teachers to deliver a quality instruction in the classroom. In other words, the teachers' knowledge of the topic and subject matter and their enthusiasm towards teaching their students are important traits of a good classroom teacher. Teachers who are not familiar with the topic being taught, who do not have the motivation to teach, and who do not the passion for teaching are not effective in classroom teaching.

Similarly, the study conducted by Morrison and Evans (2018) looked into Hong Kong students' perceptions of a good teacher. With 40 first-year university students who were interviewed for the study, it was found that teacher's ability to give clear explanations supported by relevant, practical examples, and demonstrations in an interactive manner that encouraged critical thinking was what the students perceived to be the qualities of a good teacher.

Contrary to what Baier et al. (2019) have emphasized that teacher's affective qualities play an important role in quality teaching, Morrison and Evans's findings pointed out that affective qualities were perceived to be of less significance with regard to being a good teacher. Although students regarded teachers' affective qualities to be of less importance, they were more focused instead on the teaching ability and skills of the teachers as a criterion to become a good teacher. In other words, this study emphasized that teachers' pedagogical skills should be the basis for teachers to be recognized as good or competent teachers.

However, while the studies of Baier et al. (2019) and Morrison and Evans (2018), which defined teaching as a profession through the perspectives of the students, place high interest in the cognitive, pedagogic, and affective skills of the teachers, there is a dearth of studies that concentrate on professionalizing teaching and becoming a good teacher especially in the context of higher education from the perspectives of HEIs academics. Such perspectives are important towards a deeper understanding of the concept of professionalizing teaching, especially when the internationalization of education is emphasized.

Writing for Fellowship

The Advance HE is one of the most popular organizations that recognizes HEIs academics' teaching practices professionally. Although based in the UK, Advance HE may have become an important institution across a number of HEIs in the world that professionalize the teaching profession. In fact, most HEIs in the UK have encouraged their academics to apply for a Fellowship to recognize their teaching practices (Heron & Corradini, 2020a). Since Advance HE offers professional recognition to HEIs academics, writing for a Fellowship application may have become a crucial task among HEIs academics, which may be imposed upon by a number of HEIs in the world. To be recognized by Advance HE, an academic has to write a reflective account on their education and teaching activities by presenting convincing classroom cases. These teaching cases should reflect how professional standards

framework was employed, based on the different teaching and learning dimensions. As Fellowship in the Advance HE has been recognized globally, it has become one of the key indicators for teaching professionalization. Although in a study conducted by Shaw (2018), it was found that HEA Fellowship scheme at a university in the UK only offered a limited impact on the development of teacher–participants and their institutions, the HEA Fellowship scheme is a continuing professional development that may provide a positive effect on HEIs academics and their institutions. Shaw analysed the impact of the Fellowship scheme of the Advance HE at the Faculty of Health and Social Sciences at Leeds Beckett University. Through in-depth interviews conducted to 19 staff, it was found that the participants, who "engaged in brief periods of intensive activity, studying the requirements of the scheme and considering examples of how their activities could be mapped onto the UKPSF, and then 'pulling together' the review" (p. 152), had a different experience with regard to their engagement to the scheme. However, although participants reported that the scheme had a positive impact on them, it was noted that the CPD scheme was only a "relatively isolated activity" since its impact on the institution was limited. This can be attributed to the fact that when teachers got the Fellowships, they stopped building their "portfolio". In other words, their reflective practices were only used to reframe their previous teaching and learning activities. They were not used to inform their present and their future pedagogical practices in the classroom.

Similarly, the study conducted by Botham (2018) examined some motivating factors why university academics in the UK engaged in continuing professional development (CPD) program, which leads to their Fellowship of the Higher Education Academy. Employing online questionnaires and semi-structured interviews, the findings revealed that university academics in the UK were motivated to participate in the CPD program and apply for a Fellowship to the Advance HE because they wanted to improve their teaching skills and to be recognized for their pedagogical practices. It was also revealed that although institutional policies and performance development review play a significant role in teachers' engagement in CPD and in their Fellowship applications to the Advance HE, these were not the principal elements in the success of their engagement and application. However, lack of time, lack of interest in teaching and learning, lack of support, and lack of familiarity with reflective practice were reported to be the common factors of teachers' disengagement with the CPD and Fellowship schemes.

Another study, which was focused on university academics' experiences of applying for a Senior Fellowship of the Advance HE, was conducted by Spowart and Turner (2020) in the UK. Spowart and Turner employed creative nonfiction techniques to describe the participants' motivations and the reasons they engaged in an institutional development program scheme. Thus, in the presentation of the two academics' conversations in the study, which was the point of the study's analysis, it was revealed that the two academics (Mac and Josie) had a different views towards gaining a Senior Fellowship. Mac was cynical about the scheme's value, while Josie was driven by her desire to finish the task of writing an application for a Senior Fellowship. While the two had different attitudes towards their senior fellow application writing, both knew that they had to do it for their promotion. For

Josie, getting the Senior Fellowship badge means a recognition for her teaching and learning contributions. However for Mac, a Senior Fellowship means his promotion as a university academic.

While the above studies explored the value of institutional CPD and Fellowship schemes and the impact of such schemes on university academics and their institutions, they were all conducted in the UK. Since the Fellowship scheme of the Advance HE is now acknowledged globally, there is a need to examine other perspectives, especially from the academics outside of the UK. Drawing on the concept of professionalizing teaching (Maphosa & Mudzielwana, 2014), this study extends Shaw's (2018) work as it attempts to explore university academics in Thailand and their perceptions of their profession as teachers and as Fellows of the Advance HE. It also identifies the implications of professionalizing teaching on their profession, students, and their institutions. Although HEIs mainly apply the UKPSF of the Higher Education Academy in the UK and Europe, this study argues that the UKPSF and the Advance HE play a significant role in the professionalization of teaching and teachers in Asia, particularly in Thailand. To fulfil the objectives of this study, the following research questions are asked.

1. How do university academics perceive Fellowship recognition by the Advance HE?
2. Why do academics engage in writing for Fellowship?
3. How does writing for Fellowship professionalize teachers and teaching?

Methodology

This study, which explored university academics' perceptions of their profession as teachers and as Fellows of the Advance HE, was conducted in a university in Thailand. It employed purposive-convenience sampling since only those academics, who have attained Fellowship either as Fellow or Senior Fellow, were contacted to participate in the study. The study was conducted between November 2020 and January 2021.

Additionally, it is also important to acknowledge potential bias in the data collection and analysis. Since the author/interviewer is one of the mentors for the writing for Fellowship scheme in the university, the participants reviewed the questionnaire and interview transcripts as well as the discussion and analysis sections of the paper.

Participants

Six participants (four males, two females) participated voluntarily in the study after the call for research participation was posted on Facebook and Line social media applications . They were contacted privately through message and video chats after

they signified their interest for the study. These participants, whose age ranged from 31 to 45 years old and had a teaching experience in HEI between 3 and 15 years, were all from different disciplinary backgrounds, including education. They were teaching general education courses in the university.

Before conducting the study, research ethics protocols were observed, and participants were informed about the purpose of the study. They were also notified that their participation was voluntary and that they could withdraw their participation anytime. Data obtained from the study were treated with anonymity and confidentiality.

Tools, Data Collection, and Analysis

Online questionnaire (Botham, 2018) on Google form was used to gather the study's qualitative data. It was emailed and/or forwarded to the identified participants since the study was conducted amidst the COVID-19 pandemic. The questions were focused on how the participants view themselves as Fellows of the Advance HE in Thailand, why they engage in writing for Fellowship of the Advance HE, and what impact their Fellowship from the Advance HE have on their students and their HEI. Likewise, a follow-up individual interview either through a social media chat or a video chat was also conducted. The purpose was to probe deeper into the participants' perceptions, engagement, and impact regarding their Fellowships with the Advance HE.

Both the online questionnaire and interview data were subjected for analysis using thematic analysis (Braun & Clarke, 2006). These data were read and closely examined to identify common codes, which themes could be formulated. To ensure the validity of the data, transcribed data were sent back individually to the participants for correction, modification, and approval. Lastly, interview excerpts were included in the presentation of the results, where participants were given a code (T1 to T6).

Results

Writing for Fellowship as an Institutional CPD

Writing an application for Fellowship recognition was an institutional continuing professional development (CPD) activity, where university academics are obliged to attend a series of workshops provided by the university. Teacher 1 detailed the process of getting a Fellowship recognition by the Advance HE during the interview.

> The application for Fellowship recognition was never a DIY (do it yourself) thing. For one, we need to attend a series of workshops to help and guide us in our Fellowship writing. We need to make sure that our teaching practices are aligned with the teaching and learning dimensions of the UKPSF. We can do this by reflecting on our classroom teaching practices.

> Second, we must work closely with our Fellowship mentors, who monitor our progress and even guide us in submitting our application. We also have to show evidence that we practice those teaching and learning dimensions before submitting our Fellowship application to the Advance HE.

Generally, all of the teacher–participants held a positive attitude towards engaging in the institutional CPD scheme and writing for Fellowship application. They believed that it enhances and validates their classroom teaching and learning practices and recognizes them professionally. For example, as an institutional CPD, writing for Fellowship is believed to improve the teaching and learning support practices among academics. Teacher 2 mentioned:

> Fellowship writing is a university program for teachers that gives us a room to reflect on our practices. When I was writing my Fellowship application, I had to reflect on my teaching practices, which allowed me to identify some teaching strategies that worked well in my class and address those which did not.

Although other academics admitted that they faced a number of issues in their Fellowship writing, especially on managing their time in teaching and doing research, they also agreed that it made them reflect on their teaching, which may impact their profession as university teachers.

> Honestly, I had difficulty managing my time attending the workshop and writing for Fellowship application. But I considered it as a form of CPD (continuing professional development) where I get to reflect my teaching and learning support practices. This is very important to me as a university teacher since it recognizes me as a professional teacher in the university. (T3).

Furthermore, attending the institutional development program and applying for a Fellowship were also perceived to be a confirmation and validation of the teaching and learning practices among academics.

> For me, attending the UKPSF workshop and the writing retreat for Fellowship is a confirmation of what I have already done in the classroom. I have been employing several teaching and learning activities in my class and I didn't know that those were in the learning dimensions of the UKPSF. My participation in the workshop makes me aware of the practices in my classroom. (T4).

Academics' Engagement in Fellowship Writing

Teacher–participants also identified some motivating factors for engaging in the institutional CPD and writing for a Fellowship application to the Advance HE. These factors include institutional policy, job promotion, and job retention.

In the interview, it was found that while writing an application for Fellowship may be a free institutional CPD scheme, teacher–participants only engaged with it because they were required to do so as it is a policy of the university. Teacher 6revealed:

> I appreciate the effort of the university to offer free professional development programs for its teachers. As a matter of fact, I like it since I get to participate in this kind of training where I get to reflect on my teaching practices. But, if you asked me why I applied for a Fellowship, I would say that I was just following what the university is telling me to do. It is the policy of the university to have all of its teachers followed the UKPSF and be recognized by the Advance HE.

Teacher 6's statement was also concurred by Teacher 5, saying that she only attended the workshop and writing retreat because "it is what the university wants for all of its teachers". However, they also acknowledged that even if the university required them to attend the workshop and write an application for Fellowship, such institutional CPDs are necessary for their profession as university academics. For one, these CPDs, especially getting a Fellowship recognition, can be used by academics in their job promotion. Such reason was pointed out by Teacher 3 as shown in the following transcript.

> For me, I had a personal reason why I engaged myself in writing an application for Fellowship. Last year, I applied for Assistant Professor title and one of the documentary requirements was a certificate of Fellowship from the Advance HE. I didn't have the certificate yet as I was still doing it at that time. So, what happened was, I was told that I should present another evidence that would prove my teaching qualifications. In other words, I had to prepare a lot of documents just because I didn't have my Fellowship certificate yet. It could have been easier had I gottenone already.

Similarly, job retention was the reason why Teacher 5 attended a series of workshops leading to his application for a Fellowship recognition. He believed that since he has only been teaching for less than five years in the university and in a temporary contract, he felt compelled to follow the mandate of the university in order to keep his job. He disclosed:

> I want to keep my job. I know that attending the workshop and getting a Fellowship certificate is one way to keep it. As university teachers, we should also reflect on our teaching styles and we can do this by participating in the workshop and getting a Fellowship certificate. By doing it, we don't only keep our job, but we also improve our classroom teaching styles.

Professionalizing Teachers and Teaching Through a Fellowship

It was also evident from the interview that writing for a Fellowship application was considered by the teacher–participants as unique when compared with other CPDs they have attended. They declared that unlike other CPDs, where they only have to listen and participate in the workshop and only a certificate of participation is given at the end, writing for a Fellowship application is both attending a teaching workshop and getting a Fellowship certificate from the Advance HE in the UK, which recognizes and validates them as teachers and their teaching practices.

> For me, I think writing for a Fellowship application is like hitting two birds with one stone. I got to attend in the teaching workshop, reflect on my teaching practices, and at the end, I also got a Fellowship certificate. This Fellowship certificate is special to me since it confirms my teaching practices and me as a professional teacher.

Furthermore, teacher–participants also confirmed that attending the institutional CPD scheme, which leads to their application for a Fellowship to the Advance HE, enhances their pedagogies, validates their teaching skills, and recognizes their profession. However, when they were asked how did attending and writing for a Fellowship application professionalize them as teachers, they mentioned that the institutional CPD scheme enables them to revisit and reflect on their classroom teaching and learning practices. By revisiting and reflecting on their classroom methodologies, they were able to identify which teaching and learning styles and strategies work well in their classes and which ones need to be improved or changed.

> I guess it is on the way how you acknowledge the flaws you have as a teacher. And I believe that when you reflect and revisit on the way how you conducted your previous classes, you would be able to recognize that there is still something better to do or you would realize that you could have done better. And I guess that is professionalism. (T2).

It was also revealed that applying and practising the UKPSF teaching and learning dimensions in the classroom after getting a Fellowship certificate is a marked of a professional teacher. Teacher 4 stated this in the transcript below:

> The Fellowship certificate is already a proof that the Advance HE acknowledged me as a teacher. I guess, they would not give you the certificate if they see that your teaching and learning styles do not conform with the standard of the UKPSF. So, when you go back to your classroom, you already have an idea on which teaching practices match with the UKPSF teaching and learning dimensions. As a teacher, we should continue to practice the different dimensions of the framework in our classroom teaching.

Discussion

The present study explored university academics in Thailand, their perceptions of, and their engagement in an institutional CPD, which led to their Fellowship application and recognition by the Advance HE in the UK. Findings revealed that participants held a positive perception in attending the institutional workshop and writing for a Fellowship application. They believed that such CPDs could provide them an opportunity to develop in their profession that may positively impact their students and their institutions. Generally, although university academics were influenced by institutional policy and personal motivations regarding their participation in the institutional CPD, they also believed that the workshop and the Fellowship application could enhance their classroom pedagogies, confirm their teaching and learning practices, and recognize them as teachers professionally. In other words, while the participants were required to attend the CPD and write an application for Fellowship, they also found some internal motivating factors why they engaged in such CPDs. For example, as an institutional policy, participants acknowledged that such CPDs allow

them to reflect on their classroom teaching and learning practices, which is crucial towards improving their pedagogies. Likewise, gaining Fellowship recognition was also seen as an essential qualification in job promotion and retention. Thus, these factors largely shaped the engagement motivations towards the institutional CPDs among university academics. In fact, Spowart and Turner (2020) and Botham (2018) confirmed the finding of the present study in that university academics in the UK only engaged in writing for a Fellowship application because they wanted to improve their teaching and learning practices and to get a job promotion.

However, it is important to note that in contrast to other CPDs, where teachers may only listen to, participate in the workshop, and get a certificate of attendance and participation at the end of the program, the workshop reported in this study involved reflective writing, where teachers share and write their teaching and learning support practices based on the UKPS Framework. The end goal of this workshop is a Fellowship, where these teachers need to apply to the Advance HE in the UK for recognition. In the context of HEIs, this Fellowship recognition is crucial for university academics since it professionalizes them as teachers. Considering the fact that university "academic staff members are hired on the strengths of their discipline expertise", which suggests that these academics may "not be trained and qualified to teach" (Maphosa & Mudzielwana, 2014, p. 65), their engagement in various CPDs, especially the series of workshops and their Fellowship application as reported in this study, plays a significant role in enhancing their teaching qualifications and validating their profession. Maphosa and Mudzielwana (2014) emphasized that although university academics may be experts in their disciplines, they may not have the skills or lack the skills to teach. Maphosa and Mudzielwana further stated that "teaching is a profession with professionals' standards and ethics and whoever dares to teach must be adequately prepared for the role by way of some professional training" (p. 65). Thus, by participating in some professional training, workshops, and conferences, university academics would validate their teaching practices and get recognition and a confirmation of their profession as teachers.

Additionally, besides attending various teacher training and workshops, engaging in reflective teaching practice is also considered one form of professionalizing teaching. In the present study, the participants received a Fellowship recognition through writing a reflective account of their classroom teaching and learning practices. Moreover, the participants had to show evidence that they employed the UKPS Framework in their teaching by reflecting and citing an example on how they conducted a lesson in a particular class. Thus, reflective teaching enables teachers to identify what went wrong and what went right in their classrooms, which may positively impact the teaching and learning process. For Hartmann et al. (2020), reflective teaching has been considered a primary factor in developing teachers' teaching skills. It provides a venue for teachers to improve their teaching competencies as they reflect critically on their classroom teaching practices. It may also serve as an opportunity for teachers to identify and address some teaching issues (Hine & Lavery, 2014), assess their pedagogical skills (Mahani, 2012), and help them to become lifelong learners (Vecaldo et al., 2019). Contrary to the finding of Shaw (2018), who reported that the impact of Fellowship to the institution was limited as university academics stopped

building their portfolio as soon as they got the Fellowship, the participants in the present study recognized the importance of such reflective practice in shaping their future classroom teaching. With reflective teaching, teachers gained professional recognition from the Advance HE in the UK.

CPDs are believed to be a key factor towards teachers' development. According to Cirocki and Farrell (2019), "teachers need to keep updating their knowledge and skills continuously throughout their careers" (p. 1) in order to stay relevant in the academe. Providing an institutional CPD, where teachers are afforded free workshops to share their teaching classroom practices, enables teachers to become better in their profession. Therefore, it is vital to consider the role of the universities in the professionalization of the teaching profession and their teachers. As they serve as a learning organization and community (Harris & Jones, 2018), universities should continue to offer free institutional CPDs so that academics would be firmly grounded in pedagogy and andragogy (Maphosa & Mudzielwana, 2014). Although this may require "a significant cultural shift, a change of mind-sets, and a schoolwide commitment to self-reflection and evaluation" (Harris & Jones, 2018, p. 352), HEIs should institutionalize regular free CPDs for their academics. Having a free institutional CPD offers a venue for university academics to develop and bring the newly acquired teaching skills into their classroom teaching, which may impact students' learning and the reform of the curriculum or education system (Ulla & Winitkun, 2018).

Lastly, while the study offers a new perspective of attending institutional CPDs and engaging in Fellowship application to the Advance HE towards professionalizing teaching in the context of Thailand, it also admits its limitations. First, the study only involved university academics who have already gained their Fellowships. Future studies can include more academics who are still planning to apply for Fellowship recognition. By doing so, different perspectives can be identified, which may offer more data towards investigating the professionalization of teaching. Second, the focus of the study was only on the institutional CPDs and writing for Fellowship application as the framework in understanding university academics perceptions of professionalizing the teaching profession. Other studies may be conducted using other frameworks. Third, the study was context specific in that it was conducted in Thailand. Studies that involve other universities in Asia will also make an interesting investigation with regard to academics' perceptions of professionalizing the teaching profession. Lastly, since the present study involved academics from different disciplinary backgrounds, studies that include teacher educators from the Faculty of Education should contribute to the ongoing debate on professionalizing teaching, especially that teacher educators shape and train future teachers.

Implications and Conclusion

The quality of teaching and a qualified teaching force have become the bases for the internationalization of education, which has brought significant reforms in educational policy and approaches in most educational institutions in the world. While

these educational changes have directed teachers to develop in their profession, HEIs should also place substantial attempts to improve the profession. In other words, the responsibility to professionalize the teaching profession should not only be given solely to teachers since HEIs have also become instrumental in developing education and enhancing the teaching skills among their teachers. Such practices should be reflected in the "recruitment and education, hiring and distribution, and supporting and rewarding the teaching profession" (Voisin & Dumay, 2020, p. 1) processes that should be implemented by HEIs across the world. Although there may be a number of schools worldwide that incentivize teachers who have achieved an excellent teaching performance, have extensive teaching experience, or members of any teaching professional organizations, providing a free institutional CPDs for university academics and supporting them in their Fellowship application should also be a regular practice among HEIs not only in Thailand but also worldwide. Having these institutional practices is believed to encourage and motivate professional growth and development among teachers.

Of particular importance, teacher educators from various HEIs' Faculty of Education should be afforded quality teacher development programs to address professionalizing teaching. One such program may include implementing the UKPS Framework of teaching and learning and supporting teacher educators in their Fellowship application. As presented in this study, implementing the UKPSF and applying for a Fellowship are valuable and essential schemes towards professionalizing teachers and the teaching profession. Therefore, there is a need to revisit the teacher education programs in HEIs globally not only to have a clear and well-structured curriculum that enables future teachers to become more qualified and competent to teach but also to recognize them in their teaching practice. In other words, teacher education programs worldwide should not only teach pedagogical skills to their future teacher educators based on theories, but also to integrate these theories into actual classroom practice where teacher educators would be recognized for their excellent teaching practices.

Lastly, it must be noted that "teacher preparation and development are key building blocks in developing effective teachers" (Darling-Hammond, 2017, p. 291). Thus, professional development schemes and other institutional teacher training programs may play a crucial role in professionalizing the teachers and their teaching profession, especially since most teacher education systems may only require teacher educators to have a teaching certificate, teaching experience, and an academic degree to teach.

References

Addi-Raccah, A., & Arviv-Elyashiv, R. (2008). Parent empowerment and teacher professionalism: Teachers' perspective. *Urban Education, 43*(3), 394–415.

Advance, H. E. (2018). *Advance HE working in partnership with Thailand universities*. https://www.advance-he.ac.uk/news-and-views/advance-he-working-in-partnership-with-thailand-universities

Baier, F., Decker, A.-T., Voss, T., Kleickmann, T., Klusmann, U., & Kunter, M. (2019). What makes a good teacher? The relative importance of mathematics teachers' cognitive ability, personality, knowledge, beliefs, and motivation for instructional quality. *British Journal of Educational Psychology, 89*(4), 767–786. https://doi.org/10.1111/bjep.12256

Bangkok Post. (2018). *Walailakuniversity's professors top UK-based HEA fellowship in Thailand*. https://www.bangkokpost.com/thailand/pr/1914884

Barkas, L. A., Scott, J. M., Poppitt, N. J., & Smith, P. J. (2019). Tinker, tailor, policy-maker: Can the UK government's teaching excellence framework deliver its objectives? *Journal of Further and Higher Education, 43*(6), 801–813. https://doi.org/10.1080/0309877X.2017.1408789

Borg, S., Clifford, I., & Htut, K. P. (2018). Having an EfECT: Professional development for teacher educators in Myanmar. *Teaching and Teacher Education, 72*, 75–86. https://doi.org/10.1016/j.tate.2018.02.010

Botham, K. A. (2018). An analysis of the factors that affect engagement of Higher Education teachers with an institutional professional development scheme. *Innovations in Education and Teaching International, 55*(2), 176–189. https://doi.org/10.1080/14703297.2017.1407664

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77–101. https://doi.org/10.1191/1478088706qp063oa

Burton, S. (2020). What's the point of initial teacher training? Former trainee voice on the influence of in-service ITT upon the practice of established post-compulsory teachers. *Research in Post-Compulsory Education, 25*(3), 337–358. https://doi.org/10.1080/13596748.2020.1802944

Cirocki, A., & Farrell, T. S. C. (2019). Professional development of secondary school EFL teachers: Voices from Indonesia. *System, 85*. https://doi.org/10.1016/j.system.2019.102111

Darling-Hammond, L., & Goodwin, A. L. (1993). Progress toward professionalism in teaching. In G. Cawelti (Ed.), *Association for Supervision and curriculum development 1993 yearbook* (pp. 19-52). ASCD.

Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice? *European Journal of Teacher Education, 40*(3), 291–309. https://doi.org/10.1080/02619768.2017.1315399

Fernández, T. J. (2013). Professionalisation of teaching in universities: Implications from a training perspective. *Universities and Knowledge Society Journal, 10*(1), 345–358.

Glazer, J. L. (2007). Educational professionalism: An inside-out view. *American Journal of Education, 114*, 169–189.

Goglio, V. (2016). One size fits all? A different perspective on university rankings. *Journal ofHigher Education Policy and Management, 38*(2), 212–226. https://doi.org/10.1080/1360080X.2016.1150553

Goodwin, A. L. (2011). Teaching as a profession. In C. Day (Ed.), *Routledge international handbook of teacher and school development*. Routledge. https://doi.org/10.4324/9780203815564

Harjanto, I., Lie, A., Wihardini, D., Pryor, L., & Wilson, M. (2018). Community-based teacher professional development in remote areas in Indonesia. *Journal of Education for Teaching, 44*(2), 212–231. https://doi.org/10.1080/02607476.2017.1415515

Harris, A. & Jones, M. (2018). Leading schools as learning organizations. *School Leadership & Management, 38*(4), 351–354. https://doi.org/10.1080/13632434.2018.1483553

Hartmann, U., Kindlinger, M., & Trempler, T. (2020). Integrating information from multiple texts relates to pre-service teachers' epistemic products for reflective teaching practice. *Teaching and Teacher Education, 97*, 1–12. https://doi.org/10.1016/j.tate.2020.103205

Heron, M., & Corradini, E. (2020a). A genre-based study of professional reflective writing in higher education. *Teaching in Higher Education,* 1–13. https://doi.org/10.1080/13562517.2020.1824178

Heron, M., & Corradini, E. (2020b). Writing for professional recognition in higher education: Understanding genre and expertise. *Higher Education Research & Development, 39*(5), 968–981. https://doi.org/10.1080/07294360.2019.1705256

Hine, S. C., & Lavery, S. (2014). Action research: Informing professional practice withinschools. *Issues in Educational Research, 24*(2), 162–173.

Horowitz, T. R. (1985). Professionalism and Semi-professionalism among Immigrant Teachers from the U.S.S.R. and North America. *Comparative Education, 21*(3) 297–307. https://doi.org/10.1080/0305006850210307

Innocente, N., & Baker, J. (2018). The sociology teaching fellowship: A mentorship model for graduate student teacher training. *Teaching Sociology, 46*(4), 335–345. https://doi.org/10.1177/0092055X18791686

Mahani, S. (2012). Enhancing the quality of teaching and learning through action research. *Journal of College Teaching & Learning, 9*(3), 209–215. https://doi.org/10.19030/tlc.v9i3.7086

Maphosa, C., & Mudzielwana, N. P. (2014). Professionalization of teaching in universities: A compelling case. *International Journal of Educational Sciences, 6*(1), 65–73. https://doi.org/10.1080/09751122.2014.11890119

McDonald, R. W. (1956). The professional standards movement in teaching: progress and projection. In *Proceedings of the National Commission on Teacher Education and Professional Standards, National Education Association of the United States, Parkland, Washington*. Pacific Lutheran College, Parkland Conference

Morrison, B., & Evans, S. (2018). University students' conceptions of the good teacher: A Hong Kong perspective. *Journal of Further and Higher Education, 42*(3), 352–365. https://doi.org/10.1080/0309877X.2016.1261096

Napal Fraile, M., Peñalva-Vélez, A., & Mendióroz Lacambra, A. (2018). Development of digital competence in secondary education teachers' training. *Education Sciences, 8*(3), 1–12. https://doi.org/10.3390/educsci8030104

Nguyen Thi Mai, H., & Hall, C. (2017). Changing views of teachers and teaching in Vietnam. *Teaching Education, 28*(3), 244–256. https://doi.org/10.1080/10476210.2016.1252742

Shaw, R. (2018). Professionalising teaching in HE: The impact of an institutional fellowship scheme in the UK. *Higher Education Research & Development, 37(*1), 145–157. https://doi.org/10.1080/07294360.2017.1336750

Spowart, L., & Turner, R. (2020). The alien world of reflective practice: A non-fictional "tale" of academics' experiences of applying for Senior Fellowship. *Innovations in Education and Teaching International,* 1–10. https://doi.org/10.1080/14703297.2020.1800503

Ulla, M. B. (2018). In-service teachers' training: The case of university teachers in Yangon, Myanmar. *Australian Journal of Teacher Education, 43*(1), 66–77. https://doi.org/10.14221/ajte.2018v43n1.4

Ulla, M., & Winitkun, D. (2018). In-service teacher training program in Thailand: Teachers' beliefs, needs, and challenges. *Pertanika Journal Sciences & Humanities, 26*(3), 1579–1594.

Vecaldo, R., Asuncion, J. E., & Ulla, M. (2019). From writing to presenting and publishing research articles: Experiences of Philippine education faculty-researchers. *Eurasian Journal of Educational Research, 81*, 147–164.

Voisin, A., & Dumay, X. (2020). How do educational systems regulate the teaching profession and teachers' work? A typological approach to institutional foundations and models of regulation. *Teaching and Teacher Education, 96*, 1–16. https://doi.org/10.1016/j.tate.2020.103144

Wilson, S., & Tamir, E. (2008). The evolving field of teacher education. In M. Cochran-Smith, S. Feiman-Nemser, & J. McIntyre (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (3rd ed., pp. 908–935). Routledge/Taylor & Francis.

Wiseman A. W., Marnerly C., & Epstein E.H. (2016). Professionalizing the field. In E. Epstein (Ed.), *Crafting a global field. CERC studies in comparative education* (p. 33). Springer. https://doi.org/10.1007/978-3-319-33186-7_2

Chapter 45
Teachers' Professional Development in Bangladesh: Issues and Way Forward

Beth Cross, Sabbir Ahmed Chowdhury, and Mahfuzur Rahman Khan

Abstract Developed countries across the world have policies promoting quality teacher education through successful evolution of the use of emerging technologies. In Bangladesh, currently there is no systematic process for recruiting and training of pre-service teachers. Lately, piloting in-service teachers' professional development and networking have been initiated in Bangladesh through virtual learning environment (VLE), web 2.0, e-learning, and mobile learning in addition to traditional modes. Although they have been found to be contributing significantly in improving the quality of teachers, lack of guidance on curricular development, lack of teacher collaboration, and peer support are identified as a hindrance in teachers' professional development. In addition, though Bangladesh is striving to achieve inclusive education by undergoing various initiatives, inadequate experiential learning facilities are identified as the primary hindrance to such reforms. In view of the above, here we propose a holistic teacher education framework taking andragogy with its emphasis on learner's needs, prior experience, readiness, orientation, and motivation into consideration to develop digital learning strategies for teacher education. The feasibility and effectiveness of technological infrastructure are also addressed. It is hoped that our proposed strategy and the clarification of issues it addresses can act as a positive catalyst to mature the progress of teacher education in Bangladesh.

Keywords Professional development · Virtual learning environment · Andragogy · Inclusive education · Experiential learning

Introduction

> Knowledge is power. Information is liberating. Education is the premise of progress, in every society, in every family—Kofi Annan.

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There is a positive correlation between a nation's development and investment in education, particularly, investment in the upgradation of the quality of education in primary level as well as in general education sectors (Psacharopoulos, 1988). It is no surprise that the SDG Goal 4 aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (UNESCO, 2016).

Public education is the main form of education in the primary and secondary levels in many countries (World Bank, 2021) including Bangladesh. Primary, secondary, and higher education are the three major segments of the education system in Bangladesh. Primary education is 5-year long, spanning from grade 1 to 5. The secondary education is 7-year long and subdivided into three levels—a 3-year-long junior secondary level (from grade 6 to 8), a 2-year-long secondary level (grade 9 and10), and a 2-year-long higher secondary level (grade 10 and 11) (Rahman et al., 2010). Teaching as a sector of employment is also one of the largest in Bangladesh with over 1.1 million teachers from pre-primary to tertiary education (BANBEIS, 2017). The most common school-level teaching style in Bangladesh is lecture methods without using any teaching aid, and emphasis is primarily given to rote learning (World Bank, 2000).

An awareness of the importance of pedagogical approaches that support human flourishing, citizenship, and the development of the complex skill set required for advanced economies is evident within national policy (Ahsan & Mullick, 2013); however, there is little evidence that these intentions flow into changed practice. This chapter reviews the current teacher education in Bangladesh, as an important site of culture change that would lead to the successful adoption of more appropriate pedagogies. We provide a historical context that explains the gaps and areas for improvement and propose a framework for an effective teacher education system that incorporates digital resources that can overcome the inequalities of educational outcomes.

Importance of Teacher Education

Teachers' roles and responsibilities in the effective education system have long been recognized globally. There is compelling evidence to believe that well-prepared teachers are more confident and successful in their profession than others (Darling-Hammond, 2000). Indeed, "teacher quality" was found to be the single most crucial school-level factor influencing student's attainment in a study carried out in 25 countries by Organization for Economic Cooperation and Development (OECD, 2005). Therefore, teachers are extremely important, and an inseparable component of any education system and their competencies in providing quality education are of utmost importance (Jimerson & Haddock, 2015; Selvi, 2010). This is especially true for countries like Bangladesh where pre-service training/certificate is not mandatory to be recruited as a teacher. Besides classroom teaching, teachers play a significant role

in the overall development of an educational program including curriculum development, student mentoring, and many other responsibilities that create an appropriate learning environment (Harden & Crosby, 2000).

Education is seen from a much broader perspective in the Sustainable Development Goals (SDGs). SDG target 4C is categorically focused on boosting the quality of teachers. It states, by 2030 countries will "sustainably increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small developing states".

Andragogical Model

In looking at the learning strategy for teacher education, it is notable to consider the needs of adult learners. Unlike pre-adult learners, adult learners are enthusiastic, pragmatic, self-guided, and task oriented (Beder & Darkenwald, 1982) and may have pre-developed notions about education through life experiences. The latter, however, could imply barriers to adult education (Pew, 2007). Therefore, it is essential for the educators to comprehend the disparities and diversity in learning styles of adult learners (Clerk, 2010), and they should be taught andragogically (Caruth, 2014). Learning becomes more significant when both the educator and the learners share their responsibility by designing learning goals and objectives mutually, maintaining interpersonal communication, fostering reflection on experiences, and upholding self-guided learning (Zhang, 2009). Hence, adult learners should be provided opportunities involving decision-making in terms of developing courses as well as improving learning methods (Hughes & Berry, 2011).

The core principles of adult learning presented in the original andragogical model of Knowles (1968) are based on some important assumptions about adult learners. Knowles et al. (1998) pointed out that adults need to realize the importance of learning something before accepting it. This is because adults' self-identity comes through life experiences leading them to prioritize their learning objectives and needs. Things that are related to real-life settings are likely to be accepted more enthusiastically by adults than anything else (Knowles et al., 1998). Besides, several factors including external motivators like social status, ranking, wages, rewards, and internal motivators such as job satisfaction, identity, self-esteem, belonging, quality of life can lead towards individual growth of the adult learner (Knowles, et al., 1998).

The Knowles model is a transactional model (Brookfield, 1986) as it is transformable from community education to human resource development. The second portion of the andragogical model (Knowles, 1995) consists of the following eight steps of andragogical process design:

- Learner preparation
- Climate for learning
- Program planning

- Diagnosis of learning needs
- Formulation of learning objectives
- Outline of the learning plans
- Carry out learning plans
- Evaluation of the learning outcomes.

Furthermore, teaching philosophies and values of the learners are influenced by the andragogical process (Cretchley & Castle, 2001). In a study of developed countries' higher education perspective, it was found that andragogy focuses on learner-centred approaches while pedagogy concentrates on teacher-focused strategy (Yoshimoto et al., 2007).

For the current Bangladesh context, it is also important to bear in mind that Knowles' (1968) assumptions of andragogy are harmonious with the principles of blended learning (Korr et al., 2012). This is because blended courses are distinguished as a combination of traditional classroom setting and online activities that allow collaborative learning (Caruth & Caruth, 2013) either synchronously or asynchronously (Fig. 45.1). Moreover, blended learning and andragogy are compatible with each other as both enable learners to establish new information by comparing information acquired from past experiences. Learners are also stimulated by relevant problem-solving activities as well as individualized continuous feedback. This is important because blended and distance learning are important tools if educators in rural areas where education improvement is needed most are to be able to participate

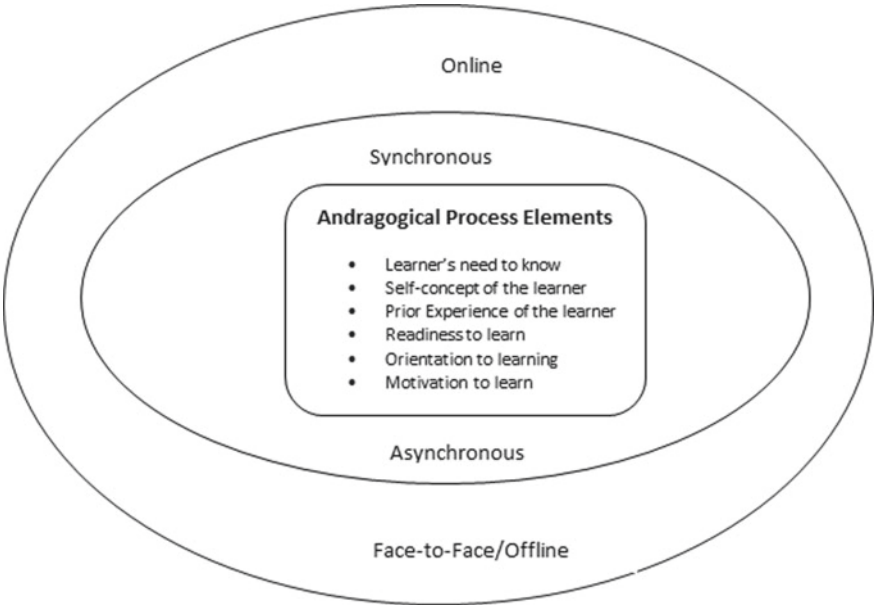

Fig. 45.1 Relationship between blended mode and andragogy (Modified from Knowles et al., 1998)

in quality education that in turn enables them to become educators that enhance the quality of their students' learning.

Overview of Teacher Education in Bangladesh

Policies and Initiatives Related to Teacher Education

In order to appreciate the particular challenges Bangladesh teacher education currently faces, it is vital to be aware of the policy context and the historical developments that have given rise to it. The first education policy in Bangladesh was formulated in 1974 upon the suggestion of the Qudrat-e-Khuda Education Commission (1974). In the 1974 education policy, emphasis was given to in-service teachers training. However, that policy has never been implemented. The second education policy was proposed in 1988 by the National Education Commission (1988), where pre-service training for secondary school teachers was suggested. Since 1988, at least five more education policies have been proposed, but none of them brought any significant change and improvement in the education sector. The latest education policy in Bangladesh was formulated in 2010 (NEP, 2010), which is seen as the polished version of all of the previous policies (Chowdhury & Kabir, 2014). A number of strategies have been proposed for improving teacher education in NEP (2010). These include.

1. Mandatory foundation training as well as C-in-Ed and B.Ed courses for primary and secondary teachers, respectively, within 3 years of joining their posts with college teachers being required to undergo a refresher's course every three years.
2. Modernization of syllabus and curriculum of teacher training as well as increase in the duration of C-in-Ed courses from one year to one and half years including 9 months of practical classes.
3. Formation of training facilities for the trainers both at locally and globally to raise the benchmark of training.
4. Inclusion of extensive co-curricula materials in the training and proper evaluation of trainees' tasks.
5. Introduction of financial incentives for the trainees on the basis of their skill evaluated through continuous assessment.
6. Development of high standards of training facilities will be ensured.
7. A commitment to ensure Internet connectivity for all educational and training institutions so that academic staff/personnel can engage in effective digital education practices.

The National Education Policy 2010 and ICT Policy 2015 particularly emphasized the use of ICTs to progress the quality of education in Bangladesh (BTRC, 2021; NEP, 2010). ICT laboratories and multimedia classrooms are being provided

in the educational institutions (a2i, 2014; Government of Bangladesh, 2019). Thousands of teachers in primary and secondary school levels have received 15-days-long basic training on creation and use of multimedia content as teaching–learning tools, and more than 20,000 teachers have shared their digital content through the online teacher's portal (Government of Bangladesh, 2018). However, the National Information and Communications Technology Policy (NIP) in Bangladesh has been criticized to be ambiguous and techno centric as well as for not being able to address issues associated with digital inclusion (Aziz, 2020). Besides, teachers' belief and attitude have been found to be a major impediment in the success of ICT in education in Bangladesh (Khan et al., 2012). Moreover, the success of improved teaching–learning using multimedia content has found to be largely dependent on two variables—(1) how the technology is designed and implemented and (2) how the teachers are trained to use it (Parvin & Salam, 2015). Therefore, educating teachers in ICT is crucial in the successful implementation of the above initiatives (Government of Bangladesh, 2019).

History of Teacher Education in Bangladesh

Despite Bangladesh education policy being fairly recent, educational practice has a much longer history dating back to the colonial period. Teachers training in the subcontinent started in the early 1900s in Guru training schools, which subsequently transformed into primary training institutes (PTI) by the middle of twentieth century. In 1951, there were 59 government and three private PTIs. Currently, there are a total of 67 government and one private primary training institutes (PTIs) dedicated for in-service training of primary school teachers. PTIs basically conduct C-in-Ed and DPEd programs. C-in-Ed is intended only for teachers with secondary school certificates, whereas DPEd is for teachers with higher secondary school certificates and above academic qualifications. PTIs also run some short-term training programs like ICT in education as per government decision (NAPE, 2017).

For secondary school teachers, there are 14 government training colleges and a National Academy for Educational Management (NAEM). There is one training institute dedicated for the Madrasa teachers. Besides, there are five higher secondary teacher training institutes (HSTTI) for the subject-based training of higher secondary college teachers. In addition to providing training, all 14 government training colleges offer B.Ed courses, and some of them also offer M.Ed. course. Such courses are also offered in the education and research institutes under the Dhaka, Rajshahi, and Khulna Universities. Bangladesh Open University also offers B.Ed. courses through distance learning. Apart from the above-mentioned public facilities, there are 106 private secondary teachers' training centres (NEP, 2010). Though some facilities are available, their standard in terms of infrastructure, quality of training, contents taught are, to a large extent, of low standard. Moreover, a lack of coordination and institutional linkage among these institutions was found to be an impediment in improving the quality of teacher education in Bangladesh (ADB, 2015).

Present Teacher Education

What is apparent from this overview is that there is not a coherent process of pre-service teacher education in Bangladesh (Al Amin & Greenwood, 2018). In-service teacher development programs in Bangladesh are too focused on teaching a perfect lesson in the classroom without evaluating actual learning by a student (Thornton, 2006). As a result, there exists a significant gap between a teacher's understanding of curriculum and his/her actual teaching practice. Some studies suggest that teaching practice in Bangladesh is largely driven by students achieving good grades in examinations rather than their actual learning (Al Amin & Greenwood, 2018). There is evidence that primary school teachers in Bangladesh would welcome peer support through planning of lessons, preparing content, classroom observations and corrective feedback. However, time constraints as well as the social structure of the schools restrict teachers' uptake of such embedded improvement approaches (Thronton, 2006; Rahman et al., 2018). Furthermore, the challenges of the curriculum in terms of policies and technologies, poor academic background of teachers, perceived low capability of many students, and contextual components influence teachers' enthusiasm to develop professional learning communities (PLCs) (Thornton, 2006). Attributes like attitudes, thoughts, efficacy beliefs, and perceived support are mostly accounted for variances in teachers behaviour (Malak et al., 2018). There is also a concerning lack of resources and support to enable teachers to include learners with disabilities or other support needs (de Monchy, 2014).

In line with National Education Policy 2010, government primary schools have progressed to adopt inclusive education; however, they faced several challenges in implementing inclusive education because of inferior quality in teaching children with special needs. Teacher collaboration and peer support are notably absent in schools in Bangladesh. There is an urgent need for improving the in-service training for school teachers providing them instructional techniques for diverse learners and communication skills with different stakeholders to carry out quality inclusive education (Siddik & Kawai, 2020).

Technology Integration in Developing Teacher Education Improvements

Several pilots have taken place for technology integrated teaching–learning activities in Bangladesh. An online teachers' portal (www.teachers.gov.bd) has already been designed to store and retrieve subject-specific digital content for teacher education classrooms. The portal can be defined as a building block of the professional learning community (PLC) of teachers across the country. As the use of portable devices like mobile phones is increasing in developing countries for teaching and learning purposes (e.g. Shrestha, 2011), Bangladesh is no exception. The historical

background of the utilization of mobile technology in teacher training is moderately short. Teaching Quality Improvement in Secondary Education (TQI-SE) project introduced mobile technology in teachers' training in Bangladesh for the first time in 2006 (Pouezevara & Khan, 2007). Later on, English In Action (EIA), an education development program of collaboration between the UK and Bangladesh governments, introduced audio–video materials and e-resources to utilize the potentiality of mobile learning to ease the professional development (PD) of English language teaching (ELT) community (Shrestha, 2012). EIA started to train teachers by adapting mobile technology in classroom settings which is one of the first instances of adopting an approach consistent with andragogical principles that we can identify (Karim et al., 2017). To ensure the quality teaching–learning practices, Bangladesh Open University (BOU), the only distance learning provider, has also planned to use mobile and Internet technology for the learners (Islam, 2016). These initiatives indicate that wedding appropriate curricular approaches with mobile technology may hold out promise for teacher's professional development in resource-constrained contexts like Bangladesh (Shohel & Banks, 2010). Evidence suggests that adopting the mobile technology in English teacher training program was able to upgrade the teachers' personal and professional skills (Karim et al., 2017). More specifically, it is anticipated that this sort of change may transform teachers' conventional classroom behaviour towards a more student-centred one. However, some disparities are ascertained between the policy of EIA and national curriculum (Karim et al., 2017). It is, therefore, important to evaluate the approach so that teacher development programs and the National Education Policy are mutually supportive.

Proposed Framework for Teacher Education

Building on the evaluation of how mobile computing devices can support education and training (Ally & Prieto-Blázquez, 2014; Attewell, et al., 2010), we offer in this section a possible framework applicable to the Bangladesh context. Our starting point is premised upon the realization that perceptions, attitudes, and usage patterns of technology integration vary significantly among teachers. Teacher educators need space to assess the tools' potentiality alongside the andragogical advantages it can support. This change may assist pre-service and in-service teachers to shift their stances towards the addition of portable devices within the existing teaching–learning settings.

Bearing in mind that mobile learning is defined as through interactions among learners, devices, and context (Mouza & Barrett-Greenly, 2015), learning design needs to be designed as well as employed taking into consideration the mobile learning environment (Herrington et al., 2009). Features like portability of devices and instant connectivity to data and networks are exclusive to mobile learning environments and can afford significant advantages to mobile learners (Cheon et al., 2012). It is favourable that Bangladesh has witnessed a huge jump in mobile subscription and usage of Internet through mobile devices in the last decade. The number of

mobile subscriber has almost doubled in 8 years between 2013 and 2021, it jumped from about 98 million to little over 173 million during this period (BTRC, 2021). The number of Internet subscribers has also drastically increased over the last 5 years, and it has increased from about 61 Million in 2016 (mobile Internet 58 million and fixed line 3 million) to over 112 Million in 2021 (mobile Internet 103 million and fixed line 9 million) (BTRC, 2021). Moreover, the country has a number of policy initiatives to support e-readiness. The main telecom operators have begun to roll out fourth generation (4G) mobile networks nationwide; the bandwidth of the only submarine cable has also been raised to 200 gb/s. Further research is needed as to the reliability of coverage where teacher education can most benefit from mobile learning, but the prevalence of accessibility of mobile networks is greatly improved to the extent it is viable to serve as a learning platform.

An important aspect that the mobility of learners opens up is new spaces for reshaping formal, informal, and non-formal learning under the lenses of andragogical approach. Moreover, learning content can also be reshaped or customized within a mobile learning platform (Grant, 2019). In addition, access to instructor/tutor is also flexible in mobile learning settings which can take place either synchronously or asynchronously. Furthermore, continuous availability of data services and networks is also crucial to ensure collaboration as well as engagement. Hence, teacher collaboration and peer support can be improved through mobile learning platforms by offering one-to-many and many-to-many communication and reducing the gap between practice and curriculum. All of these possibilities can play a considerable role in transforming learners from unmotivated to motivated. However, the physical cultural and historical contexts influence the learning. As well, the learners' readiness may vary based on his /her perceptions, views, attitudes, and affordability of technology (Grant, 2019). The above-mentioned characteristics are summarized in Fig. 45.2 to address the design

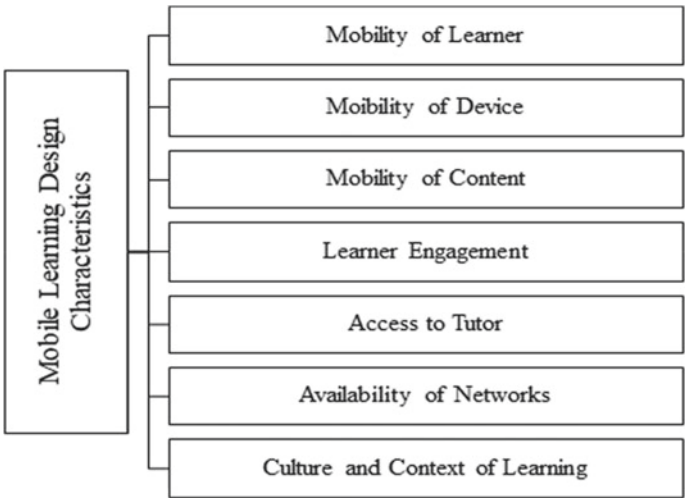

Fig. 45.2 Design characteristics of mobile learning environments (Modified from Grant, 2019)

of mobile learning environments.

As mobile learning is considered an emerging field to enhance distance learning, Liu et al. (2008) emphasize the learners' perceptions and design characteristics. Besides, versatility of learners and variation of educational settings need to be considered under the lens of andragogical process design to achieve expected learning outcomes. Hence, information related to learners' need, readiness, and orientation to learn is also imperative in m-learning design. Consequently, requirements as well as constraints analysis should guide the development of mobile learning in the context of Bangladesh. With this in mind, it is important to consider that learners also need support services to foster their confidence and proficiencies to deal with any arising impediments. Liu et al. (2008) suggest several support services like training and community support need to be integrated into the development of mobile learning design. As curriculum development and implementation follow top-down approach in Bangladesh (Rahman et al., 2018), the process lacks flexibility, becomes bureaucratic, and creates difficulty (Fullan, 2007a, 2007b). Though teachers are the practitioners of utilizing the prescribed method in the classroom, they are unfortunately deprived of expressing their views (Ali & Walker, 2014). Learning experience and learning objectives need to be considered to evaluate the significance of mobile learning-integrated andragogical approaches. Figure 45.3 shows how mobile learning activity protocol can be configured.

Fig. 45.3 Mobile learning activity design protocol (Modified from Liu et al., 2008)

There are dilemmas such as what tenets or scaffolds should be followed to design mobile learning platforms and what instructional strategies can be embraced to improve teacher education. This sort of technology integration could enable a paradigm shift in teacher education in the context of Bangladesh. The implementation pathway of mobile learning in teacher education must be supported by technology and mobile applications infrastructure (Khaddage & Cosío, 2014). This raises further research challenges such as applying the affordances of innovations in technology to learning content, interaction, and usability principles between technology and andragogy, and optimum ways to text innovations in modes of instructional practices. Cochrane (2010) identified several gaps in successful implementation of mobile learning such as absence of explicit theory for effective design of mobile learning, insufficient cross-sectional or longitudinal studies to assess the impact of mobile learning activities, and poor policy support for learners and teachers to adopt mobile learning. It is important that the development of mobile learning strategy in Bangladesh addresses these gaps.

The four factors, namely technological drive, andragogical adoption, policy confirmation, and evaluation/further research altogether propose a framework to adopt mobile-mediated teacher education in the context of Bangladesh (Fig. 45.4).

Andragogical considerations such as learners need to know, self-concept of the learner, readiness as well as orientation to learn, and motivation of learners needs to be best matched with technological adoption such as hardware and software. Hence, at the heart of teacher education, audio-visual resources (restructuring of content) can be made available on teachers' mobile phones (changing instruction methods) at 24/7 (accessibility) without making any significant investment (Bring Your Own

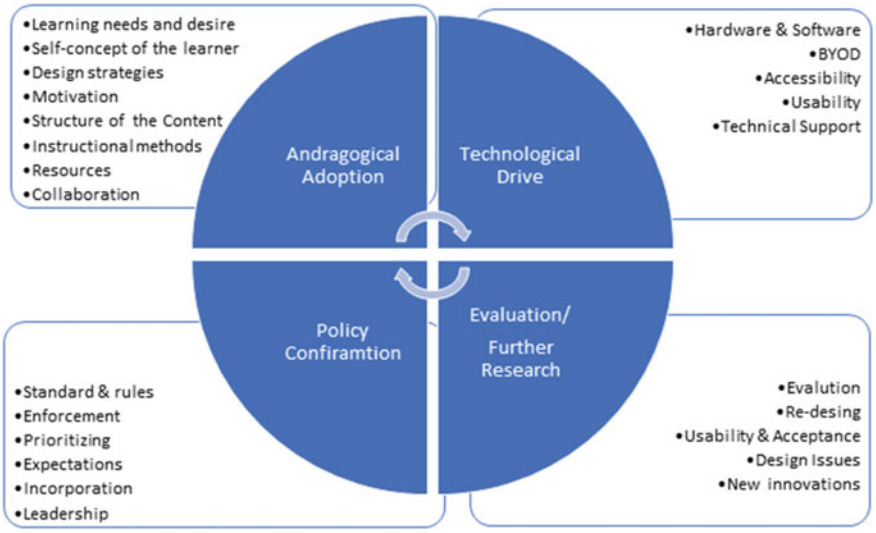

Fig. 45.4 Framework for M-learning implementation for teacher education (Modified from Khaddage & Cosío, 2014)

Device). Furthermore, peer teachers can communicate among themselves (collaboration) over mobile phones using communication software (technical support) and launch events or workshops through audio–video conferencing (changing instructional strategies) apps in terms of their demand (learners' need and desire).This sort of synthesis will lead towards collaboration and improve self-concept of the learner as they avail themselves of wider access to web 3.0 technology as well. In addition, this sort of convergence needs to be supported by policy confirmation (curriculum support) and prioritization (expectation and enforcement by Government of Bangladesh). This paradigm shift will be redesigned based on acceptance (readiness and motivation to adopt), design characteristics (contextualization availability of technological resources), usability (teachers' skills to implement) as well as new innovations.

Discussion

Teacher education is demanded to enrich teachers' skills (Karim et al., 2018) irrespective of the courses. In addition, teacher education acts as a pivotal factor to determine teachers' actions (teaching–learning activity and assessment) in the classroom. The purpose of any teacher education program is to promote positive transformation among the teachers (Hargreaves & Fullan, 1992). Perceiving the potential outcomes of teacher education programs, pre-service as well as in-service teachers needs to be equipped with competences and strategies to facilitate interactive classrooms by adopting audio-visual utilities and employing varied activities for enhanced students engagement (Karim & Mohamed, 2019). Moreover, Sustainable Development Goal (SDG) 2030 commits Bangladesh to increase the supply of competent teachers to a large extent by 2030 through promoting international collaboration for teacher training. Hence, Bangladesh has the opportunity to strengthen its teacher training capacity through innovative strategies instead of relying on traditional approaches. To meet the demand of SDG, Bangladesh needs to invest more on technology enhanced teacher training programs considering andragogical elements to offer quality education for the adult teacher/learners. This sort of paradigm shift must be supported by awareness creation, redesign of content, and modification of instructional practices. To tackle teachers' resistance to participating in this sort of paradigm shift, it is advisable to prioritize work with remote learning contexts that can serve as exemplars for wider uptake across Bangladesh. Professional development materials developed for m-learning platforms need to be incorporated into revised classroom resources produced by the National Curriculum and Textbook Board (NCTB) to take the maximum advantages of audio-visual interactive instructional practices in the classrooms. Finally, just-in-time access to an extensive educational resources through mobile learning settings may bridge the disparity of retrieving and manipulating information by the teachers and move forward to the educational opportunity in every premises of the society.

References

a2i (2014). *ICT in education: Content development by the teacher for the teacher*. Access to Information (a2i) Programme, Prime Minister's Office, Government of Bangladesh, a2i.gov.bd.

ADB. (2015). Policy reform in Bangladesh's secondary education (1993–2013) tracing causal processes and examining ADB's contribution. Asian Development Bank, Manila.

Ahsan, M. T., & Mullick, J. (2013). The journey towards inclusive education in Bangladesh: Lessons learned. *Prospects, 43*(2), 151–164.

Al Amin, M., & Greenwood, J. (2018). The UN Sustainable Development Goals and Teacher Development for Effective English Teaching in Bangladesh: A Gap That Needs Bridging. *Journal of Teacher Education for Sustainability, 20*(2), 118–138.

Ali, M., & Walker, A. L. (2014). Bogged down ELT in Bangladesh: Problems and policy. *English Today, 30*(2), 33–38. https://doi.org/10.1017/S0266078414000108.

Ally, M., & Prieto-Blázquez, J. (2014). What is the future of mobile learning in education? *International Journal of Educational Technology in Higher Education, 11*(1), 142–151.

Attewell, J., Savill-Smith, C., Douch, R., & Parker, G. (2010). *Modernising education and training: Mobilising technology for learning*: ERIC.

Aziz, A. (2020). Digital inclusion challenges in Bangladesh: The case of the National ICT Policy. *Contemporary South Asia, 28*(3), 304–319. https://doi.org/10.1080/09584935.2020.1793912

Bangladesh Bureau of Educational Information and Statistics (BANBEIS). (2017). Bangladesh Education Statistics. Retrieved from https://lib.banbeis.gov.bd/BANBEIS_PDF/Bangledesh%20Education%20Statistics%202017.pdf

Beder, H. W., & Darkenwald, G. G. (1982). Differences between teaching adults and pre-adults: Some propositions and findings. *Adult Education, 32*(3), 142–155.

Brookfield, S. (1986). *Understanding and facilitating adult learning: A comprehensive analysis of principles and effective practices*. McGraw-Hill Education.

BTRC. (2021). *License ands*, WebPage: http://www.btrc.gov.bd/license-statistics. Last access April 15, 2021.

Caruth, G. D. (2014). Meeting the needs of older students in higher education. *Participatory Educational Research, 1*(2), 21–35.

Caruth, G. D., & Caruth, D. L. (2013). The impact of distance education on higher education: A case study of the United States. *Turkish Online Journal of Distance Education, 14*(4), 121–131.

Cheon, J., Lee, S., Crooks, S. M., & Song, J. (2012). An investigation of mobile learning readiness in higher education based on the theory of planned behavior. *Computers & Education, 59*(3), 1054–1064.

Chowdhury, R., & Kabir, A. H. (2014). Language wars: English education policy and practice in Bangladesh. *Multilingual Education, 4*(1), 21.

Cochrane, T. D. (2010). Exploring mobile learning success factors. *ALT-J, 18*(2), 133–148.

Clerk, K. D. (2010). *Student perception and success: How adult learners at a two-year technical institution perceive instruction and how their perceptions contribute to their overall academic success*: Oakland University.

Cretchley, G., & Castle, J. (2001). OBE, RPL and adult education: Good bedfellows in higher education in South Africa? *International Journal of Lifelong Education, 20*(6), 487–501.

Darling-Hammond, L. (2000). How teacher education matters. *Journal of Teacher Education, 51*(3), 166–173.

De Monchy, M. (2014). *Situation analysis of children with disabilities in Bangladesh, Dhaka*. Unicef. https://www.unicef.org/bangladesh/media/2046/file/SA-disablity%20report.pdf

Fullan, M. (2007b). *The new meaning of educational change*. Routledge.

Fullan, M. (2007a). Change theory as a force for school improvement. In *Intelligent leadership* (pp. 27–39). Springer.

Government of Bangladesh. (2018). *Gender budgeting report 2017–18, Chapter-28*. Information and Communication Technology Division, Ministry of Finance, Government of Bangladesh, Dhaka.

Government of Bangladesh. (2019). *Master plan for ICT in education in Bangladesh (2012-2021): Progress review report 2019*. Ministry of Education, Government of the Peoples' Republic of Bangladesh, Dhaka.

Grant, M. M. (2019). Difficulties in defining mobile learning: Analysis, design characteristics, and implications. *Educational Technology Research and Development, 67*(2), 361–388.

Harden, R. M., & Crosby, A. (2000). AMEE guide no 20: The good teacher is more than a lecturer—The twelve roles of the teacher. *Medical Teacher, 22*(4), 334–347.

Hargreaves, A., & Fullan, M. G. (1992). *Understanding teacher development*. Teachers College Press.

Herrington, A., Herrington, J., & Mantei, J. (2009). Design principles for mobile learning.

Hughes, B. J., & Berry, D. C. (2011). Self-directed learning and the millennial athletic training student. *Athletic Training Education Journal, 6*(1), 46–50.

Islam, M. A. (2016). *Can mobile learning upgrade the educational status of bangladesh: challenges and opportunities?* Webpage:http://oasis.col.org/handle/11599/2679?show=full. Last access April 15, 2021.

Jimerson, S. R., & Haddock, A. D. (2015). Understanding the importance of teachers in facilitating student success: Contemporary science, practice, and policy. *School Psychology Quarterly, 30*(4), 488–493.

Karim, A., Mohamed, A. R., & Rahman, M. M. (2017). EIA—A teacher education project in Bangladesh: An analysis from diversified perspectives. *International Journal of Instruction, 10*(4), 51–66. https://doi.org/10.12973/iji.2017.1044a

Karim, A., Mohamed, A. R., Ismail, S. A. M. M., & Rahman, M. M. (2018). Organized hypocrisy in EFL teacher training programs. *International Journal of Instruction, 11*(2), 437–450. https://doi.org/10.12973/iji.2018.11230a

Karim, A., & Mohamed, A. R. (2019). Examining the impact of an English in action training program on secondary-school English teachers' classroom practice in Bangladesh examining the impact of an English in action training program on. *Qualitative Report, 24*(3), 441–469.

Khaddage, F., & Cosío, J. H. (2014). *Trends and barriers on the fusion of mobile apps in higher education where to next and how*? Paper presented at the Society for Information Technology & Teacher Education International Conference.

Khan, M., Hossain, S., Hasan, M., & Clement, C. K. (2012). Barriers to the introduction of ICT into education in developing countries: The example of Bangladesh. *Online Submission, 5*(2), 61–80.

Knowles, M. S. (1968). Andragogy, not pedagogy. *Adult Leadership, 16*(10), 350–352.

Knowles, M. S. (1995). *Designs for adult learning: Practical resources, exercises, and course outlines from the father of adult learning*. American Society for Training.

Knowles, M. S., Elwood, R., Holton, R., III., & Swanson, A. (1998). *The adult learner: The definitive classic in adult education and human resource development* (5th ed.). Heinemann.

Korr, J., Derwin, E. B., Greene, K., & Sokoloff, W. (2012). Transitioning an adult-serving university to a blended learning model. *The Journal of Continuing Higher Education, 60*(1), 2–11.

Liu, H., Huang, R., Salomaa, J., & Ma, D. (2008). *An activity-oriented design framework for mobile learning experience*. Paper presented at the Fifth IEEE International Conference on Wireless, Mobile, and Ubiquitous Technology in Education (wmute 2008).

Malak, M. S., Sharma, U., & Deppeler, J. M. (2018). Predictors of primary schoolteachers' behavioural intention to teach students demonstrating inappropriate behaviour in regular classrooms. *Cambridge Journal of Education, 48*(4), 495–514.

Mouza, C., & Barrett-Greenly, T. (2015). Bridging the app gap: An examination of a professional development initiative on mobile learning in urban schools. *Computers & Education, 88*, 1–14.

NAPE. (2017). *A study on implementation of 'ICT in education training' in Government Primary Schools*. National Academy for Primary Education (NAPE).

NEP. (2010). *National Education Policy 2010*. Ministry of Education, Government of Bangladesh

OECD. (2005). *Teachers matter: Attracting, developing and retaining effective teachers*. OECD.

Parvin, R. H., & Salam, S. F. (2015). *The Effectiveness of using technology in English language classrooms in Government Primary Schools in Bangladesh* (Vol. 2, No. 1, pp. 47–59). FIRE: Forum for International Research in Education.

Pew, S. (2007). Andragogy and pedagogy as foundational theory for student motivation in higher education. *InSight: A Collection of Faculty Scholarship, 2*, 14–25.

Pouezevara, S.L., & Khan, R. (2007). *Learning communities enabled by mobile technology: A case study of school-based in-service secondary teacher training in rural Bangladesh*. RTI International

Psacharopoulos, G. (1988). (1988) Education and development: A review. *The World Bank Research Observer, 3*(1), 99–116. https://doi.org/10.1093/wbro/3.1.99

Rahman, M., Hamzah, M. I. M., Meerah, T., & Rahman, M. (2010). Historical development of secondary education in Bangladesh: colonial period to 21st century. *International Education Studies, 3*(1), 114–125.

Rahman, M. M., Pandian, A., & Kaur, M. (2018). Factors affecting teachers' implementation of communicative language teaching curriculum in secondary schools in Bangladesh. *Qualitative Report, 5*, 23.

Selvi, K. (2010). Teachers' competencies. *Cultura International Journal of Philosophy of Culture and Axiology, 7*(1), 167–175.

Shohel, M. M. C., & Banks, F. (2010). Teachers' professional development through the English in Action secondary teaching and learning programme in Bangladesh: Experience from the UCEP schools. *Procedia-Social and Behavioral Sciences, 2*(2), 5483–5494.

Shrestha, P. (2011). The potential of mobile technologies for (English) language learning in Nepal. *Journal of NELTA, 16*(1–2), 107–113.

Shrestha, P. (2012). Teacher professional development using mobile technologies in a large-scale project: Lessons learned from Bangladesh. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT), 2*(4), 34–49.

Siddik, M. A. B., & Kawai, N. (2020). Government primary school teacher training needs for inclusive education in Bangladesh. *International Journal of Whole Schooling, 16*(2), 35–69.

Thornton, H. (2006) Teachers talking: the role of collaboration in secondary schools in Bangladesh. *Compare: A Journal of Comparative and International Education, 36*(2), 181–196. https://doi.org/10.1080/03057920600741180

UNESCO. (2016). *Unpacking sustainable development goal 4 education 2030 guide*. Retrieved November 13, 2021 from http://unesdoc.unesco.org/images/0024/002463/246300E.pdf

World Bank. (2021). Education statistics (EdStats), WebPage: https://datatopics.worldbank.org/education/. Last access April 15, 2021.

World Bank. (2000). *Bangladesh: Education sector review*. University Press Limited.

Yoshimoto, K., Inenaga, Y., & Yamada, H. (2007). Pedagogy and andragogy in higher education—A comparison between Germany, the UK and Japan. *European Journal of Education, 42*(1), 75–98.

Zhang, J. (2009). *Exploring education major focused adult learners' perspectives and practices of web-based distance education in sixteen universities*. ERIC

Chapter 46
Teacher Leadership in Teacher Development for School Improvement and Student Achievement

Ashley Yoon Mooi Ng

Abstract The impact of teacher leadership on teacher development and on their career trajectory is gaining much recognition. Studies on teacher leadership in addressing the complex changes in schools with its attending challenges are gaining momentum. This is reflected by a smorgasbord of empirical work on teacher leadership as a means of informing better governance and decision-making. There is consensus among researchers to redress the belief that principals are the key factor in school improvement and student achievement as principal leadership practices are only one side of the coin. Principal leadership—no matter how sophisticated—relies on teacher quality and how well principals work with them. Teacher quality is a direct factor in school improvement and student achievement. This chapter aims to contribute to the understanding of how teachers can develop their professional skills and impact on the development of learning and teaching in schools through their leadership practices—both formal and informal. This chapter has three broad aims: (1) to introduce teacher leadership; (2) to inform its impact on their profession and their professional skills; and (3) to assess its efficacy and challenges in educational systems which are hierarchical and bureaucratic.

Keywords School improvement · Teacher leadership · Professional development · Professional learning communities

Introduction

Over the last two decades since the seminal work of York-Barr and Duke (2004), followed by the rapid and massive changes happening in schools, teacher leadership has gained momentum as a strong component in teacher development and school improvement (Campbell et al., 2018; Harris et al., 2017). With the devolution of power in response to accountability levelled at schools and the advocating of distributed leadership, it is inevitable that teachers begin to shoulder responsibilities

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on how schools should be improved (Cranston & Kusanovich, 2015). The concept of teacher leadership can be seen from two levels of leadership: their leadership role in assisting the management on school operation, which include but not limited to evaluating educational initiatives and facilitating professional learning communities. With this role, teachers can provide vital information to the management, which will result in making better and relevant decisions. At the instructional role, teacher leaders oversee the core functions of teaching and learning and are role models in the classrooms, whom their peers can seek guidance and inspiration (York-Barr & Duke, 2004).

There are several reasons for advocating teacher leadership in schools. Schools are too complex for principals to lead alone, and teachers need to share leadership responsibilities (Barth, 2001). This is reflected in studies on educational change, where teacher leadership in the form of teacher agency and collaboration resulted in student achievement and school improvement (Datnow & Park, 2018; Harris et al., 2017). As teachers are considered as the most important resource in developing students, and principals are considered as second only to classroom teaching in its effect in student learning (Leithwood et al., 2006; Mourshed et al., 2010), teachers are increasingly drawn into decision-making and policy formation. Studies also showed that principals are beginning to provide opportunities for teachers to take leadership role (Leithwood et al., 2009). This put teachers in the role as key implementers of change where they initiate, create, and implement educational change (Netolicky et al., 2018; Rycroft-Smith & Dutaut, 2018). Teacher leaders build relationships with other teachers to share knowledge and skills, which leads to their professional development, address challenges, and take charge of resources, which leads to students' educational achievement (York-Barr & Duke, 2004). In the present era, when teachers are from diverse background and are more collaboratively oriented, their involvement and contribution to school improvement is no longer a question (Harrison & Killion, 2007). Sustainable school improvement needs more than the leadership provided by the principal and formal leaders because challenges that schools are facing are increasingly complex comprising both "technical challenges" and "adaptive challenges" (Heifitz & Laurie, 1997). Technical challenges have proven solutions, while adaptive challenges require new learning, which encompass the identification of the problems that irk the schools. This calls for a collective effort of everyone in the school to find solutions to the problems, meaning it is crucial to have a robust teaching force that participate actively in school improvement (Katzenmeyer & Moller, 2001; Leithwood & Riehl, 2003) and Donalson's (2015) study show that the effects of teacher leadership are both positive and empowering.

Other reasons for teachers taking up leadership role is that their leadership roles and contribution are often factored into their annual appraisal. Some perceived that by taking up leadership role and responsibilities will develop them as teacher leaders (Nolan & Palazzolo, 2011). Yet still others believe that additional leadership knowledge and skills could provide access to leadership positions and opportunities in the future (Hilty, 2011; Nolan & Palazzolo, 2011; Orr & Orphanos, 2011).

Teacher leaders should be resilient in facing challenges, entrepreneurial, and innovative to lead and manage change and forward thinking to challenge normative practices (Cranston & Kusanovich, 2015). To lead schools in an era of uncertainties where the need to increase school's capacity to secure sustainable improvement, teachers not only need to implement routine approaches that are successful but also ongoing collaboration with colleagues and administrators at all levels in the school. How such collaboration and working in partnership with administrators depends much on the context where the teachers work. Unfortunately, there is a paucity of knowledge on teacher leadership development in connection to context where teaching and learning is taking place (Muijs & Reynolds, 2017). Context where teachers work and enact their leadership practices should be taken into consideration because where they are working affect their leadership role. If their voices are to be heard and that they should be part of the decision-making and policy-making processes, then it is vital that the development of teacher leadership should be studied and implemented according to the context where it takes place. This chapter introduces the concept of teacher leadership, its role in teacher development, how teacher leadership can be enacted in schools, the supports and the challenges teacher leaders face, and concludes with how context influences teacher leadership development.

Teacher Leadership: An Overview

Teacher leadership is a subset of the larger phenomenon of educational leadership. There is no consensus on the definition of teacher leadership (Wenner & Campbell, 2017; York-Barr & Duke, 2004). Bush et al. (2016) study on master teachers in Malaysia and Philippines agree with Barth (2001) that teacher leadership can be enacted from both formal and informal positions. As a formal position, teachers are appointed as "master teachers" with the aim to keep talented teachers in the classroom, with higher salaries and prestige. On the other hand, teachers can and are encouraged to enact leadership without being appointed to formal positions, which is without being awarded higher salary nor prestige. In this case where teachers not appointed to formal positions will have to interpret their leadership roles themselves such as in the case of subject heads allocated by the school. Still there are other opinions about teacher leadership adding to the conceptual confusion over the exact meaning of teacher leadership. Wasley (1991: 23) referred teacher leadership as a solo endeavour in "the ability to encourage colleagues to change, to do things they would not ordinarily consider without the influence of the leader" while Boles and Troen (1994: 11) referred teacher leadership "as a form of collective leadership in which teachers develop expertise by working collaboratively". Ketzenmeyer and Moller (2001) defined teacher leadership in terms of influence through their roles as seen through the provision of leadership:

- to students and their colleagues in their role as facilitators, mentors, coach, curriculum specialists, and leaders of study groups;
- on operational tasks in the various departments and task forces organized in the school;
- through decision-making as members of school improvement teams and members of committees.

This leadership role included assisting teachers in aligning classroom practices to realize school goals (Muijs & Harris, 2003), providing skills, expertise and assistance via professional development programmes to teachers (Day & Harris, 2003) in the form of involving in action research (Ash & Persall, 2000), peer observation (Little, 2000), and collaboration with others in the school (Lieberman et al., 2000).

Teacher leaders take on leadership roles at different times as the needs arise (Ash & Persall, 2000). Sergiovanni (2001) calls it the "lifeworld" of the school and not focusing only on narrow achievement advocated by the "systemworld". Katzenmeyer and Moller (2001) assert that teacher leadership transforms schools into professional learning communities by getting involved in decision-making within the school. In this way, teacher leaders are involved in developing social, intellectual and human capital, which in other words, teacher leadership is concerned with empowerment and agency, very much affiliated to distributed leadership. Such was the situation for the past two decades making it difficult to provide distinct definition of teacher leadership. This ambiguity is perhaps best clarified with what Katzenmeyer and Moller (2001) said about teacher leadership:

> Teacher leaders lead within and outside of the classroom. A teacher leader is a member and contributor to a community of teacher learners. They are influential in the continued improvement of educational practice and accept responsibilities for achieving the outcomes of their leadership (p. 6).

With the greater understanding of the concept of teacher leadership, it is clear that teacher leadership can be acted individually or collectively, which influence others in the school communities to improve teaching and learning practices (Harris, 2005; Harris & Muijs, 2002; Katzenmeyer & Moller, 2001; York-Barr & Duke, 2004). Such a view of teacher leadership would lead to teachers' individual development, collaboration, and organizational development (Katzenmeyer & Moller, 2001: 287–288). Recent insights into teacher leadership include teachers influencing the process of school transformation and educational change (Harris, 2005; Harris & Jones, 2019; Wener & Campbell, 2017; York-Barr & Duke, 2004).

Despite having established such a consensus, the definition of teacher leadership remains nebulous, mainly due to the influence of context. Cooper et al., (2016: 87) noted that the definition of teacher leadership is "depending on school context" but agree that teacher leadership "occurs within and outside classrooms to influence school-wide instructional practice". It is established that teacher leadership refers to the teachers' influence and agency and they work collectively with the purpose to collaboratively influence policy and practices in schools (Campbell, et al., 2018; Fairman & Mackenzie, 2015).

Teacher leaders are vital in making positive change to the school as they can right the wrong practices, overcome barriers to bring success, and align school practices with the vision of the school (Hilty, 2011; Lai & Cheung, 2014). Teacher leaders even go beyond their schools to influence policy at the district level through their expertise (Hatch et al., 2005). Thus, support from teacher leaders are crucial at all levels (Silins & Mulford, 2004). Schools improve and teachers developed from interpersonal communication and the mentoring and coaching from teacher leaders. As role models, teacher leaders inspire others through their confidence.

Although the benefits of teacher leadership are explicit, there are reports of challenges that teacher leadership faces. Heavy workload, the constraint of time, colleagues' disapprobation, and unsupportive principals (Barth, 2001) are some of the challenges reported that can negatively affect teacher leadership development. Hulpia et al. (2009) added that the concept of teacher leadership, as a form of distributed leadership added another dimension of complexity to the challenge, in terms of communication and management structure. According to Tyson (1993), teacher leadership although is widely supported, in reality, its development met with obstacles due to how schools is organized and operated. This means that certain practices in certain school culture could work against the development of teacher leadership (Barth, 2001). Additionally, there is limited information on how teachers, as adults learn from each other and how interpersonal relationships among them work in schools. Learning to be teacher leaders is not included in initial teacher training nor teacher preparation programmes where young teachers are exposed to ways they could develop teacher leadership and at the same time to potential obstacles in enacting teacher leadership (Hilty, 2011; Nolan & Palazzo, 2011). This would have provided them with information on the complexity of teacher leadership. This is evident when Barth (2001) reported that teacher leaders rarely make up more than 25% of a faculty.

As teacher leadership is not factored into teacher pre-service training programmes, it means that teacher leadership is learned when they are on the job. Teachers learn it as a form of professional development, and it therefore makes sense that teacher leadership be introduced to teachers with a more dynamic andragogic approach (Knowles, 1980). This will provide an environment suited to initiate teachers to the complexity of the socio-emotional interrelationships of the individuals who try to lead in schools as it entails the development of resilience on the one hand and can be emotionally, psychologically, socially, and intellectually draining on the other hand (Beatty, 2000; Goleman, 2006). With this in mind, Terehoff (2002) suggests that adult learning principles be taken into consideration when designing professional development programmes specifically in the area of teacher leadership development.

Four Waves of Teacher Leadership Development

Starting from the 1980s, educational leadership went through different phases that shape teacher leadership (Little, 2000). Silva et al. (2000) traced the development

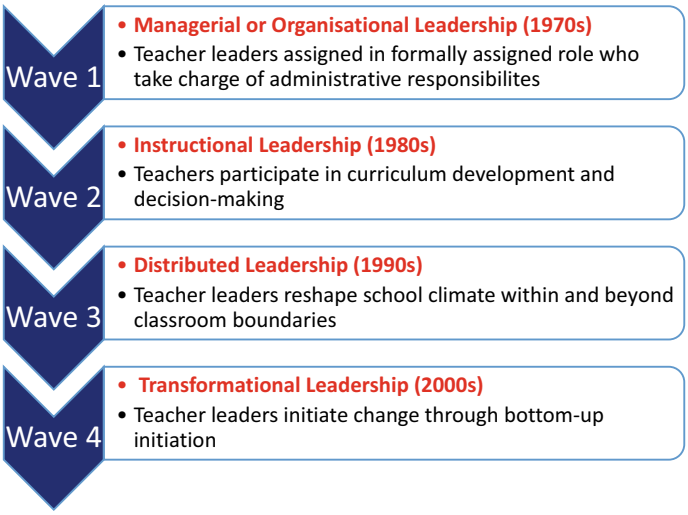

Fig. 46.1 Four waves of teacher leadership development. 2018 Adapted from Ng et al. (: 141)

of teacher leadership in three waves and Pounder (2006) added a fourth wave. Figure 46.1 shows teacher leadership has undergone the four waves of managerial or organizational leadership, instructional leadership, distributed leadership, and transformational leadership experienced through the different generations of leadership development.

In the first wave, teachers were appointed to formal roles as subject heads, heads of department, senior assistants, and grade teachers. These roles were vested with positional power, and the teachers' task was mainly administrative (Reeves & Lowenhaupt, 2016) with an emphasis on maintaining efficiency and effectiveness by meeting targets and deadline (Wasley, 1991), which was the norm of the industrial era. The second wave emerged as a response to the emphasis on instructional leadership where teachers used their instructional expertise by appointing them as curriculum leaders and as mentors to new teachers (Katzenmeyer & Moller, 2001). They actively collaborated in goal setting and in creating an environment conducive to teaching and learning. This was the period, which paved the way for the development of shared instructional leadership in school improvement (Reeves & Lowenhaupt, 2016). The third wave in the 1990s with the advent of distributed leadership, teachers reshaped the school climate informally both within and beyond classroom boundaries. In this wave, instructional improvement was promoted and factored in the collaboration and continuous professional learning of teachers and that schools as "professional learning communities affect student learning, contribute to school improvement, inspire excellence in practice, and empower stakeholders to participate in educational improvement" (Silva et al., 2000: 28). Crowther et al. (2002) expanded the view on teacher leadership during this wave as it "ties school and community together…to achieve whole school success" (p. xvii). In the fourth wave, as the concept of

transformational leadership swept through schools in the late 1990s, teacher leadership was focused on change through bottom up initiation (Pounder, 2006). With this teacher leadership saw a change from direction as emphasized in instructional leadership to influence in transformational leadership (Bush, 2014). Transformational leadership is regarded as a direct factor affecting teacher motivation and school environment in which teachers engage more in continuous professional learning in line with self-interest and autonomy (Leithwood & Jantzi, 2006).,

Teacher Leadership in Relation to Other Leadership Concepts

According to Ketzemeyer and Moller (2001), teacher leadership is closely aligned with instructional, participative, and parallel leadership. Instructional leadership refers to the teachers' practices in teaching and learning to achieve student achievement and building a conducive environment in which teaching and learning can thrive. Participative leadership refers to the decision-making processes of the teachers, which will promote organizational effectiveness. Teachers are involved in making decisions as leadership "flows through the networks of roles that comprise organizations" (Ogawa & Bossert, 1995: 238). Spillane et al., (2001), later aligned this participative leadership to distributed leadership. Distributed leadership links leadership across people in schools that influence the conditions for teaching and learning. Parallel leadership refers to teacher leaders engage in collective action with their principals to build school capacity. Such parallel leadership involves "mutual respect with shared purpose and allows individual expression" (Crowther et al., 2002: 38).

Leadership views change when the concept of leadership is linked to instructional, participative, distributed, and parallel leadership. Leadership views changed from the traditional leadership "great man" theory, which advocated solo leadership with the leader at the apex of a hierarchical organization with formal position of power and authority (Murphy, 2000) to leadership that involves social influence exerted by one or groups of people over other groups of people (Yukl, 1994). Leadership is no longer in the domain of particular roles but exercised by individuals while occupying subordinate positions (Duke, 1994). It implies a different power relationship within the school where the lines between leaders and followers are blurred. It opens up the possibility for all teachers to become leaders at various times and that leadership is a shared and a collective endeavour that involves many rather than a few.

Teacher Leadership and School Improvement

The effects of teacher leadership outweigh that of principal leadership because with teachers taking on more leadership activities, teachers become more effective and

they are empowered to influence student engagement (Leithwood & Jantzi, 1998). Improvement brought by teacher leaders is sustainable when the school encourage and nurture professional learning communities (Holden, 2002). Schools that have strong professional learning communities have teachers who are committed to share learning with a shared sense of purpose, who participate in decision-making and engaged in collaborative work (Hargreaves, 2002). Muijs and Harris (2003) argue that professional learning communities have a strong impact on school and classroom improvement that progress is sustainable as professional skills and capacity is built over time. Such professional learning communities increased knowledge, which comes with improved attitude to teaching (O'Connor & Boles, 1992). Empowering teachers lead to higher teachers' self-esteem, which leads to enhanced work satisfaction, which in turn leads to higher performance (Katzenmeyer & Moller, 2001) and to higher teacher confidence (Lieberman, et al., 2000).

Teacher leadership enhances school effectiveness when there is strong collaboration between teachers (Little, 2000). This has positive effect in transforming schools with teachers feeling less alienated. Crowther et al. (2000) even went as far as to say that teacher leadership leads to improving the life chances of students in disadvantaged high schools, a notion supported by the study on high-poverty urban schools (Johnson et al., 2014).. Instructional leadership, considered as the most effective leadership in school improvement and student achievement (Leithwood, et al., 2006; Robinson et al., 2008) would be more effective if it is a shared responsibility between the teachers and their respective principals (Pellicer et al., 1990). This can be achieved by involving teachers in decision-making, and this is reported to lead to the decrease in absenteeism (Rosenholz, 1989). Involving teachers in decision-making would take into account their opinions, providing them with the autonomy to plan and create staff development opportunities (Donohoo, 2018; Leithwood & Jantzi, 1998). Such collective actions would enhance student achievement and school improvement (Sharratt, 2018).

Sharing leadership responsibilities with teachers and among teachers might slow down implementation of reforms, but this is a small issue when compared to resistance due to non-shared management (Weiss & Cambone, 2000). Studies on school restructuring carried out in the 1990s (Griffin, 1995; Pechman & King, 1993) reported that teacher leadership was inevitable in affecting successful school reform. Strong teacher leadership could mitigate the negative effects in the event of frequent changes in head teachers or principals (Davidson & Taylor, 1999). Greater teacher participation in making decisions that affect the schools will lead to greater ownership and commitment to organizational goals, and they become "more likely to see their decisions are actually implemented" (Weiss et al., 1992: 350). Gronn (2000) summed it up by arguing school improvement will happen when teachers have a stake in leading school development. However, the question remains how exactly is teacher leadership enhanced and developed? In other words, less is known about how teacher leadership develops.

Teacher Leadership and Teacher Development

Learning to lead can be a difficult task and it takes a long time to learn the skills (Muijs, & Harris, 2003). There are challenges to address and preconditions to meet to ensure that teacher leadership operates effectively (Vail & Redick, 1993). Egalitarian values among teachers militate against any teacher presenting oneself as a "leader" (Katzenmeyer & Moller, 2001) and can be ostracized by others (Lieberman et al., 2000). This is especially obvious in teachers assuming leadership role when they do not hold formal position. While teachers readily acknowledge leadership from formally positioned teachers, they are reluctant and hesitant to support assertive behavior of non-formally positioned teachers (Little, 2000).

Schools are notorious for its up-down management structures, and this has proven to be an impediment to teacher leadership development. Such a set up prevents teachers from attaining autonomy, which is an important requisite in teacher leadership development, thus hindering teachers from taking up leadership roles in schools. Management structure in schools, which are bureaucratic and hierarchical, puts emphasis on stability and control, works against the need for flexibility, innovative, and creative atmosphere that teacher leadership requires to flourish. Teachers who wish to be leaders need to be involved in the process of deciding what roles they wish to take on and the school's administration, especially the principal or head teacher needs to provide the support needed. This means that the traditional top-down hierarchical and bureaucratic set-up of the school needs to be replaced by a more devolved and more shared decision-making set-up (Pellicer & Anderson, 1995).

Often the principals play an important role in developing teacher leadership by providing a conducive climate in the school for teachers' continuous professional development (CPD), support the teachers in their activities, and recognize the contribution of teacher leaders. Teachers are more ready to adopt curriculum changes when there are frequent and open interactions between them and the principal. Such "high consensus" school (Rosenholtz, 1989: 207) is characterized by the teachers and the principal sharing a common goal. Such schools will have principals who encourage teacher leadership, and this will free up much of the principals' time to deal with more complex issues in schools (Barth, 2001) and that the influence of teacher leaders on teaching has increased (Little, 1995) due to the opportunities for experimentation and innovation (King et al., 1996).

Collaborative practices among teachers with shared norms are important for teacher leadership development. The most important ingredient in this is trust for without trust the school will fail to develop into a professional learning community, where teachers work as collaborative teams to make an impact on the school. An important task of a teacher leader is to create collaborative cultures in the school to develop common learning in schools where teachers learn in an environment of trust and sharing (Caine & Caine, 2000; Little, 2000). Principals have indirect effect on student achievement through promoting teacher related factors such as developing professional learning communities (Park et al., 2019) and building a learning and innovative climate (Sebastian et al., 2017). Tayag and Ayuyao's (2020) study

on the effect of leadership styles that develop teacher capacity shows that there is positive effect on student achievement The work of Ozdemir et al. (2021) in Turkey showed teacher professional community has positive effect on student achievement through shared responsibility and reflective dialogue. The impact of teacher professional communities on student achievement and school improvement is also seen in studies carried out in Thailand (Hallinger et al., Hallinger, Piyaman, et al., 2017a), the Philippines (Tayag & Ayuyao, 2020) and China (Hou et al., 2019; Liu et al., 2016).

Interpersonal relationships, referring to how teachers build relationships with other teachers and the school management, are crucial for teacher leadership to develop. When there are good relationships based on trust, teacher leaders with informal positions can use influence, which is more potent than authoritative mandates, to influence teachers towards their own development (Katxenmeyer & Moller, 2001). Clemson-Ingram and Fessler (1997) reported on the conflicts between groups of teachers who do and who do not take on leadership roles found that leaders and teachers need to understand the socio-emotional toll of teacher leadership (Beatty, 2000; Goleman, 2006). Overcoming such difficulties would require the individual teachers to possess strong interpersonal relationships with colleagues and a school culture that encourages change and leadership from teachers. Teachers themselves might experience conflicts between their needs for achievement and leadership and their need for affiliation and sense of belonging to the peer group. However, LeBlanc and Skelton (1997) reported that high job satisfaction and strong collaboration could overcome such a problem.

According to Lieberman et al. (2000), teacher leaders need to build various skills such as building trust and rapport with colleagues, able to use data to inform on organizational needs, have the confidence in managing change, able to allocate resources efficiently to achieve common goals, and despite the heavy workload still able to manage their own workload. In addition to these, Snell and Swanson (2000) added that teacher leaders show strong skills in pedagogical and subject knowledge and engaged in reflections on their own practices in their pursuit for continuous improvement.

Developing teacher leadership with the intention towards teacher development, teachers need time for them to learn the skills that they accumulate incrementally. Young teacher leaders learn to plan and discuss issues that matters to them, such as curriculum, school-wide plans, leading on study groups within their own schools, and later learn to collaborate with other schools and institutions of higher learning, and networking with international counterparts. These are crucial for developing teachers to be leaders (Ovando, 1994; Seashore-Louis et al., 1996). Teachers should not be restricted to only the development of subject skills and knowledge, but also on leadership skills, which are required in leading study groups, mentoring of younger teachers, carrying out action research, and collaborating with others (Katzenmeyer & Moller, 2001). An important aspect on the development of teacher leadership is the improvement of teachers' self-confidence to act as leaders in the school. In line with this, Clemson-Ingram and Fessler (1997) and Gehrke (1991) recommended that structured programmes of networking need to be set up to help teacher leaders develop

their leadership potential. Through such networking, new teaching approaches can be disseminated and with a wider participation in conducting action research, the potential of teacher leadership can be enhanced (Darling-Hammond et al., 1995), leading to the increase in teachers' confidence. This will provide an environment for mentoring, observation, peer coaching, and mutual reflection, which are pre-requisites to teacher development. However, Muijs and Harris (2003) argued that although developing teachers as leaders has its rewards such as a sense of collegiality and improved teaching practices, they remain marginal activity in the schools unless there are forms of remuneration to encourage teachers to engage in leadership tasks. This remuneration would provide recognition for their roles and appreciation of their time and effort, and would illicit respect and admiration from other teachers, if not teacher leadership will remain ad hoc activity and not sustainable to school improvement effort. Rewarding accomplished teachers does not necessary have to be financial award. Acknowledging their expertise and contribution and by providing opportunities for growth and influence such as involvement in decision-making are some of the ways (Katzenmeyer & Moller, 2001).

Teacher Leadership and School Culture and Context

The key factor in teacher leadership development is building relationships with colleagues and the principals (Silva et al., 2000). Teacher leadership flourishes in collaborative settings and creating a culture of trust is crucial for this to happen (Little, 2000). In this aspect, the key ingredient is establishing a trusting and collaborative relationship as it is the primary means of exerting influence (Muijs & Harris, 2007). In a culture where trust is absent, there will be no collaboration and teacher leadership will not develop.

Schools are designed as bureaucracies with a hierarchical top-down, and one-direction flow of communication and implementation of mandatory reforms will not only impede teacher leadership development but also teacher development itself (Wynne, 2005). Schools are traditionally structured in the way based on the classical management theory, and it should be replaced with a structure that provides a climate that encourage teacher collaboration, which involves teachers in decision-making. Teacher leaders by using influence can have a profound effect and via collaborative relationships and building healthy school climate, success would be school wide and not only in the classroom (Ryan, 1999). Barth (2001) added that with the involvement of teachers in decision-making, the higher will be the teacher morale, and this led to more teacher commitments to fulfilling school goals.

Principals need to be prepared and developed (Bush, 2011; Ng, 2017), so do teachers need to be prepared and developed for leadership. There are calls for both pre-service and in-service teacher leadership development (Silva et al., 2000) and that principals should also be trained to develop teacher leadership to improve school

capacity (Smylie, 1995). Trainings in the form of continuous professional development is vital for teacher leadership development. Specific skills of teacher leadership such as mentoring, leading on action research, exemplary teaching practices, leading groups and collaborating with others need to be incorporated into professional development programmes (Ketzenmeyer & Moller, 2001).

An inspiring and supportive principal who provides the moral support to teachers to take risks plays an important role in the development of teacher leadership (Muijs & Harris, 2007). Such a principal is also willing to share power, release control (Acker-Hocevar & Touchton, 1999), and share in the responsibility when initiatives fail (Derrington & Angelle, 2013). Such principals respect and trust their teachers and create school conditions that are supportive and conducive for effective and empowering practices, empowering teachers to lead alongside the principal build collegiality and active participation in school improvement programmes. Such schools are known as learning organizations and are characterized by collaboration, risk taking, and a shared mission (Silins & Mulford, 2004). Teachers thrive working in such an environment where there are collegiality, communication, and collaboration resulting in teachers feeling more committed to their job and more loyal to the school (Fennell, 1999). With a healthy work culture of trust, support, and respect where there is shared purpose or goals for the school, it will lead to growth of teacher leadership (Moller et al., 2001).

A positive school culture that favours teacher leadership to develop has a high degree of trust. Trust enables the development of strong relationships among staff members, which facilitate the sharing of knowledge among colleagues, reflecting on instructional work, mentoring of novice teachers, taking risks, nurturing relationships, encouraging professional growth, accepting change and challenging the status quo (Silva et al., 2000; Wynne, 2005).

Successful teacher leaders are self-directed, confident in taking risks, and able to see opportunities where others might not. They are valued for their contribution, and their work is respected by their peers for their professionalism, skills, and knowledge (DiRanna & Loucks-Horsley, 2001). Despite their work with colleagues, teacher leaders demonstrate a focus on student learning (Moller et al., 2001). Teacher leaders carry with them a sense of empowerment that they could bring and make change, a desire for the betterment of the school and the students they teach and are passionate about their knowledge and skills.

Conclusion

Developing teacher leadership is not an easy task. It is related to re-culturing of the school and that requires a fundamental shift in the purposes and practices of the school. Scholars (Bellibaş & Gümüş, 2021; Hallinger et al., 2014; Leithwood & Jantzi, 2006; Liu et al., 2016; Thoonen et al., 2011,) have documented the effects of leadership on teacher development, but these are primarily on learning-centred leadership such as instructional and transformational leadership. There is growing

evidence (Hallinger et al., Hallinger, Liu, et al., 2017; Hallinger, Piyaman, et al., 2017a; Lai et al., 2016; Liu et al., 2016; Piyaman et al., 2017) that links teacher agency to teacher professional development. Therefore, further studies should be conducted to link teacher agency to teacher leadership development. It should go beyond to study teacher leadership development in specific school context taking into account cultural factors such as power distance, short-term orientation, and collectivism that characterizes a hierarchical and bureaucratic system (Shenganan & Hallinger, 2021).

References

Acker-Hocevar, M., & Touchton, D. (1999, April). *A model of power as social relationships: Teacher leaders describe the phenomena of effective agency in practice.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, Quebec, Canada.

Ash, R. L. & Persall, M. (2000). The principal as chief learning officer: Developing teacher leaders. *NASSP Bulletin* (May 2000), 15–22.

Barth, R. S. (2001). Teacher leader. *Phi Delta Kappan, 82*, 443–449.

Beatty, B. (2000). The emotions of educational leadership: Breaking the silence. *International Journal of Leadership in Education: Theory and Practice, 3*(4), 331–357. Retrieved from https://doi.org/10.1080/136031200750035969

Bellibaş, M. Ş. & Gümüş, S., (2021). The effect of learning-centred leadership and teacher trust on teacher professional learning: Evidence from a centralised education system. *Professional Development in Education,* 1–14. Retrieved from https://doi.org/10.1080/19415257.2021.1879234

Boles, K., & Troen, V. (1994). *Teacher leadership in a professional development school*. Paper presented at the Annual Meeting of the American Educational Research Association, NewOrleans, LA. Retrieved from https://files.eric.ed.gov/fulltext/ED375103.pdf

Bush, T. (2011). Succession planning and leadership development for school principals: Comparing English and South African approaches. *Compare: A Journal of Comparative and International Education, 41*(6), 785–800. Retrieved from https://doi.org/10.1080/03057925.2011.595968. https://doi.org/10.1080/03057925.2011.595968

Bush, T. (2014). Instructional and transformational leadership: Alternative and complementary models? *Educational Management Administration and Leadership, 45*(2), 193–195.

Bush, T., Glover, D., Ng, A. Y. M., & Romero, M. J. (2016). Master teachers as teacher leaders: Evidence from Malaysia and the Philippines. *International Studies in Educational Administration, 43*(2), 19–40.

Caine, G. & Caine, R. N. (2000). The learning community as a foundation for developing teacher leaders. *NASSP Bulletin* May 2000, 6–13.

Campbell, C., Lieberman, A., Yashkina, A., Alexander, S., & Rodway. J. (2018). *Teacher learning and leadership program: research report 2017–18.* Ontario Teachers' Federation. Retrieved from https://www.otffeo.on.ca/en/wp-content/uploads/sites/2/2018/11/TLLP-Research-Report-2017-2018.pdf

Clemson-Ingram, R., & Fessler, R. (1997). Innovative programs for teacher leadership. *Action in Teacher Education, 19*(3), 95–10.

Cooper, K. S., Stanulis, R. N., Brondyk, S. K., Hamilton, E. R., Macaluso, M., & Meier, J. A. (2016). The teacher leadership process: Attempting change within embedded systems. *Journal of Educational Change, 17*(1), 85–113.

Cranston, J., & Kusanovich, K. (2015). Learning to lead against the grain dramatizing the emotional toll of teacher leadership. *Issues in Teacher Education 24*(2), 63–78. Retrieved from https://files.eric.ed.gov/fulltext/EJ1090360.pdf

Crowther, F., Hann, L., McMaster, J., & Fergurson, M. (2000). *Leadership for successful school revitalisation: Lessons from recent Australian research.* Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA.

Crowther, F., Ferguson, M., & Hann, L. (2002). *Developing teacher leaders: How teacher leadership enhances school success.* Corwin Press.

Darling-Hammond, L., Bullmaster, M. L., & Cobb, V. L. (1995). Rethinking teacher leadership through professional development schools. *Elementary School Journal, 96*(1), 87–106.

Datnow, A., & Park, V. (2018). *Professional collaboration with purpose: Teacher learning towards equitable and excellent schools*. Routledge.

Davidson & Taylor. (1999). *Examining principal succession and teacher leadership in school restructuring*. Paper presented at the Annual Meeting of the American Educational Research Association, Montreal, Quebec.

Day, C. & Harris, A. (2003). Teacher leadership, reflective practice and school improvement. *International Handbook of Educational Administration*, 724–49. Dordrecht: Kluwer.

Derrington, M. L., & Angelle, P. S. (2013). Teacher leadership and collective efficacy: Connection and links. *International Journal of Teacher Leadership, 4*(1). Retrieved from https://www.researchgate.net/publication/319143931_Teacher_leadership_and_collective_efficacy_Connections_and_links

DiRanna, K., & Loucks-Horsley, S. (2001). *Designing programs for teacher leaders: The case of the California Science Implementation Network*. ERIC Clearinghouse for Science, Mathematics, and Environmental Education. (ERIC Document Reproduction Service No. ED465590).

Donaldson, G. (2015). *Successful futures: Independent review of curriculum and assessment arrangements in wales.* Welsh Government. Retrieved from https://gov.wales/sites/default/files/publications/2018-03/successful-futures.pdf

Donohoo, J. (2018). Collective teacher efficacy research: Productive patterns of behaviour and other positive consequences. *Journal of Educational Change, 19*(3), 323–345.

Duke, D. L. (1994). Drift, detachment, and the need for teacher leadership. In D. R. Walling (Ed.), *Teachers as leaders: Perspectives on the professional development of Teachers,* 255–273. Phi Delta Kappa Educational Foundation.

Fairman, J. C., & Mackenzie, S. V. (2015). How teacher leaders influence others and understand their leadership. *International Journal of Leadership in Education, 18*(1), 61–87.

Fennell, H. A. (1999, April). *Encouraging teacher leadership.* Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.

Gehrke, N. (1991). *Developing teacher leadership skills.* ERIC. Retrieved ED330691, from the World Wide Web: www.askeric.org.

Goleman, D. (2006). *Emotional intelligence* (10th ed.). Bantam Dell.

Griffin, G. A. (1995). Influences of shared decision making on school and classroom activity: Conversations with five teachers. *The Elementary School Journal, 96*(1), 29–45.

Gronn, P. (2000). Distributed properties: A new architecture for leadership. *Educational Management & Administration, 28*(3), 317–338. Retrieved fromhttp://sage.cnpereading.com/paragraph/download/?doi=10.1177/0263211X000283006

Hallinger, P., Lee, M. S., & Ko, J. (2014). Exploring the impact of school principals on teacher professional communities in Hong Kong. *Leadership and Policy in Schools, 13*(3), 229–259. Retrieved from https://doi.org/10.1080/15700763.2014.901396

Hallinger, P., Piyaman, P., & Viseshsiri, P. (2017a). Assessing the effects of learning-centered leadership on teacher professional learning in Thailand. *Teaching and Teacher Education, 67*, 464–476. Retrieved fromhttps://doi.org/10.1016/j.tate.2017.07.008

Hallinger, P., Liu, S., & Piyaman, P. (2017b). Does principal leadership make a difference in teacher professional learning? A comparative study China and Thailand. *Compare: A Journal of Comparative and International Education, 49*(3), 341–357. Retrieved from https://doi.org/10.1080/03057925.2017.1407237

Hargreaves, A. (2002). Professional learning communities and performance training cults: The emerging apartheid of school improvement. In A. Harris, C. Day, M. Hadfield, D. Hopkins, A. Hargreaves, & C. Chapman (Eds.) *Effective leadership for school improvement*. London: Routledge.

Harris, A., & Jones, M. (2019). Teacher leadership and educational change. *School Leadership & Management, 39*(2), 123–126. Retrieved fromhttps://doi.org/10.1080/13632434.2019.1574964. https://www.tandfonline.com/doi/full/10.1080/13632434.2019.1574964

Harris, A. (2005). Teacher leadership: more than just a feel-good Factor? *Leadership and Policy in Schools, 4*(3), 201–219.

Harris, A., Jones, M., & Huffman, J. (2017). *Teachers leading educational reform: The power of professional learning communities.* Routledge.

Harris, A., & Lambert, L. (2003). *Building leadership capacity for school improvement*. Open University Press.

Harris, A., & Muijs, D. (2002). *Teacher leadership: A review of research.* GTC.

Harrison, C., & Killon, J. (2007). Ten roles for teacher leaders. *Educational Leadership, 65*(1), 74–77. Retrieved from https://www.ascd.org/el/articles/ten-roles-for-teacher-leaders

Hatch, T., White, M. E., & Faigenbaum, D. (2005). Expertise, credibility, and influence: How teachers can influence policy, advance research and improve performance. *Teachers College Record, 197*(5), 1004–1035.

Heifitz, R. A., & Laurie, D. L. (1997). The work of leadership. *Harvard Business Review, 7*(1), 124–134.

Hilty, E., & B. (Eds.). (2011). *Teacher leadership: The "new" foundations of teacher education.* Peter Lang.

Holden, G. (2002).*Towards a learning community: The role of teacher-led development in school improvement*. Paper presented at the CELSI British Council Leadership in Learning Conference, London.

Hou, Y., Cui, Y., & Zhang, D. (2019). Impact of instructional leadership on high school student academic achievement in China. *Asia Pacific Education Review, 20*(4), 543–558.

Hulpia, H., Devos, G., & Keer, H. (2009). The influence of distributed leadership on teachers' organizational commitment: A multilevel approach. *Journal of Educational Research, 103*(1), 40–52.

Johnson, S. M., Reinhorn S. K., Charner-Laird, M., Kraft, M. A., Ng, M.,& Papay, J. P. (2014) Ready to lead, but what role will they play? Teachers' experiences in high-poverty urban schools. *Teachers College Record, 116*(10), 1–50. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4391200/

Katzenmeyer, M., & Moller, G. (2001). *Awakening the sleeping giant*. Corwin Press.

King, M. B. et al. (1996). Participatory decision making. In M. B. King (Ed.), *Restructuring for authentic student achievement: The impact of culture and structure in 24 schools.* Jossey-Bass. Retrieved from https://files.eric.ed.gov/fulltext/ED397492.pdf

Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy.* Follett.

Lai, E., & Cheung, D. (2014). Enacting teacher leadership: The role of teachers in bringing about change. *Educational Management Administration &Leadership*, 1–20. Retrieved from https://doi.org/10.1177/1741143214535742. https://journals.sagepub.com/doi/10.1177/1741143214535742

Lai, C., Li, Z., & Gong, Y. (2016). Teacher agency and professional learning in cross-cultural teaching contexts: Accounts of Chinese teachers from international schools in Hong Kong. *Teaching and Teacher Education, 54*, 12–21. Retrieved from https://doi.org/10.1016/j.tate.2015.11.007

LeBlanc, P. R., & Shelton, M. M. (1997). Teacher leadership: The needs of teachers. *Action in Teacher Education, 19*(3), 32–48.
Leithwood, K., & Jantzi, D. (1998). *Distributed leadership and student engagement in school*. Paper presented at the Annual Meeting of the American Educational Research Association, San Diego, CA.
Leithwood, K. A., & Riehl, C. (2003). *What we know about successful school leadership*. Laboratory for Student Success, Temple University. Retrieved from http://olms.cte.jhu.edu/olms2/data/ck/file/What_we_know_about_SchoolLeadership.pdf
Leithwood, K., Day, C., Sammons, P., Harris, A., & Hopkins, D. (2006). *Seven strong claims about successful school leadership*. National College of School Leadership.
Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large scale reform: Effects on students, teachers and their classroom practices. *School Effectiveness and School Improvement, 17*(2), 201–227.
Leithwood, K., Mascall, B., & Strauss, T. (2009). *Distributed leadership according to the evidence*. Routledge.
Leithwood, K., Sun, J., & Schumacker, R. (2020). How school leadership influences student learning: A test of "The four paths model." *Educational Administration Quarterly, 56*(4), 570–599.
Lieberman, A., Saxl, E. R., & Miles, M. B. (2000). Teacher leadership: ideology and practice. In *The Jossey-Bass reader on educational leadership* (pp. 339–345). Jossey-Bass.
Little, J. W. (2000). Assessing the prospects for teacher leadership. In *The Jossey-Bass reader on educational leadership* (pp. 390–419). Jossey-Bass.
Little, J. W. (1995). Contested ground: The basis of teacher leadership in two restructuring high schools. *The Elementary School Journal, 96*(1), 47–63.
Liu, S., Hallinger, P., & Feng, D. (2016). Supporting the professional learning of teachers in China: Does principal leadership make a difference? *Teaching and Teacher Education, 59*, 79–91.
Moller, G., Childs-Bowen, D., & Scrivner, J. (2001). *Teachers of the year speak out: Tapping into teacher leadership*. SouthEastern Regional Vision for Education.
Mourshed, M., Chijioke, C., & Barber, M. (2010). *How the world's most improved school systems keep getting better*. McKinsey & Company. Retrieved from https://www.mckinsey.com/industries/public-and-social-sector/our-insights/how-the-worlds-most-improved-school-systems-keep-getting-better
Muijs, D. & Harris, A. (2003). Teacher leadership—Improvement through empowerment? An overview of the literature. *Educational Management and Administration, 31*(4), 437–448. SAGE Publication. Retrieved from https://www.researchgate.net/publication/249751836_Teacher_Leadership-Improvement_through_EmpowermentAn_Overview_of_the_Literature
Muijs, D., & Harris, A. (2007). Teacher leadership in (In)action: Three case studies of contrasting schools. *Educational Management, Administration and Leadership, 35*(1), 111–134. Retrieved from http://sage.cnpereading.com/paragraph/download/?doi=10.1177/1741143207071387
Muijs, D., & Reynolds, D. (2017). *Effective teaching: Evidence and practice*. Sage.
Murphy, J. (2000). Governing America's schools: The shifting playing field. *Teachers College Record, 102*(1), 57–84.
Netolicky, D. M., Andrews, J., & Paterson, C. (Eds.). (2018). *Flip the system Australia: What matters in education*. Routledge.
Ng, A. Y. M. (2017). School leadership preparation in Malaysia: Aims, content and impact. *Educational Management Administration & Leadership, 45*(6), 1002–1019. Retrieved from http://sage.cnpereading.com/paragraph/download/?doi=10.1177/1741143216662922
Ng, A.Y.M., Subramaniam, G., & Li, L. (2018). Teacher leadership within and outside the classroom. In D. Adams (Ed.), *Mastering theories of educational leadership and management* (pp. 139–156). University of Malaya Press.
Nolan, B., & Palazzolo, L. (2011). New teacher perceptions of the 'teacher leader' movement. *NASSP Bulletin, 95*(4), 302–318. Retrieved from https://doi.org/10.1177/0192636511428372

O'Connor, K., & Boles, K. (1992). *Assessing the needs of teacher leaders in Massachusetts*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Ogawa, R. T., & Bossert, S. T. (1995). Leadership as an organizational quality. *Educational Administration Quarterly, 31*, 224–243.

Orr, M. T., & Orphanos, S. (2011). How preparation impacts school leaders and their school improvement: Comparing exemplary and conventionally prepared principals. *Educational Administration Quarterly, 47*(1), 18–70.

Ovando, M. (1994). *Effects of teacher leadership on their teaching practices*. Paper presented at the Annual Meeting of the University Council of Educational Administration, Philadelphia, PA.

Ozdemir, N., Gun, F., & Yirmibes, A. (2021). Learning-centred leadership and student achievement: Understanding the mediating effect of the teacher professional community and parental involvement. *Educational Management, Administration and Leadership*, 1–21. Retrieved from https://doi.org/10.1177/17411432211034167. SAGE Publication. http://sage.cnpereading.com/paragraph/article/?doi=10.1177/17411432211034167

Park, J.-H., Lee, I. H., & Cooc, N. (2019). The role of school-level mechanisms: How principal support, professional learning communities, collective responsibility, and group-level teacher expectations affect student achievement. *Educational Administration Quarterly, 55*(5), 742–780.

Pechman, E. M., & King, J. A. (1993). *Obstacles to restructuring: experience of six middle- grade schools*. National Center for Restructuring Education, Schools, and Teaching.

Pellicer, L. O., Anderson, L. W., Keefe, J. W., Kelley, E. A., & McCleary, L. (1990). *High school leaders and their schools: Vol. II. Profiles of effectiveness*. National Association of Secondary School Principals.

Pellicer, L. O., & Anderson, L. W. (1995). *A handbook for teacher leaders*. Corwin.

Piyaman, P., Hallinger, P., & Viseshsiri, P. (2017). Addressing the achievement gap: Exploring principal leadership and teacher professional learning in urban and rural primary schools in Thailand. *Journal of Educational Administration, 55*(6), 717–734. Retrieved from https://doi.org/10.1108/JEA-12-2016-0142

Pounder, J. S. (2006). Transformational classroom leadership: the fourth wave of teacher leadership. *Educational Management Administration and Leadership, 34*(4), 533–545. Retrieved from https://www.researchgate.net/publication/249751724_Transformational_Classroom_LeadershipThe_Fourth_Wave_of_Teacher_Leadership

Reeves, T. D., & Lowenhaupt, R. J. (2016). Teachers as leaders: Pre-service teachers' aspirations and motivation. *Teaching and Teacher Education, 57*, 176–187 (Elsevier Ltd.)

Robinson, V., Lloyd, C., & Rowe, K. (2008). The impact of leadership on student outcomes: An analysis of the differential effects of leadership types. *Educational Administration Quarterly, 44*(5), 635–674. Retrieved from https://www.semanticscholar.org/paper/The-Impact-of-Leadership-on-Student-Outcomes%3A-An-of-Robinson-Lloyd/d5757b29e07c4d1b58357be921563cec73f4c2ab

Rosenholz, S. (1989). *Teachers' workplace: the social organisation of schools*. Teachers College Press.

Ryan, S. (1999, April). *Principals and teachers leading together*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Quebec, Canada.

Rycroft-Smith, L., & Dutaut, J. L. (2018). *Flip the system UK: A teachers' manifesto*. Routledge.

Seashore-Louis, K., & Kruse, S. et al. (1996). Putting teachers at the center of reform: Learning schools and professional communities. *Bulletin,* May, 10–21. Retrieved from http://sage.cnpereading.com/paragraph/article/?doi=10.1177/019263659608058003

Sebastian, J., Huang, H., & Allensworth, E. (2017). Examining integrated leadership systems in high schools: Connecting principal and teacher leadership to organizational processes and student outcomes. *School Effectiveness and School Improvement, 28*(3), 463–488.

Sergiovanni, T. J. (2001). *The principalship: A reflective practice perspective*. Allyn and Bacon.

Sharratt, L. (2018). *Clarity: What matters most in learning, teaching, and leading*. Corwin Press.

Shengnan, L., & Hallinger, P. (2021). Unpacking the effects of culture on school leadership and teacher learning in China. *Educational Management Administration & Leadership, 49*(2), 214–233.

Silins, H., & Mulford, B. (2004). Schools as learning organizations—Effects on teacher leadership and student outcomes. *School Effectiveness and School Improvement*, *15*(3–4), 443–466. Retrieved from https://www.tandfonline.com/doi/pdf/10.1080/09243450512331383272?needAccess=true

Silva, D. Y., Gimbert, B., & Nolan, J. (2000). Sliding the doors: Locking and unlocking possibilities for teacher leadership. *Teachers College Record, 102*(4), 779–804.

Smylie, M. A. (1995). New perspectives on teacher leadership. *The Elementary School Journal, 96*(1), 3–7.

Snell, J., & Swanson, J. (2000). *The essential knowledge and skills of teacher leaders.* Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA. Retrieved from https://files.eric.ed.gov/fulltext/ED444958.pdf

Spillane, J. P., Halverson, R., & Diamond, J. B. (2001). Investigating school leadership practice: A distributed perspective. *Educational Researcher, 30*(3), 23–28.

Tayag, J., & Ayuyao, N. (2020). Exploring the relationship between school leadership and teacher professional learning through structural equation modeling. *International Journal of Educational Management, 34*(8), 1237–1251.

Terehoff, I. I. (2002). Elements of adult learning in teacher professional development. *NASSP Bulletin, 86*(632), 65–77.

Thoonen, E. E., et al. (2011). How to improve teaching practices: The role of teacher motivation, organizational factors, and leadership practices. *Educational Administration Quarterly, 47*(3), 496–536. Retrieved from https://doi.org/10.1177/0013161X11400185

Tyson, H. (1993). *Who will teach the children?* Jossey-Bass.

Vail, A., & Redick, S. (1993). Predictors of teacher leadership performance of vocational and nonvocational teachers. *Journal of Vocational Education, 18*(1), 51–76.

Wasley, P. A. (1991). *Teachers who lead: the rhetoric of reform and the realities of practice*. Teachers College Press.

Weiss, C., & Cambone, J. (2000). Principals, shared decision making and school reform. In *The Jossey-Bass reader on educational leadership*. Jossey-Bass.

Weiss, C. H., Cambone, J., & Wyeth, A. (1992). Trouble in paradise: Teacher conflicts in shared decision making. *Educational Administration Quarterly, 28*, 350–367.

Wener, A., & Campbell, T. (2017). The theoretical and empirical basis of teacher leadership: A review of the literature. *Review of Educational Research, 87*(1), 134–171. Retrieved from https://scholarworks.boisestate.edu/cgi/viewcontent.cgi?article=1191&context=cifs_facpubs

Wynne, J. (2005). Teachers as leaders in education reform: Testimonies of transformation. In J. K. Dowdy (Ed.), *Readers of the quilt: essays on being black, female, and literate* (pp. 3–33). Hampton Press.

York-Barr, J., & Duke, K. (2004). What do we know about teacher leadership? Findings from two decades of scholarship. *Review of Educational Research, 74*(3), 255–316.

Yukl, G. (1994). *Leadership in organizations* (3rd ed.). Prentice Hall.

Chapter 47
"Keeping the Knife Sharp": Developing a Sustainable, Grassroots Approach to Professional Development for Cambodian Primary School Teachers

Elizabeth King

Abstract Since the 1990s, many of the policies and programmes developed by the Cambodian Ministry of Education, Youth and Sports, and its development partners have hinged on developing the nation's teachers to deliver quality education. Acknowledging the centrality of teachers to achieve SDG 4 and the importance of developing teachers' skills, knowledge, and capacities throughout their careers, this chapter explores teacher PD in Cambodia. It seeks to gain fresh perspectives and insights into current PD practice through listening to the voices of teachers. Data are drawn primarily from in-depth interviews with groups of Cambodian primary school teachers in three government primary schools in distinct geographical locations. Findings suggest that while the teachers in this study clearly understood and articulated their PD needs, these were not fully met through the current in-service provision delivered through the Thursday Technical Meetings. This study underscores the need to acknowledge teachers as active agents who are best placed to understand their PD needs and the situations in which they teach. It proposes a sustainable, grassroots approach to developing teachers' skills and capacities on an ongoing basis through a reconceptualization of the Thursday Technical Meetings.

Keywords Sustainable · Grassroots approach · Cambodia · Professional development · Collaborative learning

Introduction

Since the publication of the joint ILO/UNESCO report (1966) on *The Status and Rights of Teachers*, teachers have gradually come to the fore in the global education agenda. From the 1990s, the Education for All (EFA) discourse has reaffirmed teachers' centrality, contending that an education system is only as good as its teachers (2014a; UNESCO, 1990, 2000). Accepting teachers significance in achieving SDG 4 (United Nations, 2015), it is recognized that it is well-educated and well-trained

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teachers who are crucial in achieving quality education and enabling countries to fulfil their EFA commitments (Bennell, 2011; Moon, 2013; OECD, 2005; UNESCO, 2014b; 2015). While acknowledging the critical role of initial teacher education (ITE) (Luschei & Chudgar, 2011), increasingly professional development (PD) is recognized as vital to develop the complex "knowledge, skills, and dispositions" (McDiarmid & Clevenger-Bright, 2008, p. 144) teachers need in the increasingly multifaceted world of the school and the classroom (Darling-Hammond et al., 2017).

In the Global South, this need for PD is viewed as critical to raising teacher motivation and developing a professional teaching force (Avalos, 2011; Villegas-Reimers, 2003); as a vehicle to improve student learning (UNESCO, 2014a); a key factor in "ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all" (United Nations, 2015); and in fostering sustainable educational change (Bennell, 2011).Yet, in many of these countries, the absolute necessity of recruiting and training huge numbers of teachers to meet expanding educational demand (UNESCO, 2014b) has led to a focus on pre-service programmes, often at the cost of neglecting in-service provision. Indeed, PD, where it exists in these countries, is generally deemed to be of poor quality (Hardman, et al., 2011). Cambodia is no exception.

This chapter seeks to understand current PD practice in Cambodia. It is framed by the idea, taken from O'Sullivan, (2008, p. 301) that "any efforts to improve the quality of primary education must place what is happening in the classroom centre-stage". Focusing on research conducted in three government primary schools in distinct locations, priority is given to hearing the insights and perspectives of teachers on their experiences of PD. It is my contention that if a sustainable, grassroots approach to developing teachers' skills and capacities on an ongoing basis is to be developed, listening to teachers is key because they are best placed to understand their classroom realities and their PD needs. This chapter begins by providing an overview of PD in Cambodia *and* then pans out to understand what the wider literature views as constituting effective PD. This chapter then outlines the methodology, before presenting the findings and discussing PD practice in the schools in this study. It concludes by proposing a sustainable, grassroots approach to PD.

Professional Development in Cambodia

Cambodian education in its modern form, including pre-service and PD training, developed, albeit slowly, during the colonial period (1863–1953) (Fergusson & Le Masson, 1997; Kheang et al., 2018).PD in this period took the format of short or refresher courses held during summer vacations (Bilodeau, 1955). In schools, principals used Thursdays to "give lectures on teaching, or model lessons" (Bilodeau, 1955, p. 45). Training was typically ad hoc with little follow-up and emphasized upgrading knowledge (Galasso, 1990). Although massive expansion in educational provision at all levels occurred after independence (1953), PD training remained ad hoc, typically taking the form of one-off workshops, with little follow-up. As Ayres

(2000, p. 49) asserts there were few resources and teachers remained "inadequately prepared for the task required of them". Civil war (1970–1975) brought massive disruption and devastation to the education system. Schools in areas controlled by the Khmer Rouge (KR) were forcibly closed, and many in urban centres, controlled by government forces, were severely damaged as a result of rocket attacks by the KR. Throughout this period, pre-service and PD provision were seriously disrupted (Fergusson & Le Masson, 1997).

Arguably, it is the impact of the genocidal regime of the Khmer Rouge (KR) (1975–79) that has had a profound and lasting influence on the education sector. In its explicit policies to destroy anything modern, the KR targeted western education, leading to the destruction of schools, school equipment, books, and the systematic persecution of teachers. It is estimated between 75 and 80% of teachers had either died or fled Cambodia by 1979 (Ayres, 2000; Galasso, 1990; Kheang et al., 2018). When the KR was ousted in 1979, the new government faced "an educational chaos that is arguably unparalleled in modern history"(Ayres, 2000, p. 147). The most pressing issue was establishing schools and recruiting and training teachers. Throughout the 1980s, ministry focus was on developing pre-service training. PD provision took the form of ad hoc, short courses mainly focusing on upgrading teachers' content knowledge.

Since the 1990s, substantial developments have occurred comprising building schools, classrooms, revising curricula, and producing textbooks. Nevertheless, systemic and complex issues including a deeply entrenched patronage system, corruption, ongoing underfunding of education, and a risk-averse mentality act as barriers to effective educational reform (Ayres, 2000; Berkvens et al., 2012; Dawson, 2009). While the issue of teacher shortages has led the Ministry of Education, Youth and Sports (MoEYS) to focus on developing pre-service training, a number of PD programmes have been introduced. In 1995, cluster schools were established to develop teachers' skills through trainings centred on the Thursday Technical Meetings and to foster collaboration among primary schools within a locality. These monthly technical meetings, led by the principal, have become the main means of regular PD provision (Tandon & Fukao, 2015). To provide support to all primary schools, the MoEYS has developed District Training and Monitoring Teams (DTMTs). Following a cascade model, these DTMTs, trained by their provincial counterparts and comprised of district officials and cluster school principals, visit on a biannual basis to support schools enact the MoEYS' Child Friendly Schools (CFS) policy. Their roles and tasks, outlined in a CFS document (MoEYS, 2008), include support to teachers and on assessing how schools are performing benchmarked against each of the CFS dimensions.

Other avenues of PD take the form of ad hoc workshops run by the MoEYS and its development partners. These short courses are also delivered via a cascade model and focus on passing on a particular skill or specific knowledge decided by central MoEYS officials to a small number of, typically, senior teachers who cascade that training to the teachers in their school (King, 2018). NGOs also offer PD to teachers in the locations where they work. For example, Kampuchean Action for Primary Education (KAPE) and Save the Children have developed a range of PD

initiatives. The positive impact on teachers' practice of regular NGO involvement in PD was illustrated in BO et al.'s study (2018). While these PD programmes have been beneficial, a number of studies have shown how the ministry's focus on pre-service provision has adversely affected the development of effective, ongoing PD provision for all teachers (King, 2021; BO et al., 2018; Pich, 2017; Sopheak Song, 2015). Indeed, to meet national goals of creating a "knowledgeable" and "entrepreneurial" workforce able to contribute to the nation's socio-economic goals (MoEYS, 2019) and its EFA commitments hinges on effective pre- *and* PD provision.

Literature Review

The wider literature views PD as central to developing effective teachers able to improve and add value to student learning (Bennell, 2011; Darling-Hammond et al., 2017). It is vital in helping to increase retention rates among teachers (Borman & Dowling, 2008) and is seen as leading to school improvement and developing effective educational systems (Darling-Hammond et al., 2017; UNESCO, 2014a).

In rapidly changing societies, the need for teachers to be continually learning is essential, particularly with the impetus for countries to become knowledge based to compete in an increasingly interconnected and globalized world (Boeskens et al., 2020). This complexity is seen in the wider roles teachers are expected to fulfil. Teachers are to be competent users of information technologies, especially so with the realities of the COVID pandemic; capable of utilizing a range of assessments; skilled in assessing the learning needs of all students as a result of more inclusive policies (Darling-Hammond & Lieberman, 2012); and effective communicators with the wider community (Bautista & Ortega-Ruiz, 2015). These and other competencies are themselves complex and, therefore, need to be developed and refined throughout a teachers' career (Avalos, 2011; Joyce & Calhoun, 2010).

How PD is conceptualized has moved from a narrow consideration of learning-specific, often prescribed, knowledge and skills to the notion of growth in learning (Mockler & Sachs, 2011)that builds upon pre-service and induction programmes to span the whole career of a teacher (McDiarmid & Clevenger-Bright, 2008). This idea of a continuum of learning that provides ongoing opportunities for teachers to be growing and developing their skills, dispositions, and knowledge is seen as vital (Joyce & Calhoun, 2010; McDiarmid & Clevenger-Bright, 2008).

This expanded understanding has, at least in the Global North where most research is undertaken, formed around several elements seen as constituting a rubric for effective PD. Foremost is that training is based on adult learning principles (Knowles et al., 2011) that are transformative in nature empowering teachers to transform their own learning and that of their students (Moore, 2004). Moreover, training is school based (Guskey & Yoon, 2009); considers the professional learning needs of individual teachers (Darling-Hammond et al., 2017); is characterized as collaborative, participatory, and reflective; and involves ongoing follow-up (Bautista & Ortega-Ruiz, 2015; Fiszer, 2004; Larrivee, 2008; Mockler & Sachs, 2011). As Avalos (2011, p. 10)

argues, such training should be "about teachers learning, learning how to learn, and transforming their knowledge into practice for the benefit of their students' growth".

A plethora of PD models, with an array of terminology, has been developed over time. INSET, in-service training, professional development (PD), teacher development, and continuing (or continuous) professional development (CPD) are not simply a case of semantics as the activities included are diverse. Training may be nationwide, providing all teachers with information on a new policy or curriculum; may cover training of specific groups of teachers in a particular subject; focus on the particular needs of a school; or refer to the individual learning that a teacher undertakes (Fiszer, 2004; Joyce & Calhoun, 2010; Villegas-Reimers, 2003). It may occur in the school, at a teacher training college or university, at teacher centres, or at home via the Internet for distance courses. It may take the form of workshops, seminars, self-directed study, action research, coaching, collegial development such as lesson study or cascade training (Fiszer, 2004; Joyce & Calhoun, 2010; Villegas-Reimers, 2003).

Transformative Learning

The underlying assumptions about teachers and the nature of teaching are acknowledged as determining the effectiveness of PD programmes. If teachers are seen as technicians or managers and teaching as technocratic, a deficit model of training centred on the notion of transmission is predominant (Fiszer, 2004; Kennedy, 2005; Sachs, 2011). Transmission models view teachers as passive participants, lacking certain skills that require training in core competencies, defined centrally, within a framework of circumscribed teacher standards and an audit culture (Sachs, 2011). This view is pervasive among some donor agencies in the Global South who see teachers as conservative and resistant to change leading to teacher-proof prescriptive policies and training programmes that limit the active participation of teachers (Kim & Rouse, 2011; Klees, 2012). In this model, training typically takes the form of standardized lectures or workshops delivered by government trainers or external consultants at central locations. These are critiqued as prescriptive, with little connectivity to teachers' classroom experience, fail to consider teachers' PD needs, and offer few opportunities for feedback (Fiszer, 2004).

In contrast, where teachers are seen as professionals and teaching as a complex activity, a transformative model of teacher PD reflecting that complexity is prevalent (Sachs, 2011). This view sees teachers as active participants empowered to engage in improving the quality of education using their professional and personal knowledge (Babione, 2015). Drawing upon adult learning principles (Knowles et al., 2011), a transformative model emphasizes the importance of teachers bringing into the PD process what they have learnt from their teaching experiences (Moore, 2004). It recognizes that enabling teachers to make connections between their experiences and current knowledge and new skills and new knowledge empowers them to transform their learning and that of their students (Avalos, 2011; Sachs, 2011). In Tanzania,

Hardman et al., (2015, p. 618), found that where teachers were able "to explore their own beliefs and classroom practices and to explore alternative pedagogic approaches" resulted in lasting changes in classroom practice. This has been shown to be the case even where workshops, often decried as prescriptive and ineffective, have been used if they have been based on transformative principles (Guskey & Yoon, 2009).

School-Based

While acknowledging a place for distance learning, residency programmes, and teacher centres, especially when teachers work in remote regions, it is the school that is seen as the most effective place for the delivery of PD (Fiszer, 2004; Joyce & Calhoun, 2010). School-based models may focus on an individual school, or a group of schools within a locality for example the cluster school model used in Cambodia, or the Resource Centre model used in many African nations.

For PD to lead to a revitalization in teacher learning, it must be embedded in the professional lives of teachers and in their working realities (Mockler & Sachs, 2011). Situating PD in actual classroom scenarios relevant to teachers' working situations is key to enabling theory–practice linkages (Darling-Hammond et al., 2017; Guskey & Yoon, 2009). Moreover, grounding teacher learning within the school and particularly the classroom enables teachers to be actively engaged in inquiry learning in authentic situations empowering them to reflect on that learning and, importantly, critically evaluate it (Mockler & Sachs, 2011).

Studies undertaken in the Global South have shown that keeping teachers in their working environment is key in enabling them to relate what is learnt to their classroom experience (Bennell, 2011). O'Sullivan (2008), in her study on teacher learning in Namibia, found that teachers were more likely to implement new practices if they had seen them used effectively in similar classroom situations. In Tanzania, Hardman et al. (2015) found that school-based PD significantly contributed to improvement in teacher professionalism and classroom practice, especially when linked to coaching and follow-up by experienced colleagues. Likewise, Owen and Wong (2021), in Timor-Leste, found that developments in teachers' skills and classroom practice occurred where school-based PD was accompanied by mentoring and follow-up by school leaders who had also undergone capacity building.

Individualized Learning

Acknowledging that teachers are individuals with their own learning preferences and PD needs is fundamental to transform teacher learning (Mockler & Sachs, 2011). Recognizing that the learning needs of teachers are different throughout their careers is vital in engaging teachers in professional learning (Fiszer, 2004). Richter et al. (2011) show how the PD needs of teachers change over the course of their professional

lives. Interestingly, their study found that experienced teachers were less likely to participate in generalized training programmes they perceive as holding little in the way of new learning. What this underscores is the necessity of tailoring training programmes to be supportive of individual teacher's PD needs at the various stages of their careers (Fiszer, 2004).

Some studies conducted in the Global South show the importance of taking teachers' views and professional development needs into account in PD programmes (O'Sullivan, 2008; Villegas-Reimers, 2003). O'Sullivan (2008), in her research in Namibia, contended that for professional learning to be internalized and enacted in classrooms tailoring training to meet the specific school and classroom situations of particular groups of teachers is essential.

Collaborative Learning

The idea of collaboration, undergirded by mutual trust, is recognized as enabling teachers to reflect on their own practice as well as wider schooling issues and is an important element in the change equation (Mockler & Sachs, 2011). Collaborative approaches including peer coaching (Gutierez & Kim, 2018), inquiry-based practice/research (Babione, 2015), lesson study (Stigler & Hiebert, 1999), and professional learning communities (PLCs) (Stoll & Louis, 2007) have all been shown to be effective in developing teachers' skills.

Two approaches based on the principles of collegiality are lesson study and PLCs. Lesson study (Stigler & Hiebert, 1999), originally developed in Japan, is a peer-learning approach that enables teachers to collaborate in designing lessons and then deliver them to colleagues for feedback, thereby empowering teachers to learn from one another. This approach of studying teaching and learning activities collaboratively and continually has been shown to improve classroom teaching in many situations (Villegas-Reimers, 2003). In Indonesia, Suratno and Iskandar (2010) found this approach to PD increased teacher competencies and led to mutual learning communities within schools. Kim et al. (2019), in their study in Cambodia, showed how teachers' capacity was developed and student learning outcomes were improved as a direct result of this approach. Similarly, collaborative learning that grows from, and builds upon, the value of the individual teacher's work and practice is central to effective PLCs (Stoll & Louis, 2007). Hairon & Dimmock (2012), in research undertaken in Singapore, demonstrate how the cultural environment in which PLCs are introduced is key in determining its effectiveness, while Somprach et al.'s (2017) research undertaken in Thailand highlighted the significant role of principals in effective PLCs. Significantly, Saito et al. (2008), in their study in Vietnam, found that without collegiality and mutual trust, it was virtually impossible to implement innovative pedagogical practices in the classroom.

Reflective Practice

Another element recognized as being a characteristic of effective PD is the importance placed on teachers' critical reflection in and on their practice (Schön, 1987). Freire (2005) saw critical reflection as an important interplay between theory and practice and as such an effective way of teachers being continually trained. It is contended, reflection "encourages teachers … to evaluate what was learned, by whom, and how more effective learning might take place in the future" (Moore, 2004, p. 101).

Reflection is seen as a process, most effectively carried out in a supportive group within the school, with teachers moving from "surface" to "pedagogical" reflection and then to becoming critical reflective practitioners (Larrivee, 2008). This reflective practice enables teachers "to deal more consciously with the inevitable dilemmas and trade-offs involved in everyday decisions that affect the lives of students" (Larrivee, 2008, p. 88). Moreover, critical reflection enables teachers to critique the discourses and underlying assumptions within which teaching and learning are framed and is, therefore, vital to improve and help change teacher practice (Babione, 2015; Freire, 2005; Mockler & Sachs, 2011). Reflective practice, common in ITE and PD programmes in the Global North (Darling-Hammond et al., 2017; Moore, 2004), has been shown to be effective in the Global South (O'Sullivan, 2002; Suratno & Iskandar, 2010) if adapted to accommodate what teachers were able to do and the particular cultural situation.

Methodology

Data for this chapter were drawn from research conducted in three large, government primary schools situated in three geographically distinct locations reflective of the places where teachers work: a populous urban site, a rural, agrarian-based province, and a remote, poor region. Each of the schools was large with between 900 and 1200 students, and 27–39 teachers, taught the full primary grades (1 to 6), and operated a double-shift system, comparable to similar schools nationwide.

The sites were selected to see if regional differences affected teachers' PD experiences (Yin, 2009). All interviews were conducted in their local settings to enable in-depth and detailed understanding of issues surrounding teacher PD (Creswell, 2013). To gain fresh perspectives and insights into the issue of PD practice teachers' voices, often overlooked in research, was prioritized. Across the sites, 29 semi-structured interviews were undertaken with teachers and principals. Most teachers had taught between 10 and 15 years, although some were nearing retirement, others were newly qualified, and some held positions of responsibility. More females than males were interviewed, reflecting the gender bias at primary level. An anonymous survey of all 104 teachers at the schools was conducted to cross-check data collected through teacher interviews.

To gain broader perspective on issues concerning PD, semi-structured interviews were conducted with teacher education advisors working in each location. Of different nationalities: Western, Asian, and Cambodian, they represented a range of agencies: multilateral (2), bilateral (1), Non-Governmental Organisation (NGO) (3), and non-governmental professional association (1). Semi-structured interviews were also undertaken with MoEYS' personnel working at the national, provincial, and district levels in each location. These voices offered differing perspectives on the issue of teacher PD. A documentary analysis of MoEYS' documents and relevant grey literature, available in the public domain, were reviewed.

The same data collecting tools were used, and a cross-case comparison was undertaken to investigate commonalities and patterns across sites (Yin, 2009). Data sources were triangulated and cross-referenced to minimize validity threats (Creswell, 2013). Interviews were conducted in either Khmer or English according to interviewee preference. The researcher is a foreign national who has lived in Cambodia for many years, including working as a teacher–educator in Cambodian primary schools and speaks fluent Khmer. Informed consent was sought from participants. All information was explained verbally face to face with individual participants as the most culturally appropriate way to clarify the nature of the research; to do otherwise would be extremely impolite and culturally inappropriate. The research was conducted under Ethics Clearance No. 1238047.

Findings and Discussion

In the schools in this study, PD for all teachers centred on the monthly school-based, Thursday Technical Meetings. Additional training took place through workshops conducted by the MoEYS and its development partners. Further training was conducted in some areas by NGOs.

Thursday Technical Meetings

At the schools in this study, the Thursday Technical Meetings occurred monthly; the first part was attended by all staff, followed by separate grade group meetings. Principals led the whole staff meetings, during which they might provide some form of pedagogic training. This training, typically, only occurred if they or a senior teacher had attended a ministry workshop and they would use this time to "provide training" to staff (Principal-A). In School-C, it was "the vice principal who conducts this training" (Teacher-C7). It was only at School-B that such training had recently occurred. In the previous month's meeting, Principal-B explained they provided training from a workshop they had attended on reading initiatives. One teacher found this to be very "helpful" (Teacher-B3); however, another shared how the emphasis was on "talking about teaching techniques" and was "not really useful" (Teacher-B8).

Interestingly, Principal-B equated their role "as trainer" to providing "guidance to remedy problems" raised by teachers. This focus on "asking questions of the principal to ensure I understand what I should do" (Teacher-A8) was common among teachers at each school. None of the teachers spoke about being given opportunity to practise what had been discussed. As Teacher-C8 perceptively remarked: "there are things that you have to see to understand".

It appeared, however, that most of the whole staff meetings were merely a conduit for the principal to pass on "information" from the central ministry or raise "issues to discuss" with staff (Principal-B). Teacher-C7 explained that "we usually talk about school policy", while Teacher-A3 explained how following a ministry directive "the principal taught us about issues affecting newly qualified teachers". Most teachers shared how in this part of the meeting they "listened" and "asked" clarifying questions. As Teacher-B9 stated, "mostly we just listen to the principal and follow instructions they give us or pass onto us from the ministry".

In the latter part of the Thursday Technical Meeting, teachers gathered in their grade groups, led by the grade leader whose role was to provide the group "with the new teaching plan for the next month" (Principal-A). Principal-B further explained how these meetings were places where teachers:

> … can help each other and talk about pedagogy … raise an issue regarding weak or naughty students to discuss and try to find a solution. Typically, teachers raise an issue for discussion from a lesson they do not understand and ask for support and help from those in the grade, particularly, the grade leader.

As Teacher-C5 explained "the grade teacher will help and explain things we do not understand". Teachers across the sites spoke warmly of these meetings. Teacher-B4 stated how they found it helpful in overcoming issues "in pedagogy and classroom management". Others spoke about these meetings being places to share "ideas with other teachers … including problems we have with particular students" (Teacher-C4); and "discuss any problems about teaching" (Teacher-A7). They were viewed as times "to encourage each other" (Teacher-B7) and "ask for guidance and input so that I am able to teach my students effectively" (Teacher-B8). Yet, while helpful and valued, the focus of these meetings was on planning rather than on professional development. As Teacher-A1 explained "we discuss what we will teach in the following month. We look at the student books and choose what we will teach. We then put this into our next month's teaching schedule".

The grade leaders in this study were all experienced teachers. They were approachable as a teacher explained, "if the grade leader asks us to do something we don't think will work with our students, we can propose a new approach. They generally reconsider their point and change" (Teacher-B5). The grade leaders were often candid about their need for further training as the following statement shows, "even though I have been teaching for a long time, and attended some training programmes, I need more training to be able to teach well" (Teacher-C2). Indeed, even for grade leaders there was little further training available and that mainly occurred through occasional ministry run workshops.

Noticeable from this study was that "the content of PD training comes from the provincial ministry" (Principal-C) rather than decided by the school. Essentially, training was uniform and appeared not to attend to their school and classroom situations. Yet, it is connectivity to classroom realities that is seen as key to developing teachers' practice (Darling-Hammond et al., 2017; Hardman, et al., 2015; O'Sullivan, 2008). This uniformity did not address the different PD needs of individual teachers, some of whom were newly qualified while others were highly experienced. These factors, common to all countries (Richter, et al., 2011), were exacerbated in Cambodia (BO et al., 2018; Pich, 2017). Many teachers in the 40+ age group openly shared how their education had been severely disrupted as a result of upheavals in the 1970s. Many held a grade 9 qualification, although others shared how they had subsequently completed their grade 12. In contrast, younger teachers held a grade 12 certificate, and four held bachelor's degrees. Regardless of age, substantial numbers spoke about needing to "expand subject knowledge" especially in science and social studies. "In Social Studies I, and many teachers, do not have specific knowledge and skills to teach this well". (Teacher-A8). Another stated: "In science, my knowledge is weak" (Teacher-B8). Others spoke about their need "to learn new things to improve my knowledge" (Teacher-A5). An experienced teacher frankly shared how "I really need to increase my knowledge…I want to gain knowledge…to teach my students well" (Teacher-C1).

Similarly, teachers were acutely aware of gaps in their pedagogical skills. One recognized that their "pre-service training was not enough…What I learnt at college has changed over time" (Teacher-C3). While younger teachers had completed 2 years of pedagogic training, many who were 40+ had received at most 1 year of pedagogical training. Teacher-B3, openly spoke about their ad hoc training, consisting of a "three-month course, a fifteen-day course, and a two-month course over a period of a few years". Teacher-A7 shared how they began teaching in 1981 and attended "many short training courses…that together amount to 1 year of training". Many identified "improving classroom management skills" (Teacher-B5), "developing administrative skills" (Teacher-B1), "conducting group work" (Teacher-C3), "training on asking open questions" (Teacher-C5), "lesson planning", and "making lesson materials" (Teacher-A1). Indeed, across the sites many shared how they lacked basic teaching materials. Teacher-C2 summed up many teacher comments, saying "we have only theory, but we do not have materials and it can make it hard for our students to learn effectively". Regardless of age, most teachers spoke of wanting to "understand and incorporate new methodologies" (Teacher-A6). In the words of Teacher-B3: "If we don't have training then we can't learn, and it is like being blind".

Follow-Up

While training is absolutely necessary, ongoing support and follow-up are critical to enable teachers to enact what they have learnt (Fiszer, 2004; Joyce & Calhoun, 2010).

As a long-term advisor explained: "teachers need on-the-job support and someone to give them the confidence that they can implement" new practices (Advisor-C).

Responsibility for regular follow-up after training lies with principals, who an official described as "the permanent monitor to check upon the teaching and learning in the school" (MO-B). A senior teacher reiterated this by explaining that it was the principal who "is there to provide help and feedback to support staff" (Teacher-B4). Interestingly, Principal-C while acknowledging the importance of "follow-up for teaching and learning" interpreted their role as "inspecting teaching to see if there is anything our teachers lack" rather than building and developing existing skills.

Principals in this study did visit classes to observe teaching. Some teachers shared how their principal and senior teachers were supportive, approachable, and ready to offer guidance. Teacher-A3 shared how they were "really helpful in areas that I did not understand clearly". The overriding impression, however, was that while support and follow-up were available, they were insufficient and inadequate. One frankly stated that, in their opinion, those who were charged with providing support in their school "lacked the skills to effectively help us because they also need to receive further training" (Teacher-C2). Another teacher bluntly stated: "I did receive support, but it is not enough. But [this person] does not have enough skill and ability to really help me" (Teacher-A1).

External Training

While the Thursday Technical Meetings were the primary locus of PD for teachers in this study, training provided by the ministry, their development partners, and NGOs offered other avenues of professional learning.

An official explained, "there are many short courses and workshops arranged by the ministry and its development partners to inform teachers about new developments in education" (MO-E). However, a senior long-term advisor explained that often "only one teacher from a school attends a workshop" (Advisor-C). Similarly, a grade leader shared, in their experience, it was "usually only the principal, the deputy and a grade leader" who were invited to attend such trainings (Teacher-B8).

Providing further insight, a principal explained how the central ministry "asks the Provincial Office of Education to select some schools and in these a few staff are selected to attend the training" (Principal-A).This process was reiterated by an official who explained how "*some* partner agencies work in *some* schools in *some* districts and invite teachers to attend a workshop; but not all teachers attend. This is done in conjunction with the provincial ministry of education" (MO-H *emphasis added*). A senior teacher remarked how they had "not attended any ministry workshops" that year (Teacher-A7); whether that was because their school had not been selected to send teachers or training in that locality was scheduled for later in the year was unclear. Yet, many teachers across the sites echoed that they had not attended any workshops within the past 2 years, while Teachers-A1 and B9 explained they had never attended ministry workshops even though they had taught for 15+ years.

Others stated how financial constraints including "insufficient per diem" (Teacher-C8), hindered attendance at workshops, explaining that "generally, only teachers from areas close to the training attend" (Teacher-B3).

What appeared to characterize these trainings was their ad hoc nature and the limited number of those asked to attend. This focus on training only a few senior teachers makes two major assumptions. The first is that the content of training will be understood in exactly the same way by all participants; the second is that they will accurately pass on what they have learnt to their colleagues who will then enact new practices in their classrooms. Criticisms levelled against this form of training focus on how information becomes "watered down" as it trickles from the central ministry to the school (Advisor-A). Moreover, this approach often results in the content of training not being implemented in classrooms (Hayes, 2000) and fails to effectively develop the skills, knowledge, and competencies of all teachers (Dichaba & Mokhele, 2012).

In some provinces where these schools were situated, several NGOs conducted PD training. In location A, an NGO was "training on non-violence in schools" (MO-A), but this only took place in specific areas while another NGO provided "training in English language pronunciation for teachers" (Principal-A) at the teacher training centre. However, Principal-B shared that "our school does not have any organisations helping us with training".

Interestingly, location C had several active NGOs providing support to primary schools in the province. An official commented how these NGOs "help to develop the quality of teaching and learning in all subjects" (MO-D). They described how one NGO organized trainings on "developing school libraries and library lessons" and another "NGO gives training to all primary schools in the province" explaining "in one year they focus on one geographical area and in another a different area" (MO-D). Another official described how local NGOs funded "a series of workshops" delivered by trainers from the Primary Teacher Training Centre "focusing on training teachers to produce teaching materials …Afterwards teachers were given materials to use" (MO-I).

Noticeable from interviews with teachers from School-C was how they all spoke enthusiastically about PD received from NGOs. For example, Teacher-C5 explained how their school had several blind students and an NGO recently "provided training on sign language" that they found to be "practically helpful and deepened their understanding". Teacher-C2 shared about a "very helpful and useful" workshop "run by [named] NGO on how to calculate using probability", a topic they had lacked confidence in teaching prior to the training. WhileTeacher-C3 shared:

> we were invited to prepare lesson plans for Khmer literature. The new textbooks given by the ministry focus on student-centred learning but we have difficulties in teaching that so they [NGO] train us on how to prepare lesson plans that incorporate this teaching technique.

What characterized the PD received by teachers at School-C was that it was school based and related to what they were teaching. As Teacher-C2 shared "these training programmes cover teaching techniques which enable us to understand more about teaching". Moreover, a trainer working with one of these NGOs providing

ongoing PD described how they "work closely with teachers … to identify the learning needs of staff. We ask what they need to help them improve their teaching". Further explaining that training "occurs on a monthly basis…is activity driven…We follow up regularly" (Advisor-E).

Conclusion—Developing a Sustainable, Grassroots Approach to PD for Cambodian Primary School Teachers

Findings from this small-scale study suggest that while teachers clearly identified areas where they needed further PD, the current format of training did not, generally, attend to the PD needs either of individual teachers or the specific school situations. The need for effective PD is acknowledged as an official emphasized: "we need to enhance the capacity of our teachers in their ability to teach"(MO-D); however, as Advisor-C asserted, "simply providing more training is not the answer".

What is a possible way forward? O'Sullivan (2008, p. 302), calls for a "common-sense approach" to PD that focuses "on what works rather than dwelling on what does not work". Further contending that "common-sense knowledge tends to be grounded in the field and to emerge from experience" (p.306). This suggests that basing PD at the school, teachers are able to relate what they are learning to their classroom situations and are better able to embed these in their classroom practice. Moreover, it signifies by focusing on what works, on what teachers know and are able to do, and is a solid foundation upon which to build and further develop teachers' pedagogical skills.

Teachers in this study fully understood the situations in which they taught. They recognized their pedagogical strengths and weaknesses often being candid about areas they needed further training to teach effectively. This suggests that teachers, and not the central ministry, are best placed to determine the particular skills and knowledge they need to develop to enhance their classroom practice. Teachers further recognized the necessity of ongoing school-based support to consolidate their learning.

Drawing upon these ideas, my suggestion is that the Thursday Technical Meetings, a regular feature of school life, offer an effective site for school-based, ongoing PD for all teachers. It is contended that these meetings with their long history in Cambodia present not only an indigenous, but a sustainable and low-cost vehicle of ongoing PD (Sopheak Song, 2015; Khieng Sothy et al., 2015). School-based training has been shown to be beneficial because it enables the specific learning needs of teachers in a particular school context to be accommodated (Opfer & Pedder, 2011).Further, it is seen as being the most effective way to develop teachers' pedagogic skills especially in countries like Cambodia (BO et al. 2018; Hardman, et al., 2015; O'Sullivan, 2008; Owen & Wong, 2021).

To be the locus of effective PD, the Thursday Technical Meetings, I suggest, need to be transformed into collaborative and participatory spaces hallmarked by adult

learning principles where the *primary focus* is on professional learning that empowers teachers to develop their pedagogical skills and grow in confidence and competence in using these skills. While allocating time for discussing and disseminating ministry directives is absolutely necessary, the focus of these meetings must be on PD where teachers' pedagogical needs and the school context take centre stage.

This calls for flexibility in what these Thursday Technical Meetings would look like for individual schools. They may include the principal or senior teachers feeding back from a recent workshop; however, for this to enable teachers to develop new skills, it would require those who attended the workshops to demonstrate what they had learnt, rather than only talking about it. Enabling teachers to observe new practices helps them to see what is required of them. Moreover, teachers would need time and a safe space to practice these new skills with colleagues, allowing them to grow in confidence in introducing new pedagogical practices.

Data from this study showed teachers' PD needs were not uniform. Recognizing the spectrum of teachers' PD needs in a particular school is important. As Principal-B observed, "we are all individuals and have different levels of understanding as teachers". These meetings may focus on further training for principals and senior teachers, charged with providing follow-up, to equip them with the skills required to effectively coach their staff. They may also target training for specific groups of teachers, for example, new teachers, or for those teaching a particular aspect of the curriculum. Tailoring training to particular PD needs is imperative if *all* teachers are to develop their skills.

Space for tailored training exists within current Thursday Technical Meetings where grade groups gather to collaboratively plan lessons for the forthcoming month. These planning times have the potential to be transformed into the locus of effective professional learning. A possible model to follow is lesson study that offers a collaborative and safe place for teacher learning and one in which teachers are able to reflect on their practice. Teachers design lessons, pertinent to what they will teach in the coming month, and practice these with their colleagues who provide feedback. Used in some schools in Cambodia (BO et al., 2018) although mainly in secondary maths and science training, it could easily be adapted into primary schools "as a way to improve teaching" (Advisor-B).

Using external experts is seen as an important factor in developing professional learning (Guskey & Yoon, 2009). Inviting NGOs to deliver participatory PD during the Thursday Technical Meetings would provide another avenue to develop teachers' pedagogic practices. Teachers in Location-C spoke appreciatively of NGO training. In Cambodia, KAPE's programmes and Maryknoll's work in primary schools are examples of effective NGO involvement in working collaboratively *with* teachers to develop their teaching practices.

This reconceptualization of the Thursday Technical Meetings offers a sustainable, grassroots, "common-sense" approach to developing teachers' skills and capacities on an ongoing basis. In the words of Principal-B: "To stop it from becoming blunt a knife needs to be sharpened regularly, we need to be continually learning to remain good educators".

References

Avalos, B. (2011). Teacher professional development in Teaching and Teacher Education over ten years. *Teaching and Teacher Education, 27*, 10–20.

Ayres, D. (2000). *Anatonomy of a crisis: Education, development and the state in Cambodia 1953–1998.* University of Hawai'i Press.

Babione, C. (2015). *Practitioner teacher inquiry and research.* Jossey-Bass.

Bautista, A., & Ortega-Ruiz, R. (2015). Teacher professional development: International perspectives and approaches. *Psychology, Society and Education, 7*(3), 240–251.

Bennell, P. (2011). *A UPE 2015 emergency programme for primary teachers: Paper commissioned for the EFA global monitoring report 2012.* UNESCO.

Berkvens, J., Kalyanpur, M., Kuiper, W., & Van den Akker, J. (2012). Improving adult learning and professional development in a post-conflict area: The case of Cambodia. *International Journal of Educational Development, 32*, 241–251.

Bilodeau, C. (1955). Compulsory education in Cambodia. In C. Bilodeau, S. Pathammavong, & Le Quang Hong, *Compulsory education in Cambodia, Laos and Viet-Nam* (pp. 9–67). UNESCO.

BO, Ch.K., Chhinh, N., Seak, R., Sin, N., & Souk, S. (2018). *Teacher professional development in Cambodia: four models of professional development of teacher training centers, normal schools, school supported by NGOs and new generation schools.* ERC.

Boeskens, L., Nusche, D., & Yurita, M. (2020). *Policies to support teachers' continuing professional learning: A conceptual framework and mapping of OECD data. OECD Education Working Papers No.235.* OECD.

Borman, G., & Dowling, N. (2008). Teacher attrition and retention: A meta-analysis and narrative review of research. *Review of Educational Research, 78*(3), 367–409.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). SAGE.

Darling-Hammond, L., & Lieberman, A. (2012). *Teacher education around the world: Changing policies and practices.* Routledge.

Darling-Hammond, L., Hyler, M., & Gardner, M. (2017). Effective teacher professional development. *Learning Policy Institute.*

Dawson, W. (2009). The tricks of the teacher: shadow education and corruption in Cambodia. In P. Heyneman (Ed.), *Buying your way into heaven: Education and corruption in international perspective* (Vol. 15 Global Perspectives on Higher Education, pp. 51–73). Sense Publishers.

Dichaba, M. M., & Mokhele, M. L. (2012). Does the cascade model work for teacher training? Analysis of teachers' experiences. *International Journal of Educational Sciences, 4*(3), 249–254.

Fergusson, L., & Le Masson, G. (1997). A culture under seige: Post-colonial higher education and teacher education in Cambodia from 1953 to 1979. *History of Education, 26*(1), 91–112.

Fiszer, E. (2004). *How teachers learn best: An ongoing professional development model.* Scarecrow Education.

Freire, P. (2005). *Teachers as cultural workers: Letters to those who dare teach.* (D. Macedo, D. Koike, & A. Oliveir, Trans.) Westview Press.

Galasso, E. (1990). *Education in Cambodia: notes and suggestions.* Redd Barna.

Guskey, T. R., & Yoon, K. S. (2009). What works in professional development? *Phi Delta Kappan, 90*(7), 495–500.

Gutierez, S., & Kim, H.-B. (2018). Peer coaching in a research-based teachers' professional learning method for lifelong learning: A perspective. *Alberta Journal of Educational Research, 64*(2), 214–221.

Hairon, S., & Dimmock, C. (2012). Singapore schools and professional learning communities: Teacher professional development and school leadership in an Asian hierarchical system. *Educational Review*, 1–20. https://doi.org/10.1080/00131911.2011.625111

Hardman, F., Ackers, J., Abrishamian, N., & O'Sullivan, M. (2011). Developing a systemic approach to teacher education in sub-Saharan Africa: Emerging lessons from Kenya, Tanzania and Uganda. *Compare: A Journal of Comparative and International Education, 41*(5), 669–683.

Hardman, F., Hardman, J., Dachi, H., Elliott, L., Ihebuzor, N., Ntekim, M., & Tibuhinda, A. (2015). Implementing school-based teacher development in Tanzania. *Professional Development in Education, 41*(4), 602–623.

Hayes, D. (2000). Cascade training and teachers' professional development. *ELT Journal, 54*(2), 135–145.

ILO/UNESCO. (1966). *Meeting of experts on the status of teachers: Report.*

Joyce, B., & Calhoun, E. (2010). *Models of professional development: A celebration of educators.* Corwin.

Kennedy, A. (2005). Models of continuing professional development: A framework for analysis. *Journal of Inservice Education, 31*(2), 235–250.

Kheang, T., O'Donoghue, T., & Clarke, S. (2018). Primary school leadership in Cambodia: Context-bound teaching and leading. *Palgrave Macmillan.* https://doi.org/10.1007/978-3-319-76324-8_4

King, E. (2018). Developing teacher capacity in Cambodia: An expanded model. *Asian Education and Development Studies, 7*(1), 2–14.

King, E. (2021). Translating policy into practice: Cambodian primary schoolteachers' sense-making of the Child Friendly Schools policy. *Compare: A Journal of Comparative and International Education.*https://doi.org/10.1080/03057925.2020.1866495.

Kim, C.-Y., & Rouse, M. (2011). Reviewing the role of teachers in achieving education for all in Cambodia. *Prospects, 41*(3), 415–428.

Kim, V., Douch, M., Thy, S., Yuenyong, C., & Thinwiangthong, S. (2019). Challenges of implementing Lesson Study in Cambodia: Mathematics and Science Teaching by using Lesson Study at Happy Chandara School. *Journal of Physics: Conference Series, 1340.*

Klees, S. (2012). World Bank and education: Ideological premises and ideological conclusions. In C. Collins, & A. Wiseman (Eds.), *Education strategy in the developing world: Revising the World Bank's education policy* (Vol. 16, pp. 151–171). Emerald Group Publishing Ltd.

Knowles, M. S., Holton, E. F., III., & Swanson, R. A. (2011). *The adult learner: The definitive classic in adult education and human resource development* (7th ed.). Butterworth-Heinemann.

Larrivee, B. (2008). Meeting the challenge of preparing reflective practitioners. *The New Educator, 4*(2), 87–106.

Luschei, T., & Chudgar, A. (2011). Teachers student achievement and national income: A cross-national examination of relationships and interactions. *Prospects: Quarterly Review of Comparative Education, 4*(4), 507–533.

McDiarmid, G. W., & Clevenger-Bright, M. (2008). Rethinking teacher capacity. In M. Cohran-Smith, S. Feiman-Nemser, D. J. McIntyre, & K. E. Demers (Eds.), *Handbook of research on teacher education: Enduring questions in changing contexts* (3rd ed., pp. 134–156). Routledge.

Mockler, N., & Sachs, J. (2011). *Rethinking educational practice through reflexive inquiry. Essays in honour of Susan Goundwater-Smith.* Springer.

MoEYS. (2008). Roles and tasks of district training and monitoring teams. Phnom Penh.

MoEYS. (2019). Education Strategic Plan, 2019–2023.

Moon, B. (2013). *Teacher education and the challenge of development: A global analysis.* Routledge.

Moore, A. (2004). *The good teacher: Dominant discourses in teaching and teacher education.* Routledge.

OECD. (2005). *Teachers matter: Attracting, developing and retaining effective teachers.* Organisation for Economic Co-operation and Development.

Opfer, V., & Pedder, D. (2011). Conceptualizing teacher professional development. *Review of Educational Research, 81*(3), 376–407.

O'Sullivan, M. (2002). Action research and the transfer of reflective approaches to in-service education and training (INSET) for underqualified primary teachers in Namibia. *Teaching and Teacher Education, 18*, 523–539.

O'Sullivan, M. (2008). What is happening in the classroom? A common-sense approach to improving the quality of primary education in developing countries. *Teacher Development: an International Journal of Teachers' Professional Development, 9*(3), 301–314.

Owen, S., & Wong, D. (2021). Timor-Leste: Reforming the education system through school leadership capacity building and school-based teacher professional development. *Asia Pacific Journal of Education, 41*(1), 198–214. https://doi.org/10.1080/02188791.2020.1775551

Pich, K. (2017). Challenges facing the implementation of teacher education policy and its impacts on teacher quality in Cambodia. *1, 2*, 39–60. UC Occasional Paper Series.

Richter, D., Kunter, M., Klusmann, U., & Ludtke, O. (2011). Professional development across the teaching career: Teachers' uptake of formal and informal learning opportunities. *Teaching and Teacher Education, 27*, 116–126.

Sachs, J. (2011). Skilling or emancipating? Metaphors for continuing teacher professional development. In N. Mockler, & J. Sachs, *Rethinking educational practice through reflexive inquiry* (pp. 153–167). Springer.

Saito, E., Tsukui, A., & Tanaka, Y. (2008). Problems on primary school-based in-service training in Vietnam: A case study of Bac Giang province. *International Journal of Educational Development, 28*, 89–103.

Schön, D. A. (1987). *Educating the reflective practitioner*. Jossey-Bass.

Somprach, K., Tang, K., & Popoonsak, P. (2017). The relationship between school leadership and professional learning communities in Thai basic education schools. *Educational Research for Policy and Practice, 16*(2), 157–175.

Song, S. (2015). Cambodia teachers' responses to child-centered instructional policies: A mismatch between beliefs and practices. *Teaching and Teacher Education, 50*, 36–45.

Sothy, K., Madhur, S., Rethy, C. (Eds.). (2015). *Cambodia education 2015: Employment and empowerment.* CDRI.

Stigler, J., & Hiebert, J. (1999). *The teaching gap: Best ideas from the world's teachers for improving in the classroom.* The Free Press.

Stoll, L., & Louis, K. (2007). *Professional learning communities: Divergence, depth and dilemmas.* Open University Press.

Suratno, T., & Iskandar, S. (2010). Teacher reflection in Indonesia: Lessons learnt from a lesson study program. *US-China Education Review3, 7*(12), 9–48.

Tandon, P., & Fukao, T. (2015). *Educating the next generation: Improving teacher quality in Cambodia.* World Bank Publications.

UNESCO. (1990). World declaration on education for all: Meeting basic learning needs.

UNESCO. (2000). *Dakar framework for action—Education for All: Meeting our collective commitments.* UNESCO.

UNESCO. (2014a). *EFA global monitoring report 2013/14. Teaching and learning: Achieving quality for all.* UNESCO.

UNESCO. (2014b). *Education Strategy 2014–2021*. UNESCO.

UNESCO. (2015). *Teachers in the Asia-Pacific: Status and rights.*

United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development.*

Villegas-Reimers, E. (2003). *Teacher professional development: an international review of the literature.* UNESCO, International Instutute for Educational Planning.

Yin, R. (2009). *Case study research: Design and methods* (4th ed.). Sage.

Chapter 48
Enhancing Identity Construction Through Inquiry into Narratives

Esther Yim Mei Chan

Abstract Over the past several decades, a growing amount of research has considered the roles and challenges of adopting inquiry-based approaches to create successful teacher education practices. Reflection is a valuable component of teacher education programmes; however, determining how to involve students in reflective practices remains a challenge. In the first part of the chapter, I demonstrate the use of narrative inquiry as pedagogical intervention to support teacher candidates' identity development. In the second part, I discuss the use of three commonplaces (time, place, and personal–social) to allow me to capture the richness and complexities of experiences. In addition, through Pearl (a pseudonym), one of the research participants, I illustrate how narratives create space for identity development. Reflective journals, autobiographical and personal stories with relation to identity construction are included as data sources in this study. Overall, the study found that participants favoured narrative methods for pedagogical purposes, and they exhibited strong initiatives for reflection of their identity development. I suggest the use of narratives for inquiring the storied experience that present a model to realizing a more constructivist way for identity development.

Keywords Identity construction · Narrative inquiry · Three commonplaces · Reflective practices

Introduction

The principles of narrative have influenced the professional practices of many teachers, with the application of narrative concepts to generate new knowledge (Chan, 2015; Craig, 2006; Phillion, 2005). A view of narrative as the basic unit of a person's life has long been prevalent, as noted by Polkinghorne (1988, p. 17), "narrative is the fundamental for linking individual actions and events into interrelated aspects of an understandable composite". Ontologically speaking, narrative refers to the storied,

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structured quality of experience understood in a Deweyan sense (Clandinin & Rosiek, 2007). Building on the work of educational researchers (e.g. Connelly & Clandinin, 2006; Clark & Rossiter, 2008), I prioritize attention to the voices of people and adopt narrative methods for pedagogical purposes. It is a move in favour of individuality, placing value on how people experience and give meaning to their lives. Connelly and Clandinin (2006, p. 375) stressed that "story somehow, becomes a portal through which a person enters the world and by which their experience of the world is interpreted and made personally meaningful". Epistemologically speaking, narrative is a form of accessing and expressing knowledge and experience. Methodologically speaking, it refers to procedures for collecting field texts to study lived experiences as stories to live by. In this chapter, I view narrative as both the method (narrative inquiry) and the phenomenon (inquiry into narrative).

In the first part of this chapter, I begin by presenting the history of narrative in the social sciences, I then demonstrate the use of narrative inquiry as pedagogical intervention to support teacher candidates' identity development. In the second part, I discuss the use of three commonplaces (time, place, and personal–social) to allow me to capture the richness and complexities of experiences. In addition, through Pearl (a pseudonym), one of the research participants, I illustrate how narratives create space for identity development.

Narrative Research

Over the past 30 years, a growing number of studies in social science research has adopted narrative as a method of data collection, a tool for methodological analysis, and a mode of representation. Why did narrative research become popular in the social sciences? Why did many teacher–researchers become interested in the narrative construction of reality? The "narrative turn" in the social sciences occurred during the 1980s; a movement was started by a cognitive psychologist, Jerome Bruner, who acknowledged the importance of personal truth from a subjective perspective (Lyons, 2007, p. 604). During a 1984 meeting of the American Psychological Association, Bruner made an announcement that challenged the old positivism, with a startling assertion about narrative. He stressed that the traditional logical–scientific mode of thought and a narrative mode of thought are complementary, and that neither one can be replaced by the other. According to Bruner's (1986, 1987, 1990, 1991) studies, personal meaning (and reality) is constructed while making and telling of one's narratives. In recent years, many educators have used their life stories and personal narratives as new methods of knowing in teaching and learning (e.g. Barone, 2001; Chan, 2015, 2017; Conle, 2000; Craig, 2006; Yu & Lau, 2011; Xu & Connelly, 2010). According to Connelly and Clandinin's (1994, p. 415) view, stories or narratives are "the closest we can come to experience", and they called their study of experience *narrative inquiry*. Narrative is not only the texts we read but also a medium for reflecting on personal practical knowledge and the objects used for educational research (Clandinin & Connelly, 2000).

Pinnegar and Daynes (2007, p. 7) asserted that the "narrative turn" in social science research caused four notable changes: (1) a shift in the relationship between researchers and the people participating as subjects; (2) a move from numbers to words as data; (3) a shift from a focus on the universal and disembodied to the local and specific; and (4) the acceptance of narrative as a particular method of knowing, which is distinct from the logical–scientific mode. In the field of education, researchers that work within this "narrative turn" agreed that we live and make sense of our past experiences through stories.

Storytelling has been acknowledged as a powerful tool for reflection that enhances our understanding about ourselves as learners, our contexts, and our practices (Chan, 2017; Connelly & Clandinin, 2000; Phillion, 2005). Within the context of education, teachers and students are storytellers and characters in their own and in others' stories. Narrative is used in various methods by different disciplines, and is often synonymous with the story construct. While engaging inquiry into narratives, researchers must first listen to the practitioner's story. Because researchers cannot exclude themselves from the inquiry relationship (Clandinin & Huber, 2010), which results in a process of collaborations through which "two people negotiate, co-construct, and story the meanings and values of essentially incomplete experiences" (Bochner et al., 2000, p. 17). It is a relational inquiry which creates opportunities for the co-construction and reconstruction of narratives. I believe that narrative can be a powerful tool for critical reflections if inquirers adopt "a sense of a search … a sense of continual reformulation" in the inquiry process (Clandinin & Connelly, 2000, p. 124). By reconstructing experiences, they learn how to "get the benefit of past effort in controlling future endeavour" (Downey & Clandinin, 2010, p. 384). In the following sections, I share the experience of using narrative approach for advancing components of identity development.

The Context

In 2015 I taught a course called "Child Development" to undergraduate students, I found it boring in presenting developmental theories. In addition, the content was presented in English and originated from the West, thereby making it even more difficult for my students to comprehend. I have continued to develop this course, and, in recent years, I adopt narrative approach to promote students' learning. To do this, narrative learning activities are conducted as pedagogical intervention by which participants are engaged to review their experience and its relationship to the social context through storytelling. The stories that they tell may be fragmented, excited, or chaotic but useful for reflective practices. Bruner (2002, p. 85) stressed that it is "through narrative that we create and re-create selfhood, that self is a product of our telling". The advantage of storytelling is that it can enable the understanding of both personal and social aspects. Bronfenbrenner (1986) and Vygotsky (1962) acknowledged that the earliest influence on a child usually come from the socializa-

tion provided by the parents and family. A self-inquiry of how we shape our identities in various contexts of development (e.g. family and school) is therefore important to enhance understanding of child development.

Pedagogical Intervention

I taught first-year pre-service students in the Early Childhood Education (ECE) programme. According to my records, they have recently graduated from high schools in Hong Kong. During the course period, I attempted to advance students' identity development by using a narrative learning approach. Through course assignments, such as chronicling events, storytelling, and reflective writing, students gained first-hand experience of narrative inquiry. The guiding questions and prompts, which were written at the beginning of the course, invited students to make sense from their own childhood experiences with the theme: "How did I become who I am?" The course activity was conducted to support teacher candidates' identity development. This included three stages: preparation, implementation, and reflection.

1. Preparation

Students were introduced to some basic concepts in narrative inquiry and were given opportunities to listen to my autobiographical stories in relation to the theme "How I became who I am". After this session, students were encouraged to provide me feedback through email.

2. Implementation

After the preparation stage, students were requested to collect personal stories through chronicling. The following example questions were provided to elicit students' ideas:

- Who were the characters?
- When did it occur?
- Where did it occur? Describe the setting.
- Why did it leave a lasting impression on you?

After 7 days, students were required to plan a 15-min presentation of their own chronicles with personal stories in class that were based on the primary theme "How I became who I am".

3. Reflection

After students completed the presentation of their chronicles with stories, an online group discussion forum was created, wherein the students exchanged opinions and commented about their experiences with relation to the activity. In addition to the group reflections in the forum, students were required to write reflective journals in response to the following questions:

- While rereading the stories, reflective journals, and peer response, do you notice any themes, patterns, and/or similar ideas?
- Have you constructed any images of children according to your autobiographical stories?
- How have your early experiences influenced you as a person?

The Study

The current study aims to understand the role of narrative in teacher education, and how narratives create space for identity development. The participants were first-year pre-service student teachers of the Early Childhood Education (ECE) programme at a university in Hong Kong and their ages ranged between 19–21 years. They have attended the course *Child Development* adopted a narrative learning approach. Using systematic sampling on a class-by-class basis, follow-up focus group interviews and the relational inquiry were scheduled to enable an in-depth examination of students' views. Five to seven students from each class were sampled systematically on a voluntary basis, with a total of 15 students participating in this study. To maintain anonymity and confidentiality, pseudonyms were used for the participants, and all the data that were collected during the study period were kept confidential. To fulfil the requirements of the ethical review committee in the institution, the participants provided informed consent to demonstrate that they clearly understood the study aims and procedures and their right to withdraw from the study without enduring any type of penalty.

Instruments

Data for the study were gathered through two methods, the focus group interview and relational inquiry.

The interview questions of the focus group interview were developed on the basis of the research aims and were classified into four primary categories: (1) Students' learning experiences related to the narrative learning process; (2) The advantages of this narrative learning approach; (3) Comments regarding the use of personal stories to connect learning about identity development; and (4) An example that illustrates how storytelling presents an improved method to learn.

For the relational inquiry, data sources included family stories, school stories, reflective journals, and autobiographical writing. The data came primarily from two informal meetings and subsequent conversations with the participant. Collaboratively, we interpreted the narratives to analyse their meaning in terms of identity construction. After identifying narratives related to identity formation, I then refined the analysis by reviewing its relationship within the three commonplaces (time, personal–social, and place). As Clandinin and Connelly (2000) stressed that we can become wakeful to how participants, events, and objects are "placed at a particular

moment, temporally, spatially and in terms of the personal and social" (p. 89). Finally, I looked for evidence regarding how narratives create space for identity development.

Trustworthiness of Inquiry

Narrative inquiry is an unfamiliar term and not a prevalent research methodology in Hong Kong, I therefore had to explain it to participants when I invited them to be involved in this study. It covered issues such as ethics, anonymity, and relational responsibilities. Brannelly and Boulton (2017) proposed to add another type of ethics, called ethics of care. The rationale behind this requirement is to ensure that the entire inquiry process is not only ethical but also highlight the researcher's responsibility of not causing harm to participants. In the relational inquiry, I am aware that both participants and researchers need to feel comfortable to share their beliefs and assumptions when connecting multiple life events. As a narrative researcher in such a participatory relationship, I adopted narrator-centred interaction to follow the flow of narrator's stories, by listening without judgement. Regarding to the critique about how I could guard against my participants' intention of telling what they wanted me to hear, my view is that narrative inquirers' concern is on the role of experience in shaping the interpretation of the events. Clandinin and Connelly (2000) stressed that every story or "response is valid to some degree and contain the seed of an important point" (p. 183). I therefore encouraged my participants to tell their embedded stories and helped them to make sense of them within the three commonplaces (time, personal–social, and place). Understanding narrative inquiry from a relational point of view, I needed to stay wakeful to those critiques and ethical matters.

As the fundamental ethical principle is the obligation to do no harm to our participants (Brannelly & Boulton, 2017; Mockler, 2014). I believed that ethical matters need to be narrated over the entire inquiry process. At the beginning, I obtained informed consent from the participants. Consent refers to participants' willingness to form part of the study and their freedom to withdraw from it whenever they wish. Later, we negotiated how to present information, and the use of pseudonyms to protect participants' anonymity. Finally, all the research texts and my interpretations were sent to the participants for comments to ensure I had represented their meaning accurately. This kind of checking is one of the criteria for the establishment of trustworthiness and credibility (Niekerk & Savin-Baden, 2010).

Findings

Generally, participants favoured narrative methods for pedagogical purposes, and they exhibited strong initiatives for reflection of their identity development. As students noted in the focus group interview, the storytelling activity was fun and useful because "their sharing of experiences through storytelling could stimulate

reflection" (First-year student, A, B, H, G, K & M). Clandinin and Connelly (2000) advocated narrative inquiry in which storytelling was acknowledged as a powerful tool for reflection on what personal practical knowledge teachers have and how such knowledge is formulated. From this perspective, narrative refers to the storied quality of experience, becomes a means to access and express knowledge. Narrative learning activity is a way of acquiring experiential knowledge for future practices. It has emerged as a new mode of learning, presenting a special challenge to the traditional Chinese classroom. The theme generated from the focus group interviews concerning the role of narrative in teacher education are described as follows:

A Process of Knowledge Construction Telling or writing stories on personal experiences is a cognitive process through which students attempt "to make sense of life as lived" by untangling the narrative threads that have contributed to their knowledge and practices (Clandinin & Connelly, 2000, p. 77). As some students noted in the focus group interview, they make sense of past experiences and come to know those factors affecting their development:

> Our growth and development are affected by our environment and other factors; however, the question remains whether we can see the interrelationship among those factors. (First-year student, G)

> Everyone's life stories are socially and historically situated in their lives, and I make sense of my own experiences that are developing at a given time and place. (First-year student, K & M)

A Tool for Reflection Another theme derived from the study was the recognition of storytelling as a tool for reflection. It is through the telling and retelling of life stories, pre-service teachers have opportunities to reflect on what they have experienced in their lives and tell the meaning that lived experience has for them. As the students noted in the focus group interview, they valued their peers' sharing of experiences and telling of personal stories, both of which they believed would facilitate reflective thinking abilities. Carter (1993) also supports the use of stories with teachers because these stories are closely linked to teachers' reflections in and on action. To achieve the goal of supporting pre-service teachers to become reflective thinkers, I adopted narrative ways of learning as pedagogical intervention in the *Child Development* classes. Because classroom is regarded "as a place where students and teachers tell stories to one another to make sense of where they have been and help them grow and develop in the future" (Connelly & Clandinin, 1988, p. xvi). From this perspective, storytelling can function as a mediation tool of accessing and expressing experiences, and it is a reflective act when inquiries take place. In the following excerpts from the focus group interview, students describe how storytelling create resonance that encourage reflection:

> I reflect more when resonating the tutor's story with my story. During the autobiographical session, her story led me to recall my high school teacher's practices, and its impact on me. (First-year student, A, B & J)

> I feel sympathetic when listening to her story. Because I have had a similar experience. I remember a book saying that life is just like a rope, and a knot as a difficulty that we must face; therefore, everything is fated to occur'. (First-year student, K)

The result indicated that students valued the process of writing and telling autobiographic stories for later review and reflection. They also perceived storytelling as a tool for reflection. By using life stories and making sense of past experiences, they were engaged to build knowledge that shape their multiple identities. Thus, inquiry into narratives is considered as a meaning-making process. In the current study, the theme "How did I become who I am?" was one of the questions that helped them to shape and reshape their evolving identities. According to my observation, they began to question more while inquiring about how past experiences have influenced who they are and who they are becoming. They were driven by the questions that led to the development of their inquiring mindset, which is the "core value of narrative inquiry" (Yu & Lau, 2011, p. 79).

With a commitment to develop a more effective pedagogy for teacher education, I adopted narrative inquiry not only as a teaching approach but also a tool for research into teaching. In the following sections, I discuss the use of three commonplaces (time, place, and personal–social) to capture the richness and complexities of experiences. It is through a relational inquiry with one of the participants, Pearl (a pseudonym), to increase understanding of how narratives create space for identity development.

Discussion

In this inquiry, storytelling serves as a medium of accessing and expressing experience to support identity construction. The stories and reflective writing have been used with the consent of the research participant, Pearl (a pseudonym). Based on the frame developed by Clandinin and Connelly (2000), I wrote the current study to make sense of the storied experiences within the three commonplaces (time, personal–social, and place). According to Pinnegar and Hamilton (2012, p. 12), "in every aspect of the analysis process including selecting texts for representation of our ideas and learning, each of the three dimensions is important and each contributes to the development of empirically grounded understanding that emerge from the data".

Time (Past, Present, and Future)

Connelly and Clandinin (1988) stressed that storytelling is the reconstruction of events in the past and is considered as a tool to understanding ourselves in the present. Pearl was a pre-service student–teacher, and at the time of the study, she was in her early twenties. She was encouraged to tell her personal stories by means of chronicling to connect it to identity development. The first story that she told illustrated the image of an abandoned child that she has constructed for herself in the past.

> I was very happy during my childhood years. However, as I grew up, the quarrels between my parents increased. One day, my father said, 'I won't return home'! After 3 years, my parents were divorced and the money that my father gave us for our living expenses was so little that my mother had to work to make ends meet. Since that incident, I believed my parents did not care about me. During that time, I hated my mother very much. I believed that it was her fault and the reason why my father left was that he could not tolerate my mother's bad temper. Ever since, my academic results became increasingly worse. I was also depressed.

According to Pinnegar and Hamilton (2012), the event that we choose to label as the beginning of a narrative is the point from which we choose to begin; however, this is also the point wherein we bring forward a past in connection with the present and reimagine potential and multiple futures. While analysing our past through this perspective, our past stories become open for retelling-reliving-reinterpretation, which allows us to clarify or provide evidence for our interpretation (Clandinin & Connelly, 2000). Taking this notion into consideration, I put more attention on the narratives rather than the person who speaks, given that I understand a person's identity as fluid, incoherent and always in the process of "ongoing construction and negotiation in talk" (Taylor, 2010, p. 7). Here is Pearl's second story describing her image as a teenage girl experiencing depression and staying at the hospital:

> My uncle passed away and I believed that no people loved me anymore. I wanted to find someone who would love me. At the age of 15, I fell in love with my first boyfriend who was a model student at my school. At the beginning, we frequently spoke through phone calls because he always taught me how to deal with academic difficulties. He always made me feel happy. After a year, our relationship became worse. I heard that he fell in love with another girl. I was shocked and upset. Although I knew that he no longer loved me, I could not accept that he fell in love with another girl in such a short time. My depression became worse than before. I lost control of my emotions and always cried. Many relatives thought that I was emotionally imbalanced. My brother also disliked me. Eventually, I was sent to the hospital. During that moment, I realised that my mother loved me deeply. She gave up her job and looked after me when I was at the hospital. She worried about my feelings, my life, and my future. She did not want me to suffer from depression anymore. Because I had more time to chat with her, I realised that my father's abandonment was not her fault.

Images are embedded within the narrative unity of our experience (Carter, 1993). Childhood stories or experiences become the focal point of our images of children within our personal perceptions. Through Pearl's reflective writing, I get a glimpse at how a student–teacher moves back and forth between her multiple identities (child/teenage girl/student/teacher) as she engages in telling and retelling her personal stories. The image of an abandoned child emerged in her embedded stories, which affected her emotional development. Retelling her life stories creates space for Pearl to reshape her evolving identities, to confront her depression, and offer possibilities for reliving her continuing story while positioning her as an increasingly effective teacher. In the following excerpt of her reflective journal, she explains how she worked hard to develop and ground her image of herself as a teacher in her future classroom:

> My confidence is restored now, and I can concentrate on my studies. I have a clear goal of being a good teacher in the future. It is because I want to transform the thoughts of children who have unstable emotions and unhealthy self-esteem into positive ones. Through my experience, I suffered a lot because of my unstable emotions. It is difficult to change my emotion from an unstable one to a steady one instead. I do not want children to suffer a lot because of their emotions. My past experiences significantly affected my emotional development.

According to Correa et al.'s study (2014, p. 450), "the linguistic and semiotic uses that the future teachers employ in creating narratives of their stories, memories, discussions and reflections not only reflect their emerging identities but also contribute to their formation". In her reflection, Pearl illustrates how she wishes to help children in future. Her narrative creates her imagined teacher identity as a "good teacher", which is a vital aspect of identity in the context of positioning. Rice and Coulter (2012, p. 87) emphasized that "recognition of identity, whether it be ascribed or essential, is necessary for identity making". In telling and retelling of her embedded stories, Pearl repeatedly moves backward and forward between her childhood and adulthood to reshape her evolving identities. Connelly and Clandinin (2000) stressed that all experience has prior experience and future experience. Therefore, time is crucial for the narrative learning activity, particularly when helping students to see our experience as developing along with temporality.

Personal and Social Interaction (Inward and Outward)

Pearl's story is profoundly personal. Her reflections are consistently self-directed and grounded in emotion. It is an interpretation of an experience wherein a story resides and the potential for reliving emerges. As she relived the past through her storytelling, she drew on her unpleasant experiences and chose to confront her problems. She recalled her memories and began to tell personal stories that immersed her in the images of an abandoned child and a girl experiencing depression. In her reflection over the first story, she appears to have adopted an identity as a failing student because of receiving terrible examination results:

> Children are likely to spend most of their time with their family during their childhood. Therefore, changes in the family can have an immediate effect on children. As I shared in my first story, I was a happy child with high self-esteem. I always received praise from others because of my good academic results. However, my father's abandonment had significantly affected my emotional stability, and I felt extremely upset. Research has indicated that fathers play a vital role in their child's development. Children's increased interactions with their fathers will lead them to be increasingly affected. It has been said that a father's affection towards their child may even be stronger than that of a mother. This is because if fathers sustain affectionate involvement, it may affect children's cognitive, emotional, and social competence. I was affected by my father's abandonment, and my emotions transformed into an unstable stage. I experienced difficulties while concentrating on my studies. Receiving terrible exam results caused my self-esteem to decrease and I believed that I was useless.

From this perspective, Pearl's narratives of fear and failure may lock her in "prisons of biography" (Connelly & Clandinin, 1994, p. 149). However, as she continues to tell her embedded stories, she is explicit about moving away from her identity as a failing student. In her second story, Pearl's narrative is once again laden with emotion but in a different way. Depression seems to be an integral part of her story; however, other emotions—love and caring—make their first appearance in her third story that she perceives herself as a struggling student.

> I stayed at the hospital for two weeks. My teacher spoke to me on the phone whenever she was free. I felt relaxed when I spoke with her. I also realised that my behaviour was silly and crazy. I began to understand more about myself because she always told me what I was good at and what my drawbacks were. Apart from that, I was deeply influenced by her. I remembered that she told me, 'Do the right thing at the right moment'. Therefore, I did my best to improve my scores. With the support of my friends and teacher, I quickly recovered and restored my self-esteem.

In her reflection, Pearl wrote as follows:

> School is a significant factor that deeply affects our development during our adolescent years. It is not only a place where we can acquire knowledge but also one where we meet our peers and teachers. Most students gain valuable memories and are easily influenced by others during their school years. According to the sociocultural theory suggested by Vygotsky, adults and more capable peers help children to master culturally meaningful activities; communication between them becomes part of children's development. In my experience, my emotional development underwent a critical change during my school years. In the third story, I discussed my emotions after undergoing a significant change in my school life. Because of my teacher, my thoughts were different than they were earlier. In addition to my friends, my teacher also treated me well when I was sent to the hospital. She was the person that made me understand how unhealthy my thoughts were. Her words woke me up: 'Do the right thing at the right moment'. I realised that I should cherish my own time and work hard on my studies. I should not waste time on the meaningless and uncontrollable factors anymore. I was deeply influenced by my teacher.

Pearl described her childhood memory as an unhappy one and how she was suffered in the context of poor parent–child ties. In her reflective inquiry, she drew on her experiences as a patient in the hospital where she developed a new understanding about social relationships (child–parent, student–teacher, and peers). Zembylas (2005) argued that emotion is a discursive practice that helps us think about the complex relationship in the social context. He writes:

> Emotions are not private or universal and are not impulses that simply happen to passive suffers (the Aristotelian view). Instead, emotions are constituted through language and refer to a wider social life. (Zembylas, 2005, p. 937)

Telling and retelling embedded experiences created space for Pearl to look inward into her emotions and outward to those support in the social context. She no longer stayed locked in the prison of her old narrative as she constructed a transformative retelling of who she was as a student and who she may become as an early childhood teacher. Based on this perspective, this retelling creates the possibility for "reliving our stories with changed actions in our lives" (Connelly & Clandinin, 1994, p. 155). The identity of Pearl's teacher has been shaped and informed by her

experiences as a child, particularly her experience of being neglected by her parents. Her desired identity seems to be rooted in "fantasies of rescuing" young children with similar emotional problems (Britzman & Pitt, 1996, p. 118). Simultaneously, Pearl has demonstrated continued awakening and transformation, while she critically reflected on her life stories. The voice of her high school teacher, who told her: "Do the right thing at the right moment" serves as a guide for her present and future actions. Pearl's storytelling provides a window to understand a student's personal struggles and tension. However, her inquiry is also a response to the school support provided by teachers and peers. The personal–social dimension is, therefore, emphasized in this inquiry that focusses not only on individual experience but also on the social narratives within which it is shaped and expressed (Clandinin & Rosiek, 2007). The use of narrative learning activity provides a new lens for us to understand the complexities of relationships in the family and school context. This can lead to insightful disclosures about the influence of the home, school system, and other contextual factors on identity development.

Place (Situation)

While reading through Pearl's three stories and reflective writing, we notice a transformation. Her reflections demonstrated a drastic change in her emotions, from that of a hopeless child to a student full of hope and commitment towards learning. Through her reconstruction of experiences, Pearl has revealed a shift in her thinking regarding school as a significant place to provide support for her growth and development. According to Clandinin and Connelly's (2000, p. 26) perspective, "context makes all the difference" in terms of narrative notions. In this study, Pearl was compelled to examine the fundamental questions about her development and evolving identities. She was encouraged to review her upbringing by constructing a chronicle and telling her life stories with the theme of "How I became who I am". Such inquiry is at the heart of critical reflection and is considered a meaning-making process to promote identity development. Because development occurs within a complex system of relationships that are affected by the surrounding environment (Bronfenbrenner, 1995), it is normal that Pearl begins her reflection about the influence of family on emotional development, and subsequently, that of the school. She continues to reshape potential student and teacher identities in her school and family stories. Alsup (2006, p. 53) asserted that "personal narratives don't simply reflect identities, they are peoples' identities". From this perspective, narrative learning activity provides a window to understand identity development and it is always situated in place.

To develop a sense of professional identity that incorporates one's personal identities is one of the most crucial parts of teacher education (Alsup, 2006). Pearl is a pre-service student–teacher; therefore, if she can work through her multiple identities to define who she is and how she is becoming the person she wants to be, it can provide helpful insights. In her reflective inquiry, she gives herself different identities by telling stories of a changing context in terms of a series of stages. In the

first story, she describes her image as an abandoned child situated at home. In the second story, she discusses a teenage girl experiencing depression and staying at the hospital. In the third story, she describes a struggling student manoeuvring between home, school, and the hospital. A new story is then constructed as she imagines the potential teacher identity in her future classroom. Based on her past experiences in different contexts (places), she has engaged in deep reflection to explore her shifting, evolving identities that promotes theory building. Her reflections of her own patterns of learning in the family and the school context lead her to apply theories to explain this phenomenon. Such an inquiry creates a possibility for reflective and proactive learning with relation to identity development.

Commentary and Concluding Remarks

Identity is not singular or unchanging; it is continually informed, formed, and reformed as individuals interact with others over the course of time (Day et al., 2006). To gain increased understanding about the development of a teacher identity, we need to be aware that the interactions are dynamic because the timing of environmental change affects its influences on relationships. Bronfenbrenner (cited in Berk, 2004, p. 29) called the temporal dimension of his bioecological model the "chronosystem" (the prefix "chrono- " means "time"), which aligns with Connelly and Clandinin's (2000) theory that time is vital for studying human experiences as developing along with temporality.

In the field of early childhood education, researchers (e.g. Grieshaber & Cannella, 2001; Ryan et al., 2001) have challenged overly simplistic linear models of teacher development. Grieshaber and Cannella (2001) argued that the dominant discourse of developmentally appropriate practice (DAP) creates a definition of the good teacher only in terms of DAP, without the acceptance of multiple and contradictory identities. As illustrated in Pearl's case, her reflection of identity development through storytelling has constructed a story of continuity between the multiple student and teacher identities. Such an inquiry moves students away from the stance of passive receivers of expert knowledge to individuals who construct knowledge while valuing their own understandings and experiences. If identity formation is an ongoing process, narrative learning activity, with its focus on experiential knowledge, is effective to engage teacher candidates to make sense of their past experiences for identity construction in a shifting context. The process of identity construction is both reflexive and dialogic, thereby involving the personal and professional selves of the individual. Because identity construction is one of the most vital parts of teacher preparation, using narrative to explore identity development for pedagogical purposes is a pragmatic approach to support teacher development.

According to Dewey's (1938) view, students are knowledge builders who may reflect on and grow in experience. Reflecting on one's experiences is the key to successful learning, but it requires practitioners' intention to reflect. The use of a narrative learning approach is to create a learner-driven environment so that students

are the generators, not just the consumers, of knowledge. The idea of developing teacher candidates into reflective thinkers is promising. What methods can be used to encourage teachers to participate more actively in reflective thinking to facilitate identity construction? Schon (1983) stressed that students become aware of the centrality of lived experiences when they reflect; however, experience alone does not necessarily lead to reflective learning, but deliberate reflection on experience is essential. As a teacher–researcher, I envision that the interest developed through storytelling that the individual is engaged in, and the subsequent inquiry as a process of change that continues to create new possibilities for reflective engagement. This process demands that the learner is willing to reflect and create connections between the past and ongoing experiences. Moreover, guiding students in the habit of reflection requires teachers to act as models of reflective practice (Loughran & Berry, 2005). The fact that identity development can, in part, be understood as a narrative process, I resonate with De Groot's (2018) view that teachers can guide this development process using a narrative learning approach.

To conclude, narrative has become a vehicle for implementing curricula on teacher development (Conle, 2000, 2003). My interest in narrative ways of learning and employing it as a teaching pedagogy has intrigued students to engage in dialogue about how they construct their evolving and multiple identities. As these students realize that identity construction is a process of teacher development, I hope that they will be increasingly open to reflect and reshape their shifting and evolving identities in their future classrooms.

References

Alsup, J. (2006). *Teacher identity discourses: Negotiating personal and professional spaces.* Lawrence Erlbaum Associates.

Barone, T. (2001). Science, art, and the predispositions of educational researchers. *Educational Researcher, 30*(7), 24–28.

Berk, L. E. (2004). *Infants and children.* Allyn and Bacon.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 732–742.

Bronfenbrenner, U. (1995). The bio-ecological model from a life course perspective: Reflections of a participant observer. In P. Moen, G. H. Elder, Jr., & K Luscher (Eds.), *Examining lives in context* (pp. 599-618). American Psychological Association.

Bochner, A. P., Ellis, C., & Tillmann-Healy, L. M. (2000). Relationships as stories: Accounts, storied lives, evocative narratives. In K. Dindia & S. Duck (Eds.), *Communication and personal relationship* (pp. 13–29). Wiley.

Brannelly, T., & Boulton, A. (2017). The ethics of care and transformational research practices in Aotearoa New Zealand. *Qualitative Research, 17*(3), 271–277.

Britzman, D., & Pitt, A. (1996). Pedagogy and transference: Casting the past of learning into the present of teaching. *Theory into Practice, 35*(2), 117–123.

Bruner, J. (1986). *Actual minds, possible worlds.* Harvard University Press.

Bruner, J. (1987). Life as narrative. *Social Research, 54*(1), 11–32.

Bruner, J. (1990). *Acts of meaning.* Harvard University Press.

Bruner, J. (1991). The narrative construction of reality. *Critical Inquiry, 18*, 1–21.

Bruner, J. (2002). *Making stories: Law, literature, life*. Farrar, Straus & Giroux.
Carter, K. (1993). The place of story in the study of teaching and teacher education. *Educational Researcher, 22*(1), 5–12.
Chan, E. Y. M. (2015). Narrative inquiry and the exploration of culture for improving teacher education. In S. Trahar & W. M. Yu (Eds.), *Using narrative inquiry for educational research in the Asia Pacific* (pp. 120–135). Routledge.
Chan, E. Y. M. (2017). Narrative inquiry: A dynamic relationship between culture, language and education. *Australian Journal of Teacher Education, 42*(6).
Clandinin, D. J., & Connelly, F. M. (2000). *Narrative inquiry: Experience and story in qualitative research.* Jossey-Bass.
Clandinin, D. J. & Huber, J. (2010). Narrative inquiry. In B. McGraw, E. Baker, & P. Perterson (Eds.), *International encyclopedia of education* (3rd ed.). Elsevier.
Clandinin, D. J., & Rosiek, J. (2007). Mapping is a landscape of narrative inquiry. *Journal of Teacher Education, 58*(1), 21–35.
Clark, M. C., & Rossiter, M. (2008). Narrative learning in adulthood. *New Directions for Adult and Continuing Education, 119*, 61–70.
Conle, C. (2000). Narrative inquiry: Research tool and medium for professional development. *European Journal of Teacher Education, 23*, 49–63.
Conle, C. (2003). An anatomy of narrative curricula. *Educational Researcher, 32*(3), 3–15.
Connelly, F. M., & Clandinin, D. J. (1988). *Teachers as curriculum planners: Narratives of experience*. Teachers College Press.
Connelly, F. M., & Clandinin, D. J. (1994). Telling teaching stories. *Teacher Education Quarterly, 21*(1), 145–158.
Connelly, F. M., & Clandinin, D. J. (2000). Narrative understandings of teacher knowledge. *Journal of Curriculum and Supervision, 15*, 315–331.
Connelly, F. M., & Clandinin, D. J. (2006). Narrative inquiry. In J. Green, G. Camilli, & P. Elmore (Eds.), *Handbook of complementary methods in education research* (pp. 375–385). Lawrence Erlbaum.
Correa, J. M., Martínez-Arbelaiz, A., & Gutierrez, L. P. (2014). Between the real school and the ideal school: Another step in building a teaching identity. *Educational Review, 66*(4), 447–464.
Craig, C. (2006). Why is dissemination so difficult? The nature of teacher knowledge and the spread of curriculum reform. *American Educational Research Journal, 43*(2), 257–293.
Day, C., Kington, A., Stobart, G., & Sammons, P. (2006). The personal and professional Selves of teachers: Stable and unstable identities. *British Educational Research Journal, 32*(4), 601–616.
De Groot, I. (2018). Narrative learning for democratic citizenship identity: A theoretical framework. *Educational Review, 70*(4), 447–464.
Dewey, J. (1938). *Experience and education.* Touchstone.
Downey, C. A., & Clandinin, D. J. (2010). Narrative inquiry as reflective practice: Tensions and Possibilities. In N. Lyons (Ed.), *Handbook of reflection and reflective inquiry: Mapping a way of knowing for professional reflective inquiry* (pp. 383–397). Springer.
Grieshaber, S., & Cannella, G. (2001). From identity to identities: Increasing possibilities in early childhood education. In S. Grieshaber & G. Cannella (Eds.), *Embracing identities in early childhood education: Diversity and possibilities* (pp. 3–22). Teacher College Press.
Loughran, J., & Berry, A. (2005). Modelling by teacher educators. *Teaching and Teaching Education, 21*, 193–203.
Lyons, N. (2007). What possible future influence on policy or practice? In J. Clandinin (Ed.), *Handbook of narrative inquiry: Mapping a methodology* (pp. 600–631). Sage.
Mockler, N. (2014). When 'research ethics' become 'everyday ethics': The intersection of inquiryand practice in practitioner research. *Educational Action Research, 22*(2), 146–158.
Niekerk, L. V., & Savin-Baden, M. (2010). Relocating truths in the qualitative research paradigm. In M. Savin-Baden & C. H. Major (Eds.), *New approaches to qualitative research: Wisdom and uncertainty* (pp. 28–36). Routledge.

Phillion, J. (2005). Narrative in teacher education. In P. C. Miller (Ed.), *Narratives from the classroom: An introduction to teaching* (pp. 1–12). Sage.

Pinnegar, S., & Daynes, J. G. (2007). Locating narrative inquiry historically: Thematics in the turn to narrative. In J. Clandinin (Ed.), *Handbook of narrative inquiry: Mapping a methodology* (pp. 3–34). Sage.

Pinnegar, S., & Hamilton, M. L. (2012). Openness and inconclusivity in interpretation in narrative inquiry: Dimensions of the social/personal. In E. Chan, D. Keyes, & V. Ross (Eds.), *Narrative inquirers in the midst of meaning-making: Interpretive acts of teacher educators* (pp. 1–22). Emerald Insight.

Polkinghorne, D. E. (1988). *Narrative knowing and the human sciences.* State University of New York Press.

Rice, M. & Coulter, C. (2012). Exploring chronotopic shifts between known and unknown in our teacher educator identity narratives. In E. Chan, Keyes, D. & V. Ross (Eds.), *Narrative inquirers in the midst of meaning-making: Interpretive acts of teacher educators* (pp. 77–108), Emerald Insight.

Ryan, S., O'Brien, L., & Genishi, C. (2001). Miss Nelson is missing! Teacher sightings in research on teaching. In S. Grieshaber & G. Cannella (Eds.), *Embracing identities in early childhood education: Diversity and possibilities* (pp. 45–49). Teacher College Press.

Schon, D. (1983). *The reflective practitioner: How professionals think in action.* Basic Books.

Taylor, S. (2010). *Narratives of identity and place.* Routledge.

Vygotsky, L. S. (1962). *Thought and language.* Massachusetts institute of Technology Press.

Xu, S. J., & Connelly, F. M. (2010). Narrative inquiry for school-based research. *Narrative Inquiry*, *20*(2), 349–370

Yu, W. M., & Lau, C. K. (2011) Teaching narrative inquiry in the Chinese community: A Hong Kong perspective. In S. Trahar (Ed.), *Learning and teaching narrative inquiry: Travelling in the borderlands* (pp. 69–84). John Benjamins Publishing Company.

Zembylas, M. (2005). Discursive practices, genealogies, and emotional rules: A poststructuralist view on emotion and identity in teaching. *Teaching and Teacher Education, 21*, 935–948.

Chapter 49
Influence of Leadership Training on Taiwanese Elementary School English Teachers' Instructional Leadership

Grace Chin-Wen Chien

Abstract This study explored ten elementary school English teachers' learning about teacher leadership. Based on data analysis of document, online posts and interview, the study had the following major findings. First, none of the participants had had trainings on teacher leadership prior to the study. Secondly, different graphic organizers (e.g. Consultancy in Triads) and guiding questions provided in the series of training sessions led the participants to reflect on their roles as teacher leaders by examining their leadership practice, improving their problem-solving strategies, and arousing their interest in learning leadership. Suggestions on fostering English teachers' leadership were provided.

Keywords Graphic organizer · Instructional leadership · Reflective practice · Teacher leader · Workshops

Taiwanese Ministry of Education's (1998) stipulated that teachers should have a weekly or monthly professional dialogue with other teachers of the same grade level or subject to discuss and design curriculum for their learners. Elementary school English teachers in Taiwan take turns being the leader of the English teachers (hereafter, teacher leaders) in each school and leading the professional dialogue. Author's (2014a, b) study of the current situation of the professional dialogue of elementary school English teachers in New Taipei City revealed that, in the 2013 academic year, it has primarily been led by the teacher leaders during their common time and in their classrooms.

Some of the novice teachers have neither the competence to lead the professional dialogue nor the professional identity as a leader (Chien, 2014b, 2016). Gibbons and Knapp (2015) suggest that teacher leaders should be trained to facilitate ongoing professional dialogue around issues regarding teaching and learning.

Adopted from current research studies on instructional leadership, this study designed and delivered on-site and online trainings on leaderships with integration of artefacts and tools for ten elementary school English teachers in order to equip them

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with the skills and competence required to work with other adult learners. This study addressed these questions. First, what did elementary school English teachers learn about leadership from the trainings? Secondly, what was elementary school English teachers' attitude towards leadership? Suggestions on fostering English teachers' leadership were provided.

Related Literature Review

Ackerman and Mackenzie (2006) regard teacher leaders as "experienced teachers who have tested their beliefs about teaching and learning and codified them into a platform that informs their practice" (pp. 66–67). A good teacher leader embodies leadership competence and qualities such as the ability to communicate, being energetic, or possessing resources to be shared or used by the group (Bond, 2011; Chaibi, 2008; Christison & Murray, 2012; Melouk, 2009). Teacher leaders must have knowledge of self, others, schools and teaching (Bond, 2011; Bowman, 2004). In addition to knowledge, teacher leaders should be equipped with metacognitive skills for inquiry and reflection, interpersonal skills for collaboration and mentoring, and leadership skills (Bond, 2011). Göker (2012) proposes the reflective leadership model, in which all teachers in EFL schools are empowered to lead and contribute to any instructional strategies about their students' learning.

Shakir et al. (2011) interviewed two EFL teachers regarding their perceptions of distributed leadership in their own schools in Malaysia. Although these two teachers had different perceptions about the principal, with one positive and one negative, they both valued the impacts of distributed leadership on school improvement. In Baecher's (2012) study, a survey among a total of 24 novice ESL teachers in New York discovered that 22 of them were involved in at least three of the "seven domains of Ash and Persall's (2000) theory of Formative Leadership", particularly "the domain of professional development" (p. 320). These teachers thought positively about being asked to provide professional development to their colleagues because they could grow and expand their expertise. Their leadership was developed through "apprenticeships, participation and self-study" (p. 324). As for the professional development for teacher leadership, Baecher (2012) suggested, "the development of teacher leaders should be included in both pre- and in-service teacher education" (p. 326). Moreover, teachers should be familiarized with "the different leadership options available in their schools" (Baecher, 2012, p. 327).

McGee et al. (2014) investigated the influence of 18 ESOL (English as a second language) teachers or lead teachers' leadership on English teaching and learning in two primary schools in New Zealand. McGee et al. (2014) identified major effective leadership practices, including establishing goals and direction, enabling leaders to be role models with credibility through their knowledge of ESOL, providing ESOL professional learning for teachers and those in leadership, and empowering ESOL teaching and learning. These ESOL lead teachers, who were the holders of knowledge in these two schools, shared their knowledge with other colleagues and became

their role models. Moreover, the teacher leaders in the second school also provided professional learning for their colleagues through the teacher inquiry project, so their ESOL pedagogy and cultural knowledge were established through professional development.

There are a limited number of studies on professional development on leadership and teacher leaders in the TESOL field (McGee et al., 2014; Shakir et al., 2011). Interviews and questionnaires were the major research methods employed in the most recent empirical studies on teacher leaders in the TESOL field. This study uses qualitative (interviews, observations, documents) to explore how Taiwanese elementary school English teachers learned leadership from training sessions.

The conceptual framework in Fig. 49.1 was based on York-Barr and Duke's (2004) *Teacher Leadership for Student Learning Conceptual Framework* and MacBeath and Dempster's (2008) *Leadership for Learning Principles*. English teachers' knowledge about, perceptions of, and competence regarding leadership and teacher leaders were affected by the design and delivery of trainings as well as school conditions. Their learning regarding the leadership enabled them to practice their leadership in professional dialogue among English teachers in their own schools or teacher learning communities (TLC).

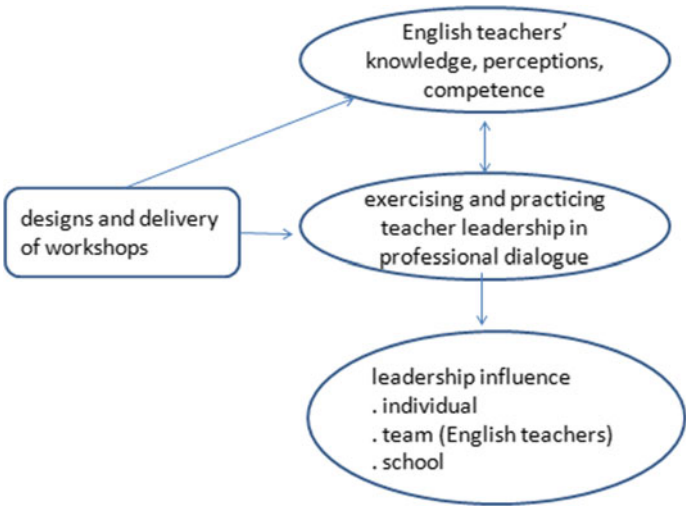

Fig. 49.1 Conceptual framework of the study

Methodology

This study used the qualitative data by closely examining the influence of trainings on teacher leaders' practice and perceptions of their leadership. This research also employed a multiple case study in order to explore these ten elementary school English teachers' learning about teacher leadership from training sessions.

Research Setting and Participants

Starting from 2013 academic year, the researcher conducted consecutive research studies regarding elementary school English teachers' professional dialogue in New Taipei City. In the 2017 academic year, the researcher sent invitations to English teachers who had been involved in the consecutive studies and also became or were interested in learning teacher leadership. Ten English teachers responded their willingness and took part in this study.

Anna, Judy, Lisa, Rose, and Sara participated in last year's study and continued to participate in this study. Of the ten participants, only one was male (the leader) and the rest were female. With regard to educational background, four teachers had a bachelor's degree and the other six had their master's degree in education. Compared to Hedy, who had the most teaching experience with 26 years of instruction, Rose had only two years of elementary school English instruction.

As for employment and status, Anna served as the director of academic affairs in her school and Sara served as the director of an English Wonderland. The rest worked as full-time English teachers. Five teachers were leaders of a teacher learning community and four were subject leaders.

Data Collection and Procedure

Data was collected during the 2017 fall semester. The data in this study included documents (i.e. training handouts), online posts, and interviews. While documents, online posts, and interviews were used to answer the first research question, interviews were used to answer the second research question.

The researcher designed the interview protocol based on empirical studies (i.e. McGee et al., 2014). Semi-structured interviews were conducted at the end of the study. Sample questions were "what trainings have you received for the role you currently held?" or "what did you learn from trainings about leadership?" Each participant was interviewed for at least an hour and the interview was audio-taped for later transcription and analysis. Transcriptions were sent to the interviewees for checking.

A total of five training sessions were designed in this study and participants were expected to gain an overview of teacher leadership. Artefacts and tools from Larner's (2007) book was integrated into the trainings. The first and the last were on-site trainings and the rests were online. The first training session on how to become a teacher leader, was designed and delivered by the researcher, in the beginning of the 2017 fall semester. The second training session focussed on big pictures that the teacher leaders might have and the third training session aimed to help these participants learn to plan and lead meetings. The fourth training session led the teachers to examine the challenges they faced as teacher leaders. The participating teachers were given tools and graphic organizers to practice leading professional dialogue in order to become effective teacher leaders. This last training aimed to help the participants to reflect on their experiences in leading professional dialogue and in being a teacher leader.

Data Analysis

To maintain confidentiality, pseudonyms were assigned to participants and their schools. Documents, interview transcripts, and online posts were initially read and coded based on the conceptual framework. Open coding (e.g. journal articles) were employed to explore elementary school English teachers' learning about leadership, identify common themes (e.g. topics), and refine the themes through ongoing synthesis and elaboration as in Fig. 49.2. When common themes emerge, data were reorganized according to the researcher's interpretation (e.g. learning from training). Direct quotations were preserved as much as possible.

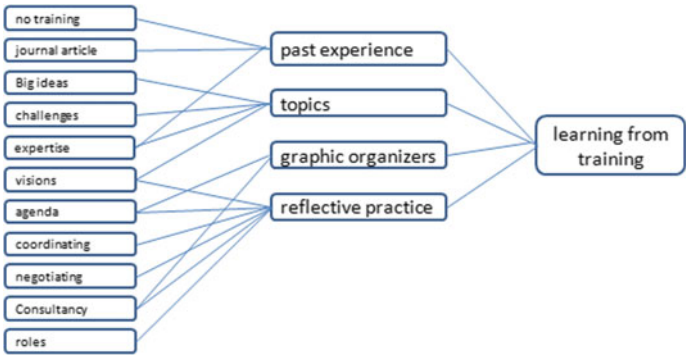

Fig. 49.2 Data analysis

Results and Discussion

Based on the data analysis, participants' learning from leadership trainings were discussed in terms of definitions of teacher leaders' and leaders' visions, experience of planning and leading meetings, consultancy for being teacher leaders, as well as comfort, risk, and danger of being teacher leaders. Participants' attitude towards the trainings were explored, too.

Definitions of Teacher Leaders and Leaders' Visions

On the first training, participants' written definitions of teacher leaders were mainly categorized into three types: planning and implementing curriculum ($n = 4$), facilitating teachers' professional growth (n = 4), and completing and negotiating administrative work ($n = 2$). Nina said, "Teacher leaders will lead the team or a group of teachers from the same grade level or subject area to design and implement curriculum". As being a teacher leader of the English teacher, Nina's definitions of teacher leaders was mainly related to the first type. With their past experience of being instructional coaches, Anna, Hedy, Judy, and Sara regarded teacher leaders as facilitators for teachers' professional growth. Sara wrote and shared in the training, "Teacher leaders must have broad visions and provide members in the same organization with different kinds of support".

In the Big Pictures online training session, participants were asked to share the visions they had as being a teacher leader. Their visions were mainly related to instruction. The top vision was "developing teachers' expertise and competence in English instruction" ($n = 4$), followed by "teachers' helping and supporting one another" ($n = 3$). Other visions included "cross-disciplinary lesson plans" ($n = 1$), "improving learners' English proficiency" ($n = 1$), and "teaching demonstration" ($n = 1$). Online posts by Lisa, Judy, and Amy are shown here:

> Online Post 1: Each teacher in my school can be very familiar with English strategies and what students of different grades should learn and achieve after they leave their class. And my colleagues will have the desires to keep learning and improving their teaching methods. (Lisa 0201)

> Online Post 2: Every member will be the expert in the field of teaching aids and willing to share with the teachers in the workshop. (Judy 0201)

> Online Post 3: Most of our teachers are working as one team which provides support to each other. (Anna 0201)

Participants in this study had big ideas or visions as being the leaders. Anderson (2005) suggested that teacher leaders should know the direction of the institutions in which they work. Moreover, they should recognize when they need to make course corrections.

Participants had similar visions when they took on the role of teacher leaders. Six participants wrote that they needed administrative support in order to make their visions fulfilled. As exemplified by Mary and Tina:

> Online Post 4: I need the administrators' support and involvement. They need to provide a classroom for teaching demonstrations and observations, negotiate the schedule and arrange the substitute teachers (Mary 0202)

> Online Post 5: I need administrators' support, particularly in purchasing all the teaching aids. (Tina 0202)

Teacher leaders like Tina and Mary in this study should recognize the existing school culture and collaborate with schools in appropriate ways (Silva et al., 2000). "Organizational effectiveness... is dependent upon both capable leadership and sound management" (McCaffery, 2004, p. 58). In this study, participants called for administrative support in terms of classroom arrangement and material purchases. Such a call seems to be under the characteristics of leadership and management, as claimed by Christison and Murray (2012), that leaders set visions, motivate staff, mould teams, and empower people, while managers budget, staff, administer, and create systems and structures (p. 1).

In addition to the administrative support, two participants thought that they needed external experts to fulfil their visions. While Bill needed experts in lesson planning, Mary needed experts in supervising teaching demonstrations, as illustrated by two online posts:

> Online Post 6: In order to design cross-disciplinary lessons, I want to invite experienced teachers to share their lessons and lesson study. (Bill 0202)

> Online Post 7: I hope that experts in English education can be invited to our teaching demonstrations. These experts can be professors, instructional coaches, or experienced English teachers. (Mary 0202)

Two participants specifically identified their need to read more about instructional leadership, as in the following two posts. They thought that reading more about instructional leadership might help them become competent teacher leaders.

> Online Post 8: Readings as reference help us work on the right track. (Anna 0203)

> Online Post 9: I need to study more about instructional leadership and leadership ability. (Hedy 0203)

In addition to reading books on leadership, Anderson (2005) also suggested that teachers can attend workshops and sessions on leadership. Moreover, teachers can attend TESOL leadership development certificate programs or access leadership websites.

Experience of Planning and Leading Meetings

A table was designed to guide participants to reflect on their experience with planning meetings, as shown in Fig. 49.3. Participants were asked to discuss when the meeting was, what the agenda was, and what problems they faced.

Bill, Hedy, Lisa, Nina, and Tina shared the same meetings that the researcher observed. Rose wrote about her experience of planning a meeting on discussing an English scavenger hunt. Judy, Lisa, and Mary wrote about their experience of planning the meeting on discussing teaching practice. Anna wrote about her experience in planning a teaching demonstration. Some of the posts are shown below.

> Online Post 10: Agenda: 1. explain the public teaching plan 2. examine the content of School Evaluation 3. Go through the outline of each learning area. (Anna 0301)

> Online Post 11: Agenda: (a) Share last two weeks' lessons, from G1 to G6. (b) Share the ideas for the next two weeks' lessons. (c) I shared what I learned from the class observation in one elementary school on November, 24, 2017. (Sara 0301)

The instructional leadership that Anna and Sara demonstrated aimed to improve colleagues' professionalism in English language teaching contexts through discussion, collaboration, and learning. Language teachers can practice their leadership on a daily basis, because they have daily opportunities to lead through influence and teaching (Sams, 2010).

Lieberman and Miller (2004) claimed that teachers learn to become leaders on their own, through trial and error, and learning by doing the job. Participants in this study did not receive any formal training prior to taking the positions of leadership. Lisa said, "I was new to school and was asked to be the teacher leader. I was learning by doing. I observed how other teachers talked in the professional dialogue and modified my ways of talking and interacting with other teachers". Teacher leaders are learning on the job (Sams, 2010).

Figure 49.4 shows the graphic organizer for the participants to reflect on their roles in facilitating the meeting recorded in Fig. 49.3. Participants were asked to

Fig. 49.3 Agenda planner

Agenda Planner

Time When was the meeting?	Agenda What was the agenda?	Comments/notes What problems did you face?

Fig. 49.4 Facilitator and teacher leader: reflection and evaluation

evaluate what they did, what worked, what did not work, their learning, what they expected to learn going forward, and support that they needed.

What participants gained the most from the training being leaders in leading meetings was "coordinating and negotiating with the administrators" ($n = 3$), followed by "time constraints" ($n = 2$), "reaching consensus" ($n = 2$), "topics for discussion" ($n = 1$), "importance of graphic organizers for professional learning" ($n = 1$), and "knowledge and expertise" ($n = 1$). Some of the participants' online responses are shown below:

> Online Post 12: The decisions we made during the meetings were not to be fully implemented. I learned that there was a huge gap between teachers' needs and administration. I had to negotiate between English teachers, administrators, director of bilingual program, and native English speaking teachers. It was tough. (Nina 0302).

> Online Post 13: We had the consensus about the teacher learning community. But it turned out that some teachers just wanted to chat during the meetings. I learned from leading the meeting that consensus was just the consensus. (Bill 0302)

> Online Post 14: Effective leading discussion relied on clear agenda and graphic organizers. We had a clear agenda and diagram to organize our thoughts. (Hedy 0302)

Heffernan (2005) identified the tasks and characteristics of leaders in TESOL. The role of teacher leaders is to involve those who have the skills to transform the thinking of others and direct the profession on a desired course. Hence, these leaders must strive for common goals within the institutions, aiming to continuously be responsive to context while working in close conjunction with colleagues and adjusting their skills to fit the needs of others. Participants in this study engaged in different tasks while they played the roles of teacher leaders and gaining professional learning.

Leading occurs in individual teachers as well as within groups of teachers (Sams, 2010). Wren (1995) claimed that groups have special characteristics and their own dynamics, which must be understood to lead successfully (p. 353). Figure 49.5

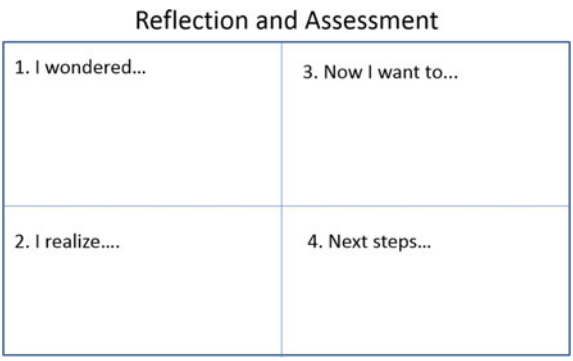

Fig. 49.5 Reflection and assessment

was designed to guide participants to reflect their experience of leading meetings (Fig. 49.3). Participants were asked to write down problems or questions under "I wondered" and skills and strategies that they learned in leading the meetings under "I realized". Then they had to brainstorm any strategies that they would do differently under "Now I want to" and pick one on which they would like to take action under "Next steps".

Actions that participants might take for the next steps were mainly divided into administrative and instructional preparations. With regard to administrative preparation, participants thought that they could negotiate with the administrators:

> Online Post 15: I will plan the meeting agenda in detail and email my colleagues in advance. (Bill 0303)

> Online Post 16: Before each meeting, I learned that I should totally understand the meeting agenda. I should negotiate with key administrators ahead of the time. So I have a better understanding of the administrative practice. (Nina 0303).

With regard to instructional support and preparations, participants thought that they needed to announce the big ideas they had, scaffolded these with colleagues to accompany the big ideas with guiding questions, and learned to be patient:

> Online Post 17: I wonder if most teachers understand the big picture I want them to get. I would simplify my questions and contents to get more focused information. (Anna 0303)

> Online Post 18: I realize that I should ask more questions for colleagues to think and discuss, instead of providing solutions or my own experiences immediately. Now I want to be patient and ask more open questions. (Lisa 0303)

McGee et al. (2014) used the interview to explore the leadership practice that supports language education in two schools in New Zealand. In the current study, participants' awareness of making the goals and big ideas was clearly in accord with McGee et al.'s (2014) conclusion that establishing clear goals and focus was regarded as the effective leading practice (2014).

Consultancy for Being a Teacher Leader

Figure 49.6 was designed to help participants describe their problems to their friends or experts for consultation. Participants were first asked to describe a difficulty or challenge they faced as being a teacher leader to an expert. They were also asked to write down the probing questions the experts asked under Probing Questions in Consultancy in Triads.

Based on the challenges and problems participants had, participants went to ask other experts. These experts asked them some questions, illustrated by the following:

> Online Post 19: 1. Why do you care so much? Why is that your duty to teach other teachers how to teach and why do you have to prepare the teaching materials for them? 2. How come their problems become your problems? (Lisa 0402)

> Online Post 20: Why could it be implemented effectively? Why could you make a right decision and judgment? (Rose 0402).

> Online Post 21: What strategies can be applied when I teach reading? What do you do when you teach short stories? What to do when students don't cooperate in groups? (Anna 0402)

These experts played the roles as critical friends to the participants. A critical friend would be regarded as a trusted individual who "asks provocative questions, provides data to be examined through another lens, and offers critiques of a person's work as a friend" (Costa & Kallick, 1993, p. 50).

With regard to "new insights and ideas" in Fig. 49.6, participants appreciated the consultancy experience provided by the training session. They had different perspectives from other experts. Through the Consultancy in Triads, these experts as participants' critical friends provided participating teachers with a new lens for perceiving English language teaching and teacher leadership (Halim, 2008; Sachs, 2000). Here are samples of online posts:

> Online Post 22: It helps me to think about the difficulty I encounter and see the problems from a different point of view. "Consultancy in Triads" really worked, it worked better than my past experiences. (Sara 0404)

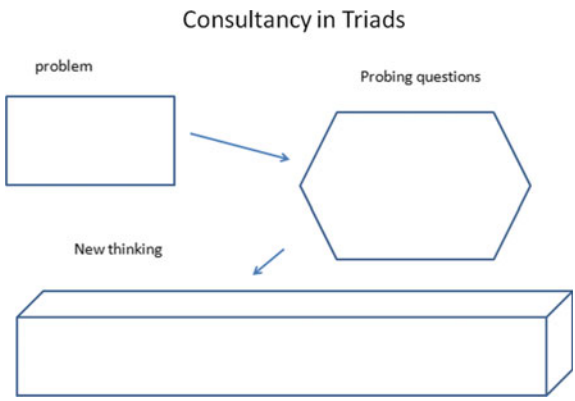

Fig. 49.6 Consultancy in triads

Online Post 23: Help me to view my own frustrations as an outsider. (Lisa 0404)

Online Post 24: I particularly like the probing questions. In the past, when I asked other experts' suggestions, I prepared my questions first. This time I just shared my challenges and problems. I invited other experts to ask me questions. They gave me suggestions and discussed with me solutions. (Mary 0404)

Learning About Comfort, Risk, and Danger of Being Teacher Leaders

Figure 49.7 was used to help participants identify their comfort, risk, and danger zones while they played the roles of teacher leaders. The inner circle was the zone of comfort, where participating teachers did what was comfortable, which did not require any stretching or learning. "Sharing" was identified by all participants as something with which they felt "comfortable":

Online Post 25: Sharing my teaching ideas and methods. (Lisa 0501)

Online Post 26: Share my experience (Judy 0501)

The next ring represented the zone of risk, where participating teachers were not always sure they knew what to do as they were stretching into new territory. "Negotiating and allocating the jobs" was the risk that participants identified, followed by "asking colleagues to put lesson plans and instructional ideas into practice". The posts below illustrate these ideas.

Online Post 27: I felt at risk when I was asking to negotiate with other teachers about what duties or tasks they had to work on. (Tina 0501)

Online Post 28: Confront people who didn't put things into practice. (Sara 0501)

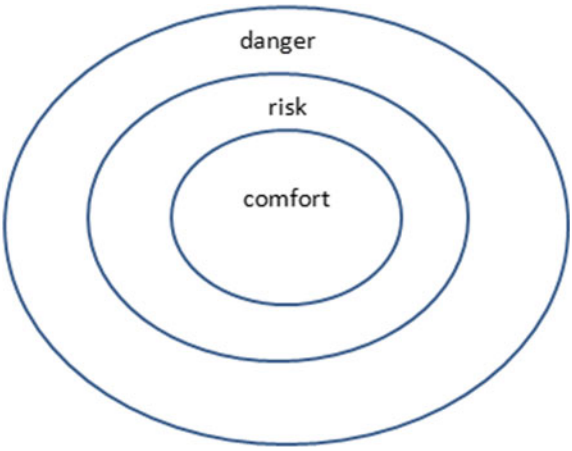

Fig. 49.7 Danger, risk, and comfort

Participants felt at risk when taking the roles of teacher leaders. They themselves learned the hard lessons about developing interpersonal skills in communicating and negotiating. At the same time, they had to overcome the inhibitions when they uncovered their leadership (Ackerman & Mackenzie, 2006).

Next, the outer ring represented the zone of danger, where participating teachers were just trying to survive and could not pay attention to anything else, much less something new. "Pushing teachers out of the comfort zone and trying something new" was the biggest danger that teachers identified, followed by "not reaching a decision that pleased everyone" and "lacking expertise and knowledge". Here are examples of from online posts:

> Online Post 29: When teachers were not willing to collaborate or negotiate, but we had to make a decision that pleased everyone. Under such a circumstance, I felt being at danger. (Nina 0501)

> Online Post 30: Someone asks the questions that I don't have that aspect of knowledge. (Judy 0501)

> Online Post 31: Push old or "experienced" teachers to join the lesson plan group. (Lisa 0501)

> Online Post 32: No one was willing to give it a try and deliver a teaching demonstration. I did that every year in the past two years. (Mary 0501)

The biggest danger these teachers identified in this study was in accord with Silva et al. (2000) that teacher leaders model the professional growth through leaving their old comfortable habits and gaining growth from developing an inquiry perspective. Many teachers are afraid of confronting hard issues that will transform the teams or schools (Heifetz & Linsky, 2002). Participants in this study vented their worries and dangers in these online posts in terms of negotiating and facilitation. Their dangers and worries were similar to the finding of Heifetz and Linsky (2002), concluding that "the essence of leadership lies in the capacity to deliver disturbing news and raise difficult questions in a way that moves people to take up the message without killing the messenger" (p. 74).

Participants regarded the zones of comfort, risk, and danger in Fig. 49.7 as a useful tool to lead them to do reflective practice. Moreover, such a tool helped them examine their roles as teacher leaders.

> Online Post 32: I reflected again and again on "comfort, risk, danger." After observing my colleagues' responses during the meetings, I thought I could apply "the Zones of Comfort, Risk, and Danger" into leading my teacher learning community. Sometimes I could give my colleagues a break as the comfort. Sometimes I can stimulate their thinking and give them some pressure. (Bill 0502)

> Online Post 33: I try to use the strategies that I learned here to solve the problems. (Sara 0502)

> Online Post 34: "The Zones of Comfort, Risk, and Danger" helped me to seek different perspectives and get out of my blind spots when being a teacher leader. I could get out of my comfort zone. (Rose 0502)

In this study, tools were utilized to guide participants to reframe their experience for self-awareness on their leadership practice. Reflection involves the process of

witnessing one's past experience in order to take a closer examination at it. Reflective practice often requires teacher practitioners to be curious and assertive to gain self-awareness and understanding of the world (Yang & Bautista, 2008).

Attitude Towards Leadership Trainings

All of the participants stated that they had not taken any training or courses in instructional leadership or teacher leaders before this study. At the end of the study, in addition to the online courses offered by the researcher, two participants responded that they recently took related courses in their graduate programs. While Rose said, "I enrolled in a graduate program this academic year. I took a leadership course this semester", Mary also said, "I was the second-year graduate student. I read journal articles related to teacher leadership". This finding was in accord with Anderson's (2005) study that many TESOL teachers lacked training and knowledge for teacher leadership when they were forced to move into the leadership positions. Teacher leaders have to learn through trial and error (Liebeman & Miller, 2004).

At the end of the study, participants were asked what they learned from the series of training sessions. "Examining and reflecting their roles as teacher leaders" was the top lesson that participants learned ($n = 5$), followed by "arousing interests to learn more about teacher leadership" ($n = 3$) and "a process of action research" ($n = 2$). First, with regard to self-reflection, Sara said, "This whole series of training sessions led me to have self-evaluation and improve my instructional leadership and strategies". Bill also said, "During the whole series of training sessions, what I gained the most was to reflect on my role and try to find external resources to accomplish my role as a leader of the teacher learning community". Odell (1997) stated that teacher leaders need to become reflective and inquiring in order to produce change in the social context and curriculum in schools (p. 123). Bond (2011) also suggested that teacher leaders should have the metacognitive skills of inquiry and reflection. The training sessions enabled the participants to reflect on their own roles as teacher leaders.

Participants were motivated to learn more about teacher leadership. While Judy said, "I would like to take some course of creating the warm and positive learning community", Lisa stated, "I want to start with self-education by reading related books and ask other teacher leaders' help or suggestion". Participants in this study became autonomous learners. Teacher leaders are willing to continue to learn and develop in the enactment of teacher leadership at their respective school sites (Poekert, 2012). Such continuous learning on leadership might lead to improved professional learning for their colleagues and themselves.

The tools used in the series of training sessions helped participants, too. Hedy said, "Some of the tables in the training sessions were good problem-solving models. I could use not only in teacher leadership but also in my classroom practice". Mary also said, "The process that I was involved with in this study was like an action research. I discovered and analyzed the problem. I analyzed the current situations, looked for

help, wrote down resolutions, made judgments, and chose the right solutions. So my problems were solved". According to Sams (2010), the third wave of teacher leadership in the TESOL field has focussed more on training and collaborative activities through assisting colleagues with professional development activities or problem-solving. The tools and training sessions led participants like Mary to move in the direction of teacher leadership in their professional development activities.

Implications

This study explored ten elementary school English teachers' learning about teacher leadership. Based on data analysis of interviews, document, and online posts, the study had the following major findings. First, none of the participants had had trainings on teacher leadership prior to the study. Participants learned to develop teacher leaders' visions, plan and lead meetings, consult for teacher leaders and expect risks and dangers while taking roles as teacher leaders. Secondly, different graphic organizers (e.g. Consultancy in Triads; Danger, Risk, and Comforts) and guiding questions provided in the series of training sessions led the participants to reflect on their roles as teacher leaders by examining their leadership practice, improving their problem-solving strategies, and arousing their interest in learning leadership. Suggestions on fostering elementary school English teachers' leadership are provided in terms of integrating leadership issues into English teachers' professional development and integrating tools and reflective practice into leadership training.

Integrating Leadership Issues into English Teachers' Professional Development

Before this study, participants had not received any formal training on leadership. Alexandrou and Swaffield (2012) stated that "Both teacher leadership and professional development are in the service of pupil learning, and teacher leadership is itself a form of learning, affording many opportunities for professional development" (p. 160). Leadership issues should be integrated into English teachers' professional development offered at the school or district level (Danielson, 2007). Subject teachers or leaders of teacher learning communities should learn to become competent teacher leaders (Baecher, 2012; Taylor et al., 2011).

Professional development and trainings are required to develop teachers as leaders and to assist teachers and administrators in conceptualizing their roles (Poekert, 2012). Effective professional development becomes the impetus for teacher leaders' professionalization in leadership competence and skills, which enables them to influence and improve the instructional practice of their colleagues (Murphy, 2005).

Integrating Tools and Reflective Practice into Leadership Training

Teacher leaders need to learn the necessary skills of curriculum planning, instructional improvement, assessment design, collaboration, and facilitation (Danielson, 2007). Graphic organizers such as T-charts can help teachers classify their concepts, communicate more effectively, solve problems, brainstorm ideas, or reflect on their leadership practice. The provision of graphic organizers can facilitate teachers as they learn and process the knowledge and concepts in professional development (Author, 2012). Hence, different types of graphic organizers and reflective practices could be included in the professional development on teacher leadership (Göker, 2012).

Conclusion

Based on the data analysis of documents, interviews, and online posts, the study had the following major findings. Participants' lack of training on leadership called for the integration of leadership issues with reflective practice and graphic organizers into English teachers' professional development in order to equip teachers with knowledge and competence in leadership and TESOL. The findings of this study were expected to point to the practical implications of designing and delivery trainings to prepare elementary school English teachers to become teacher leaders in professional dialogue. The tasks to be designed and implemented in the workshops may provide guidance for language teacher education programs for in-service teachers' professional development and learning. Therefore, this study was intended to contribute to enriching research and practices related to professional development in teacher leadership.

The activities and tasks to be implemented in the workshops were based on Larner's (2007) book. There are other books and resources available on equipping elementary school English teachers to be ready for teacher leadership. It is important to note that the results and influence of the workshops on participating teachers' skills, knowledge, competence, and perceptions of teacher leadership may be restricted. A further study could analyse the effects of different types of tools and graphic organizers on English teachers' professional learning about teacher leadership.

References

Ackerman, R., & Mackenzie, S. V. (2006). Uncovering teacher leadership. *Educational Leadership, 63*(8), 66–70.

Alexandrou, A., & Swaffield, S. (2012). Teacher leadership and professional development: Perspectives, connections and prospects. *Professional Development in Education, 38*(2), 159–167.

Anderson, N. (2005). Leadership is not about position: Leading from behind. In *Proceedings from the TESOL Symposium on Leadership: Initiating and Managing Changes in English Language Teaching* (pp. 5–20). Bangkok, Thailand, January 23, 2005.

Ash, R. C., & Persall, J. M. (2000). The principal as chief learning officer: Developing teacher leaders. *NASSP Bulletin, 84*(616), 15–22.

Author (2012)

Baecher, L. (2012). English-as-a-second language teachers: Professional development by and for emerging teacher leaders. *Professional Development in Education, 38*(2), 317–330.

Bond, N. (2011). Preparing preservice teachers to become teacher leaders. *The Educational Forum, 75*(4), 280–297.

Bowman, R. F. (2004). Teachers as leaders. *The Clearing House, 77*(5), 187–189.

Chaibi, A. (2008). Towards fostering leadership in the Moroccan EFL classroom. In M. Hassim, & A. Chaibi (Eds.). *Leadership and Values in Language Education* (pp. 28–36). The Moroccan Association of Teachers of English.

Chien, C. W. (2014a). Effective professional dialogue as job-embedded professional development for elementary school English teachers. *New Taipei City Education, 12*, 30–34 (NSC102-2410-H-134-007).

Chien, C. W. (2014b). The study of professional dialogue as job-embedded professional development for elementary school English teachers. Taipei, Taiwan: National Science Council (102-2410-H-134-007).

Chien, C. W. (2016). Structuring elementary school English teachers' professional dialogue about teaching and learning through protocols. Taipei, Taiwan: Ministry of Science and Technology (MOST-104-2410-H-134-005).

Christison, M., & Murray, D. E. (2012). Introduction. In M. A. Christison, & D. E. Murray (Eds.), *Leadership in English language education: Theoretical foundations and practical skills for changing times* (pp. 1–12). Routledge.

Costa, A. L., & Kallick, B. (1993). Through the lens of a critical friend. *Educational Leadership, 51*, 49–49.

Danielson, C. (2007). The many faces of leadership. *Educational Leadership, 65*(1), 14–19.

Göker, S. D. (2012). Reflective leadership in EFL. *Theory & Practice in Language Studies, 2*(7), 1355–1362.

Halim, S. M. A. (2008). *The effect of using some professional development strategies on improving the teaching performance of English language student teacher at the Faculty of Education, Helwan University in the light of pre-service teacher standards* (Unpublished doctoral dissertation). Helwan University.

Heffernan, N. (2005). Leadership in EFL: Time for change? *Asian EFL Journal, 7*(1), 1–14.

Gibbons, L., & Knapp, M. (2015). Talk that teaches: How to promote professional dialogue and growth. *JSD: Learning Forward Journal, 36*(3), 14–19.

Heifetz, R. A., & Linsky, M. (2002). *Leadership on the line: Staying alive through the dangers of leading*. Harvard Business Press.

Larner, M. (2007). *Tools for leaders: Indispensable graphic organizers, protocols and planning guidelines for working and learning together*. Scholastic.

Lieberman, A., & Miller, L. (2004). Teachers as leaders. *The Educational Forum, 69*, 151–161.

MacBeath, J., & Dempster, N. (Eds.). (2008). *Connecting leadership and learning: Principles for practice*. Routledge.

McCaffery, P. (2004). *The higher education manager's handbook*. Routledge Falmer.

McGee, A., Haworth, P., & Macintyre, L. (2014). Leadership practices to support teaching and learning for English language learners. *TESOL Quarterly, 49*(1), 92–114.

Melouk, M. (2009). A competent EFL teacher: In search of professional standards. In M. Hassim, & A. Chaibi (Eds.), *Leadership and values in language education* (pp. 28–36). The Moroccan Association of Teachers of English.

Ministry of Education. (1998). *Small-size class plan.* Ministry of Education.

Murphy, J. (2005). *Connecting teacher leadership and school improvement*. Thousand Oaks, CA: Corwin Press.

Odell, S. J. (1997). Preparing teachers for teacher leadership. *Action in Teacher Education, 19*(3), 120–124.

Poekert, P. E. (2012). Teacher leadership and professional development: Examining links between two concepts central to school improvement. *Professional Development in Education, 38*(2), 169–188.

Sachs, J. (2000). The activist professional. *Journal of Educational Change, 1*(1), 77–94.

Sams, D. (2010). *An analysis of leadership beliefs and practices of 25 TESOL leaders* (Unpublished doctoral dissertation). Indiana University of Pennsylvania.

Shakir, F. J., Issa, J. H., & Mustafa, P. O. (2011). Perceptions towards distributed leadership in school improvement. *International Journal of Business and Management, 6*(10), 256–264.

Silva, D. Y., Gimbert, B., & Nolan, J. (2000). Sliding the doors: Locking and unlocking possibilities for teacher leadership. *Teachers College Record, 102*(4), 779–804.

Taylor, M., Yates, A., Meyer, L. H., & Kinsella, P. (2011). Teacher professional leadership in support of teacher professional development. *Teaching and Teacher Education, 27*(1), 85–94.

Wren, J. T. (1995). *Leader's companion: Insights on leadership through the ages*. The Free Press.

Yang, S., & Bautista, D. D. (2008). Reflection, arts, and self-inquiry: A letter to other for negotiating Korean English teacher identity. *Reflective Practice, 9*(3), 293–305.

York-Barr, J., & Duke, K. (2004). What do we know about teacher leadership? Findings from two decades of schoolship. *Review of Educational Research, 74*(3), 255–316.

Chapter 50
Teacher Education in Pakistan: Structure, Problems, and Opportunities

Naima Qureshi and Qudsia Kalsoom

Abstract This chapter discusses teacher education in Pakistan with a specific focus on professional development of the teacher educators. The chapter will be organized in four sections. Section 50.1 will provide an overview of the structure of pre-service and in-service teacher education programmes in the country and accreditation standards for teacher education; Sect. 50.2 will discuss induction and professional development practices in teacher education; Sect. 50.3 will discuss problems in teacher education with reference to professional development of teacher educators and research output. The Sect. 50.4 will discuss the way forward.

Keywords Teacher effectiveness · Teacher education · Pre-service · In-service · Professional development

Introduction

Teacher effectiveness is one of the most important school-related factors in student achievement and teacher preparation and development are foundational in developing effective teachers (Darling-Hammond, 2017). In addition to positive outcomes with reference to students' academic success, more competent teachers are more likely to enter and stay in the teaching profession (Vagi et al., 2019). Since teacher preparation and development directly influences the competencies of teachers, it needs to be planned and executed carefully. Darling-Hammond (2017) notes that the countries that have well-developed systems for teacher development have taken some useful initiatives to ensure effective teacher preparation and development. Some of them include: using professional teaching standards focussing on critical knowledge, dispositions and skills; mechanism to assess teachers' performance against teaching standards; integration of high-quality clinical work/ teaching practice alongside

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thoughtful coursework; induction models to support novice teachers through collaborative planning, skilful mentoring and reduced teaching loads; and profession-wide capacity building through sharing of research and good practice.

Considering the centrality of teacher preparation and development in improving overall quality of education, Pakistan underwent a profound teacher education reform from 2005–2012. The reform efforts started with the project "Strengthening Teacher Education in Pakistan (STEP)" in 2005 with the support of UNESCO and USAID (UNESCO & USAID, 2006). Kalsoom (2017) note that reform in teacher education was done to address a range of issues such as: lack of standards for teachers' professional development; no policy of accrediting teacher education programmes and low social status of teachers; poor quality of teacher education programmes; and lack of teachers' subject knowledge. Teacher education reform in Pakistan involved development of professional teaching standards, establishment of accreditation council for teacher education programmes, changes in the nomenclature, structure and the content of pre-service teacher education programme.

Development of teaching standards has been largely viewed as a strategy to improve the quality of teachers. The underlying assumption in this regard is that teaching standards can guide teachers' learning in addition to licensing or certification of candidates and accreditation of programmes (Darling-Hammond, 2017). Literature from the USA indicates that teachers who meet the teaching standards are more effective teachers than those who do not (Goldhaber & Anthony, 2005; Vandevoort et al., 2004). Considering the impact of standards on teachers' quality, many countries (such as Canada, Australia, Singapore, Finland, and New Zealand) have developed teaching standards (Darling-Hammond, 2017). As a part of teacher education reform, the Policy and Planning Wing of the Ministry of Education, Pakistan developed National Professional Standards for Teachers (NPST) with the support of USAID and UNESCO in 2008 (Ministry of Education, 2009). These standards were adopted by the representatives of all provinces in the National Steering Committee Meeting held in November 2008 (Ministry of Education, 2009). NPST primarily focussed on teachers' knowledge of school subjects, educational psychology, educational assessment, effective communication, professional ethics, and learning environments. There are ten NPST and each NPST has three elements i.e. knowledge and understanding (what a teacher knows), dispositions (behaviour, attitude and values), and performance/ skills (what a teacher can do and should be able to do). These standards served as a framework for the preparation of B.Ed. (Honours) and Associate Degree Programme.

To improve the quality of pre-service teacher education, another important initiative was establishment of National Accreditation Council for Teacher Education (NACTE) in 2007. NACTE has a mandate to accredit teacher education programmes offered at the public and private sector institutions in Pakistan. NACTE developed seven standards for accreditation "to be evidenced through 154 indicators" (Mirza, 2015, p. 100). The standards include: (1) Curriculum and Instruction; (2) Assessment and Evaluation System; (3) Physical Infrastructure, Academic Facilities and Learning Resources; (4) Human Resources; (5) Finance and Management; (6) Research and Scholarship; (7) Community Links and Outreach. In addition to the

standards, NACTE (2009, p. 2) has included a conceptual framework as a prerequisite of accreditation. The programme ethos states that "the program has developed a knowledge-based shared vision to prepare committed and competent teachers and educationists" (NACTE, 2009, p. 2).

The current chapter provides an overview of the structure of teacher education in Pakistan and discusses practices and problems in detail.

Structure of Teacher Education in Pakistan

Teacher education in Pakistan comprises of initial teacher preparation/pre-service teacher education and continuing teacher development/in-service teacher education. Currently, Pakistan offers three pre-service teacher education programmes: B.Ed. (Honours) Elementary, B.Ed. Secondary, and Associate Degree. Previously, a range of different teacher preparation programmes were offered, including: One-year Certificate in Teaching (CT), One-Year Primary Teaching Certificate (PTC), One-Year Diploma in Education, One-year Bachelor in Education and Masters in Education. These programmes aimed at preparing teachers to teach at different educational levels such as primary school (grades 1–5), middle school (grades VI-VIII), and secondary school (grades IX and X). PTC was offered after matriculation (10 years of education) and CT was offered after twelve years of education. Bachelor and Masters in Education were offered after 14 years of education. As a result of teacher education restructuring in Pakistan, PTC, CT, Diploma in Education, and one-year B.Ed were phased out and replaced with four-year B.Ed (Honours) programme and a two-year Associate Degree in Education in 2016 (Higher Education Commission, 2016). The details of these programmes is in Table 50.1.

Table 50.1 Pre-service Teacher Education Programmes in Pakistan

Programme	Admission/Entry requirement	Duration	Programme credits[a]
Associate Degree in Education	12 Years of Education	2 Years/4 Semesters	68
B.Ed. (Honours) Elementary	12 Years of Education	4 Years/8 Semesters	135
B.Ed. (Honours) Secondary	16 Years of Education	1.5 Years/3 Semesters	76 Credits
	12 Years of Education	4 Years	142 for Social Sciences 162 for Subjects requiring laboratory or field work

[a]Programme Credits mentioned in the Table have been taken from the source Higher Education Commission ()

Issues and Problem in Education and Teacher Education

In Pakistan, poor quality reflected in students' learning and overall the performance of teachers has been an area of concern for many years (Government of Pakistan, 2005; Jamil, 2004). Teachers' competencies have been identified as one of the major factors for low quality of education in schools. Bakhs has further pointed out the challenges regarding quality of education including low level of teacher's competence, lack of support for teachers, unsupportive culture, weak sector governance and management, unhealthy learning environment, insufficient teaching and learning resources in schools, promotion of teachers on sonority rather than on performance and weak monitoring and accountability mechanism particularly in rural schools (Nawab, 2020). In the context of Pakistan, the studies of Akhter (2013), Ali (2011), Sultana (2001), World Bank (2006) also asserted that, at a fundamental level, classroom pedagogies and within school environment and culture do not encourage children to think independently and to engage learners in higher order thinking skills.

In addition, teacher education programme and quality of teaching have been widely criticized in various national surveys, policy documents and research studies (Akram & Zepeda, 2015; Dilshad 2010; Shaukat & Chowdhury, 2020; Tahira et al., 2020, Qureshi, 2016; World Bank, 2006). The studies have also noticed correlation between poor quality of teachers' preparation (initial and in-service training) and poor students' performance in schools (Government of Pakistan, 2009, 2017–25, PTEPDP, 2004). The National Education Policy (1998–2010, 2009, 17–25), repeatedly highlighted that poor quality of teachers is owed to an obsolete structure of pre-service trainings, non-provision and weak mechanism of induction programme, insufficient professional support for teachers, poor governance and administrative structures. Pakistan Educational Statistics (2008–2009) and Academy of Educational Planning and Management (2009) also identified that above 90 per cent of teachers are trained but unfortunately had little impact on the quality of teaching in schools.

Research studies in the field of teacher education in Pakistan have identified a range of issues and challenges faced by teacher education (Akhter 2013; Government of Pakistan, 2009; Jamil, 2004; Shaukat & Chowdhury, 2020; Qureshi, 2016). Akhter (2013) also indicated that the pedagogy of teacher education programmes is rigid, examination-based and attributed by chalk-talk, memorization of lecture, and transmission style of teaching, overemphasis on theory and content (Akhter, 2013). In addition, assessment practices used in teacher education programmes including design and content of the test papers have also been criticized.

Huma (2013) also highlighted that "in Pakistan there is no other examination or test to assess teacher's competence for certification than the exams conducted by the universities at the end of courses and programs" (p. 303). Christie and Afzaal (2005) criticized that in teacher education programmes, selected material is tested again and again, low level of questions, lack of using critical or analytical approaches for assessing learners led student–teacher to memorize the selected material and likely to score high in the examination.

As a result of traditional assessment practices that focus solely on memorization make student–teacher a passive receipt of knowledge (Ahmed & Malik, 2011; Khan, 2011). Apart of it, low quality of examination papers in terms of its reliability and validity, selection of paper setters, and lack of training in assessment and evaluation, lack of assessment tools used for evaluation of students' teachers (Kamarani, 2011) do not bring any qualitative improvement on students' learning. Mirza et al. (1999) also highlighted the issue of teachers' competence and lack of skills in designing tests and using student-centred pedagogy in classrooms.

It has also been discussed that the poor assessment practices used in teacher education programme do not develop problem-solving and inquiry-based attitude among student-teachers. Jamil (2009) asserts that poor assessment practices in universities discourage student-teachers who are motivated in using inquiry-based. Although Education Policy (2009) mentioned the significance of measuring students' performance through multiple assessment techniques, yet most of the time, advanced and varied assessment practices are rare in practice (Akhter, 2013; Khan, 2011). Iqbal and Shams (2012) have also highlighted that teacher education programmes have failed to prepare teachers according to the needs and culture of the school and lack congruency with school context (Ali, 2011). Westbrook et al. (2009) also asserted that courses of pre-service teacher education have limited focus on classroom practices and real school context. In result, teacher exhibit poor application of teaching skills and pedagogies and lack understanding how students learn. Lack of preparation, less supportive culture of school, lack of resources, overcrowded classrooms adds more obstacles in promoting quality teaching and learning (Westbrook et al., 2009).

Even until recently, Tahira et al. (2020) have concluded in their study that teacher education in Pakistan is facing varied issues, i.e. poorly equipped training institutes, short-term training for teachers, emphasis on quantitative expansion rather than on quality, narrow scope of curriculum, emphasis on theory, lack of research, lack of supervision and accountability, poor quality of instruction and insufficient training of teacher educators.

Poor monitoring, accountability and appraisal are some more factors responsible for ineffective in-service teachers' professional development in Pakistan (Khan, 2011). Nawab (2020) argues that performance of teachers is evaluated through Annual Confidential Report (ACR) which very rarely counts professional development of teachers.

In the private sector schools of Pakistan, appraisal system is more effective which include the frequent visits of school heads in the classrooms, evaluation of teacher' lesson plans, evaluation by third party, consultations and meeting with parents (Hyun & Sajjad, 2018; Nawab, 2020). It has also been noticed that teachers in private schools perform better (Nadeem et al., 2020) because they fear of being fired or reprimand by private school heads.

In addition, in Pakistan, the teaching profession has failed to attract academically strong candidates. Rashid and Mukhtar (2012) and Akhter (2013) have pointed out that usually teaching has not been a first choice of many graduates because of lesser incentive, lack of privileges, service condition for primary schools and lack of respect of teaching profession (Saeed et al., 2013). Akhtar goes on commenting

that a many graduates who do not qualify for professional universities, i.e. medicine and engineering, seek to take admission in teacher education universities/colleges. Generally, it has been noted that teaching is not a choice for men and most of them prefer to have part-time jobs. In addition, appointments are often based on the basis of political affiliations (Ali, 2000) and are not based on qualifications and experience (Westbrook et al. 2009).

Unfortunately, a general perception has developed in the country teaching does not require any special preparation, knowledge and skills (Nawab, 2020). In Pakistan, currently, in most private schools, having a teaching qualification or certification is not a requirement. Therefore, anyone with undergraduate degree without any professional qualification can join the private schools (Khan, 2011). Although, the National Professional Standards have been introduced in 2009 in Pakistan, however, Shaukat and Chowdhury (2020) has raised concerned over alignment of standards with teacher education course content and its relevance with Pakistan context.

Initial Teacher Education, Induction Provision and In-service Professional development Opportunities of Teachers

After having a teacher education degree, a teacher is appointed as a school teacher. After appointment as a school teacher, there is a system of induction training programme for school teachers. Overall different models of in-service training provisions prevails in Pakistan including cascade training, mobile teachers training, cohort model, district training and support centres and cluster based mentoring. In Pakistan, cascade model of training is considered the most popular model. In this model the first generation of teachers is trained as Master Trainer and the training is delivered to other teachers in stages. Usually, Master trainer are selected and rained at district level.

The study of Butt and farooq (2019) noted that induction training covered different areas, i.e. ICT, project work, interactive methodologies, and multi-grade teaching. The training proved useful in terms of its effectiveness of teaching. However, Idris et al. (2021) note that induction training focusses more on content teaching and is not appropriately aligned with National Professional Standards for Teaching.

Continuous professional development opportunities for teachers have been a neglected area in Pakistan. It has been said that most of the teacher training programmes are organized on ad hoc basis.

In Pakistan, mainly professional development of teachers has been a provincial matter. Currently, almost 300 teacher education institution are functioning in Pakistan with different nomenclatures across all four provinces of Pakistan. These institutes offer different professional qualification, pre-service and in-service teacher education programmes to teachers and education managers. Major government teacher education institution include Quaid-e-Azam Academy for Education Development

in Punjab, Provincial Institute for Teacher Education (PITE) in Sindh and Khyber Pakhtun Khan, Education Directorate, Bureau of Curriculum and Extension Centre, Institute of Teaching in Gilgit Baltistan and Azzad Jamu and Kashmir, various Government College of Elementary Teachers, institute of Research/Education in different universities, University of Education, and Allama Iqbal Open University (AIOU).

In Pakistan, private universities and different degree-awarding chartered institutes also offer pre-service and in-service teacher education programmes. Some of them are: Agha Kahn University, Karachi, Notre Dame Institute of Education (NDIE), Beacon house National University, University of Management and Technology, IQRA University etc.

Many study and policy reviews have criticized that continuing professional development (CPD) activities in Pakistan have been running with little clarity of basic objectives from various diverse institutions. Different donor agencies worked to institutionalize the CPD in Pakistan. Asian Development Bank initially started Provincial Institutes for Teachers Education (PITEs) in the mid-1990s as part of the Teacher Training Project (1992–2000). At provincial level, PITE act as an apex teacher training institutes which replace the Bureaus of Curriculum & Education (BoC&E) which assist provincial departments of education in organizing the trainings (Singh et al., 2020). As a part of teacher education reform in Pakistan, 380 teacher resource centres (TRCs) were also established across the country (UNESCO & USAID, 2006). TRCs are responsible for training teachers of the surrounding five to six schools (SAHE, 2014). Most of these TRCs were established in the provinces of Punjab and Sindh and a few in the Khyber Pakhtunkhwa (KPK) and Baluchistan. However, TRCs were restructured or abolished due to administrative ambiguities. In Punjab, TRCs were revamped into District Training & Support Centers (DTSC) and Cluster Training & Support Centers (CTSC) in 2006. At the same time, different clustered-based training models were introduced by donor agencies and different private training providers. In 2004, Directorate of Staff Development (DSD) was institutionalized for the first time in Punjab.

After the inception of DSD, it has launched a CPD framework which adopted mentoring as a key strategy for professional development of teachers in primary schools. Clusters Training and Support Centres were established in high schools. Senior school teacher used to act as a mentor. District Teacher Educators (DTEs) were responsible to assess teacher' training needs, help them in their areas of improvement and conducting capacity building training for them (DSD, 2009). DTEs used to visit classroom and carried out students' assessment to plan need based training for teachers. The focus of the training and mentoring include planning assessment activities, classroom management, effective communication with students, teachers' diary and assigning and checking students' home work (Anwar, 2014). Master trainers of DSD used to provide all professional support and guidance to DTEs. The mentors' guide book and coaching guide contains all the information regarding all responsibilities of DTEs. Accordingly, all mentors were supposed to prepare and submit activity plans to DSD or in-charge DTSC (Anwar, 2014). The findings of the study of Akhlaq et al. (2015) and Munir et al. (2021) show that mentoring model did not

bring a significant change in teacher performance. The major issues as perceived by DTEs include lack of teacher' interest, multi-grade teaching, teacher' poor content knowledge, lack of resources and extra file work (Munir et al., 2021).

Under the Education Sector Reforms (ESR) in Pakistan, the government of Sindh Training and Resource Centers (TRC) were held responsible to offer decentralized in-service training for local teachers.

Currently in Punjab, Quaid-e-Azam Academy for Education Development (QAED) previously known as Directorate of Staff Development (DSD) is responsible for training of education personnel, i.e. teachers, teacher educators, and education managers. The overall mandate of the QAED is to establish the system of teachers and education managers whose work affects the quality of learning in schools directly or indirectly (QAED, 2021). QAED is mandated to take care of 0.3 million teacher's professional development including leadership and management courses, courses in early childhood education, school-based CPD and promotion link training are some of the core responsibilities of QAED.

In recent years, Punjab province has taken different initiatives to improve the teacher education system.

Induction of Teacher Educators

A report by UNESCO (2006) on the Situational Analysis of Teacher Education in Pakistan indicated a lack in the core competencies of teacher educators working in different teacher education institutions. Besides, the report criticized the selection criteria of teachers, neglect in selecting appropriate candidates, absence of job descriptions and relaxation in qualification requirements. In the past, the National Education Policy (Government of Pakistan, 1998) also indicated "there *is no standardized procedure for appointment of teacher educators in teacher training institutions. In [the] existing system, any person belonging to [a] school or college cadre can be transferred to teacher education institutions*" (Government of Pakistan, 1998: 48).

The report also found that teacher educators follow traditional way of teaching, i.e. giving lectures and notes, and fail to develop critical thinking, inquiry, and problem-solving among student-teachers. Teacher educators due to their limited competencies and skills avoid using group work and other interactive learning techniques in class. As with all the other previous reports and research studies, report concluded that poor quality of teacher educators is the one of the reason for poor quality of education in (UNESCO, 2006, p. 45).

The UNESCO report (2006, pp. 50–58) highlighted following challenges specific to teacher educators and teacher education institutes.

- Low competencies among student–teacher and teacher educators
- Absence of separate standards for teacher educators
- Ill-trained and in-experienced teacher educators with respect to their diverse roles
- Teacher educators were apprehensive of change
- Transfer of teacher educators to higher education institutions with no regard to their relevant experience and qualification
- Teacher educators were transferred with no regard to their relevant experience and qualifications.

Induction, Professional Development Opportunities and Challenges for Teacher Educators

There is a lack of induction training of teacher educators. A project "Pakistan Teacher Education Programme and Professional Development" conducted by USAID (2006) concluded that beginner in-service teacher educators had very limited or no guidance. Induction programme were not provide to them. Most of the teacher educators had been a school teacher with Master degree with no familiarity with the expectations and demands of higher education settings. The study by USAID (2006) also raised concern on the nature and content of the training. It was also observed that trainings did not focus on pedagogical skills rather it was focussed on subject specific topics. The study showed that almost 70–80% of faculty members had received 3–5 different trainings. A few of them also had opportunities for foreign training too. However, teacher educators did not find it suitable to their institutional context.

Qureshi (2016) in her study on professional development of teacher educators of a prime teacher education university, highlighted that for newly appointed teacher educators there was no formal induction programme. In another study by Khan (2011) also highlighted a lack of provision of induction programme for beginning teacher educators. Both the studies by Khan (2011) and Qureshi (2016), mentioned the challenges which teacher educators face in the absence of formal induction programme. For the beginner teacher educators, the early years of their induction into teacher education were found very stressful and challenging. Teacher educators especially those who had been transferred from school education department found difficulties in fulfilling the requirements of higher education. They also faced challenges in understanding the requirement of semester system, designing formative assessments and to get involve in research. The same challenges were faced by those beginner teacher educators who had very little or no prior experience of teaching and research in higher education setting.

Warwick and Reimers (1994) documented that most of the schools teachers had opted to transfer to teacher Education Colleges when either they had failed as school heads or had reached their time of promotion. Warwick and Reimers (1994) had

also mentioned that most of the teachers had low morale about the status of teaching profession, had serious doubts about themselves as teachers and were low motivated to work in schools. Most of these teacher educators had limited skills as researchers or were not provided institutional support to undertake research activities.

The same was revealed in the research of Qureshi (2016) that teacher educators who had transferred from teacher Education Colleges to the university had limited experience of teaching in higher education settings. Few teacher educators had no professional qualification and background in research. This indicates that is no specific prerequisites to enter into the field of teacher education in Pakistan. Inadequate professional induction of teacher educators and no identified standards for teacher educators also identifies a gap in the system and neglect from education policymakers. It also raises the question of professional adequacy of teacher educators in Pakistan.

Qureshi (2016) maintained that a very few teacher educators attended induction programme offered by the University or by Higher Education Commission. Most of the induction provisions were either in the form of meeting with head of the department or welcome party by faculty members. Head of the department mostly provide administrative support and orientation to the university rules and regulation. Most of the information is provided verbally.

Few teacher educators who have attended the induction programme by HEC found it useful, however, they were not asked by the management to cascade the training to their fellow colleagues. When the same was asked from the representative of the HEC, she viewed it as the responsibility of the university to cascade the induction trainings within their universities (Qureshi, 2016).

In the absence of formal induction programme, the learning of teacher educators is based on informal discussions with colleagues and or trail-and error. Teacher educators with school background rely on their prior experience of school or college teaching, however, it has been frequently discussed in the literature that school and university settings has their own different demands and settings. Mere school experience cannot sufficiently facilitate the teacher educators in their roles as teacher educators. There are serious concerns about of the quality of teaching when teacher educators themselves have not been given opportunities for their own continuous learning (Qureshi, 2016).

Saleem et al. (2014) also concluded in their research that in Pakistan there are no agreed upon instructional competencies for university teachers at National or instructional level. Similarly, Sajjad (2007) elaborated a few issues regarding professional development of faculty members including inadequate duration of training programme, rigid and inflexible programme schedule, incompetent trainers, lack of facilities to the participant of trainings, improper design of modules. Systematic mechanism for continuous professional development opportunities and policy provision for the development of university teachers is missing.

Qureshi (2016) noted that teacher educators do not have any system of mentoring. Heads of the department are usually over-occupied in their administrative jobs. Academic support and mentoring are not mentioned by heads as their professional role. The support of the heads was limited to providing guidance on day-to-day

activities, timetabling and general administrative tasks. This indicates that heads of the department are neither trained to provide academic leadership to their staff nor is it considered a professional role for them. Moreover, inequitable system, favouritism and absence of needs assessment in selecting the teacher educators for the professional development programmes are other major challenges (Qureshi, 2016).

Lack of collegial relationships and synergy among university and government teacher educators, differences in their career promotions, differences in their professional repertoires were noted in the research of Qureshi (2016), where university had two groups of teacher educators firstly those who were fresh appointed by the university and secondly those who were transferred from Government Elementary Colleges. Lack of communication and collegiality between teacher educators restricts the informal learning opportunities among teacher educators such as discussion, observation, and mentoring. There are limited examples of peer learning, discussion and informal collegial support. Such examples are from those teacher educators who had similar professional and academic backgrounds (Qureshi, 2016).

Findings of the study conducted by Qureshi (2016) further highlighted the excessive involvement of senior teacher educators in teaching and administrative tasks as a barrier for their professional development and research activities. Teacher educators frequently mentioned that due to heavy workload, it is very challenging for them to engage in research activities. The same was indicated by a research of Akhter (2013). She discussed various factors including both personal and institutional factors which restrict teacher educators to engage in research. Personal factors include lack of understanding of the process of research and fear of plagiarism. Institutional factors involve insufficient monetary benefits, lack of support and facilities by the university, lack of time and excessive work load, involvement in administrative tasks (Qureshi, 2016). The study of Qureshi also reported that few beginner teacher educators who were appointed with a Master degree were involved in their higher studies (doing Ph.D.) found it very difficult to cope with the requirement of their advance studies, to perform teaching duties, to prepare lectures for the courses which they themselves had not studied before and to efficiently manage other administrate tasks assigned by the department heads. They also complained that university does not provide support in terms of flexible office timings and expects them to produce research. In a recent research conducted in a public sector university comprising 700 faculty members from four faculties of science and social sciences concluded that time, lack of funding and unavailability of study leave were major challenges that negatively affect the continuous professional learning of university teachers (Dilshad et al., 2019). Akhter (2013) also noted that in case of these challenges and discouraging environment to produce research, most of the teacher educators use to prefer teaching in private universities in the evening for extra income. It has been raised by Memon (2007) that though teacher education institutions receive substantial funding to promote research but they fail to produce quality research output. Less engagement of teacher educators in research poses questions over the future quality of research-informed teacher education provision in Pakistan as well as the quality of teacher educators as an occupational group.

Dilshad et al. (2019) also concluded that Higher Education Commission (HEC) should frequently and systematically plan professional development opportunities for university teachers. Formal and informal both professional development activities must be given equal weightage in annual performance reports and promotion of university teachers. There is a need to offer an equitable and fair provision of induction training facilities for all teacher educators. Secondly, professional needs and backgrounds of teacher educators should be taken into account while designing the induction programme (Qureshi et al., 2020).

Historically, the first initiative for in-service training of university teachers was taken by University Grants Commission (currently known as Higher Education Commission in 1990s. The three months training programme aimed at training and developing teachers working in higher education institutions, colleges and universities. The programme could not be carried out on a continuous basis due to the lack of funding. Often teachers' own lack of interest to attend professional development programmes have also been noted.

Duration of the training programme varied such as short courses and long courses that may take place once a week or may extend to two years. Sajjad (2007) also noted professional development of faculty members in universities of Pakistan is still not satisfactory. It has also been noted that professional development activities for teachers are insufficient. Common approaches for professional development of teachers include orientation, induction, apprenticeship, team teaching and pedagogical skills training.

HEC has established Learning Innovation Division (LID) with the mandate to offer opportunities of learning for university teachers. The training offered by HEC aimed to develop faculty knowledge, skills and competencies in different subject areas however, no special provision for teacher educators serving at university is offered by HEC nor the university teachers' participation in professional activities is mandatory (Dilshad et al., 2019).

There is little evidence regarding the professional development opportunities for teacher educators serving in public sector universities of Pakistan. Few research studied have analysed the issues related to professional development of university teachers and analysed the effectiveness and support mechanism available for university teachers (as a general group of teachers in universities) (Dilshad et al., 2019; Sultana, 2010). Khan (2011) and Qureshi (2016) pointed out that in Pakistan context, professional development of teacher educators have not been discussed widely. In addition, Izadinia (2014) concluded in the time of her study that most of the studies were carried out in North America, Europe and Australia but only four studies have been found in Asia one in China, two in Israel and one in Pakistan.

Studies by Khan (2011) and Qureshi (2016) identified the opportunities of professional learning. Without formal professional opportunities, the learning of teacher educators is characterized by *incidental* and *occasional* learning. Self-study (reading books) and using internet were also attributed as a source of learning. Findings also indicated that mentoring, collaborative teaching and reflection were not considered as source of learning.

Way Forward

In view of the structure, practices and issues which are discussed above, there is a need to improve the teacher education system in Pakistan. It is a sad fact that teaching has not been recognized as a profession in Pakistan. A comprehensive policy is required to bring the teaching as professional and prestigious profession.

Although the recent initiatives taken by HEC and Government of Pakistan including devising the standard of teachers is a positive way forward, however, there is a need for fully incorporating the standards in the teacher education programme (Shoukat & Chowdhury, 2020).

In Pakistan, there is little recognition of teacher educators as a specialized group. To improve the quality of teacher education, there is a need to recognize the status of *teacher educators* and to set specific professional criteria for the appointment of teacher educators. Also, there is a need to defining the roles, characteristics and expectations of teacher educators. The establishment of separate standards for teacher educators could also help to raise the quality of teacher education system.

A strong policy should be devised to look into the multiple providers of teacher education in Pakistan. Pre-service and in-service teacher education programmes across province and with sub-sectors of training providers should follow the same standard, duration and benchmarks for quality of education. The interinstitutional linkages between different tiers of education department within and across provinces should be strong for the effectiveness of the education system.

There is a need to reform the entry requirement and profiling of teachers so that academically strong and interested candidates may be attracted in the profession. Countries having well-developed teacher education systems such as Finland have very stringent standards to recruit teachers (Darling-Hammond, 2017). After teachers joining in the profession, their professional growth should be given priority at all levels. System of professional development opportunities for teachers and teacher educators needs to be more formalized and structured. Involvement of teachers in professional development opportunities should be linked to their promotion. In addition, there is a need to devise strategies for trained teacher educators to scaffold the trainings.

Assessment of professional developments needs of teacher educators should be contextualized and based on their existing knowledge, skills and experiences. At university level, teacher educators' performance management and assessment should be done according to their diverse roles. A policy should be devised for continuous mentoring and support for teachers and teacher educators. Workloads of teachers should be carefully considered so that they may get quality time to involve in scholarly activities.

There is a need to bring policy reforms regarding recruitment and selection of teacher educators. Ongoing professional development support and mentoring of beginner teacher educators should not be overlooked especially for those who do not possess contemporary pedagogical skills and research competence. Role specifi-

cations and training for heads in terms of academic leadership and mentoring would also be a good strategy to improve the quality of teaching and learning (Qureshi, 2016).

References

Ahmed, S., & Malik, S. (2011). Examination scheme at secondary school level in Pakistan: Composite versus split. *Canadian Social Science*, *7*(1), 130–139.

Akhlaq, M., Iqbal, M. Z., Jumani, N., & Chishti, H. S. (2015). Mentoring process a stimulus for professional development of primary school teachers in Punjab, Pakistan. *Mediterranean Journal of Social Sciences, 6*(3 S1), 146.

Akhter, N. (2013). *An investigation of Pakistani university teacher-educators' and student-teachers' perceptions of the role and importance of inquiry-based pedagogy in their professional learning experiences in initial teacher education* (Doctoral dissertation). University of Glasgow.

Akram, M., & Zepeda, S. J. (2015). Development and validation of a teacher self assessment instrument. *Journal of Research and Reflections in Education, 9*(2), 134–148.

Ali, M. A. (2000). Supervision for teacher development: an alternative model for Pakistan. *International Journal of Educational Development*, *20*, 177–188.

Ali, T. (2011). Understanding how practices of teacher education in Pakistan compare with the popular theories and narrative of reforms of teacher education in international context. *International Journal of Humanities and Social Science, 1*(8), 208–222.

Anwar, S. (2014). *Mentoring in teaching practice at B. Ed level in Islamabad/Rawalpindi: An analysis.* (Doctoral dissertation, International Islamic University, Islamabad).

Butt, K., & Farooq, M. S. (2019). Effect of induction training program on teachers' effectiveness at elementary school level in Punjab. *Pakistan Journal of Education, 36*(3), 51–69.

Christie, T., & Afzaal, M. (2005). *Rote memorization as a sufficient explanation of secondary school examination achievement in Pakistan: An empirical investigation of a widespread assumption.* A Paper presented at an IAEA International Conference Entitled Assessment and the Future Schooling and Learning Held at Abuja, Nigeria September 4–9, 2005.

Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice? *European Journal of Teacher Education, 40*(3), 291–309.

Dilshad, R. M. (2010). Assessing quality of teacher education: A student perspective. *Pakistan Journal of Social Sciences*, *30*(1), 85–97.

Dilshad, M., Hussain, B., & Batool, H. (2019). Continuous professional development of teachers: A case of public universities in Pakistan. *Bulletin of Education and Research*, *41*(3), 119–130.

DSD. (2009). *Final report on quality assurance of teacher training programs*. Directorate of Staff Development, Government of the Punjab.

Goldhaber, D., & Anthony, E. (2005). *Can teacher quality be effectively assessed?* University of Washington and the Urban Institute. https://www.urban.org/sites/default/files/publication/50736/411271-Can-Teacher-Quality-Be-Effectively-Assessed-.PDF

Government of Pakistan, Ministry of Education. (1998). *National education policy 1998–2010.* Ministry of Education.

Government of Pakistan. (2005). *National educational assessment system.* Ministry of Education

Government of Pakistan, Ministry of Education. (2009). *National education policy 2009.* Ministry of Education.

Government of Pakistan. (2017). *National education policy 2017–2025*. Ministry of Education.

Higher Education Commission. (2012). *Curriculum of education.* https://hec.gov.pk/english/services/universities/RevisedCurricula/Documents/2011-2012/Education/Education-2012-Element.pdf

Higher Education Commission. (2013). *Minutes of NCRC Meeting to Review and Recommend the Scheme of Studies proposed by Special NCRC 21 and 22 June 2013.* https://www.nacte.org.pk/assets/download/Scheme_of_studies_for_alternate_route_Entrants.pdf

Higher Education Commission. (2016). *HEC deliberates teacher education roadmap* https://hec.gov.pk/english/news/news/Pages/HEC-Deliberates-Teacher-Education-Roadmap.aspx

Huma, A. (2013). Adaptable program evaluation strategies for teacher education in Pakistan. *International Journal of Humanities and Social Science, 3*(7), 298–305.

Hyun, R. J., & Sajjad, S. (2018). Quality of teachers' performance evaluation in public and private secondary schools of Karachi, Pakistan. *Pakistan Journal of Education, 35*(2), 157–174.

Idris, M., Khan, I., & Khan, A. (2021). Induction program of teacher training of Khyber Pakhtunkhwa in the light of standards for elementary teachers in Pakistan. *Journal of Arts & Social Sciences (JASS), 8*(1), 109–117.

Iqbal, M., & Shams, J. A. (2012). Development of research culture model: A case of educational organizations in Pakistan. Paper presented at the International Conference on Management Research, November 29–30.

Izadinia, M. (2014). Teacher educators' identity: A review of literature. *European Journal of Teacher Education, 37*(4), 426–441.

Jamil, B. R. (2004). Teacher education in Pakistan: A (draft) Position Paper presented at the national Conference on teacher education held from December 20, 2004. *Academy for Educational Development (AED).*

Jamil, B. R. (2009). Curriculum reforms in Pakistan. In: *Paper presented at the seminar on School Curriculum Policies and Practices in South Asian Countries.* NCERT Delhi, India.

Kalsoom, Q. (2017). *ESD literacy-based model for preservice elementary teachers: A focus on critical and environmental consciousness and effective teacher development* (Doctoral dissertation). Lahore College for Women University. http://prr.hec.gov.pk/jspui/bitstream/123456789/9569/1/Qudsia%20PhD%20Thesis%202017.pdf

Kamarani, S. (2011). *Future of Pakistan in respect of Education.* Aziz Publishers.

Khan, K. H. (2011). Becoming teacher educators in Pakistan: voices from the government colleges of education. *Journal of Education for Teaching: International Research and Pedagogy*, *37*(3), 325–335.

Malik, D. A. B., Shah, D. D., Saqlain, S. M., Hanif, M., Hussain, D. K. S., & Bano, S. (2014). *Professional development of teachers to impact learning for all.* Academy of Educational Planning and Management, Ministry of Education

Memon, G. R. (2007). Education in Pakistan: The key issues, problems and the new challenges. *Journal of Management and Social Sciences, 3*(1), 47–55.

Ministry of Education. (2009). *National professional standards for teachers.* Government of Pakistan.

Mirza, M. S. (2015). *Institutionalizing ESD standards in teacher education programs.* Case of National Accreditation Council for Teacher Education.

Mirza, M., Nosheen, M., & Masood, N. (1999). *Impact of examination system on teaching styles of teachers at secondary and higher secondary classes.* Institute of Education and Research, University of the Punjab.

Munir, F., Jabeen, S., & Nader, M. (2021). Continuous professional development: Performance of primary school teachers.

NACTE. (2009). *National standards for accreditation of teacher education program.* National Accreditation Council for Teacher Education

Nadeem, M., Arif, S., & Naeem, M. (2020). The role of principals and administrators in performance appraisal of school teachers in Punjab. *Sir Syed Journal of Education & Social Research*, *3*(2), 132–142.

Nawab, A. (2020). Monitoring and accountability in professional development of teachers in Rural Pakistan. *Journal of International and Comparative Education (JICE),* 77–89.

Pakistan Educational Statistics. (2008–2009). Academy of Educational Planning and Management, Ministry of Education

QAED. (2021). *Quaid-e-Azam Academy for Educational Development Punjab, Government of the Punjab, Lahore, Pakistan.* Retrieved 25th August 2019 from www.http://qaed.edu.pk.

Qureshi, N. (2016). *Professional development of teacher educators: Challenges and opportunities* (Doctoral dissertation). University of Warwick.

Qureshi, N., Khan, I., & Kalsoom, Q. (2020). Induction practices of teacher educators: Case of Pakistan. *Journal of Research and Reflections in Education*, *4*(2), 211–220.

Rashid, K., & Mukhtar, S. (2012). Education in Pakistan: Problems and their solutions. *International Journal of Academic Research in Business and Social Sciences, 2*(11), 332.

Saeed, M., Ahmad, I., Salam, M., Badshah, R., Ali, S., & Haq, S. (2013). Critical analysis of problems of school teachers in Pakistan: Challenges and possible solutions. *Journal of Education and Practice, 4*(4), 169–175.

Sajjad, S. (2007). Staff development programme at higher education level in Pakistan – issues and challenges. In: *Paper presented in proceedings national conference on professional development of teachers in higher education in Pakistan.*

Saleem, A., Masrur, R., & Afzal, M. T. (2014). Effect of professional development on enhancing the knowledge level of university teachers in Pakistan. *Journal of Research & Reflections in Education (JRRE), 8*(2), 162–168.

Shaukat, S., & Chowdhury, R. (2020). Teacher educators' perceptions of professional standards: Implementation challenges in Pakistan. *Issues in Educational Research, 30*(3), 1084–1104.

Singh, A. K., Rind, I. A., & Sabur, Z. (2020). Continuous professional development of school teachers: Experiences of Bangladesh, India, and Pakistan. In *Handbook of education systems in South Asia* (pp. 1–27).

Society for the Advancement of Education (SAHE). (2014). *Education monitor. Reviewing quality of key education inputs in Pakistan.* SAHE

Sultana, N. (2001). *Elementary education in Pakistan: Current status, issues and future strategies.* Multi-Donor Support Unit

Sultana, N. (2010). Need for professional training of secondary schools heads. *Journal of Educational Research (1027–9776), 13*(1).

Tahira, M., Hassan, A., Malik, A., & Yousuf, M. I. (2020). Teacher education in Pakistan: Issues and problems. *Online Submission.*

UNESCO. (2006). *Situation analysis of teacher education in Pakistan: Towards a strategic framework for teacher education and professional development*. Retrieved 18 August 2019 from http://unesco.org.pk/education/teachereducation/files/sa1.pdf

UNESCO & USAID. (2006). *UNESCO: Strategic framework for teacher education and professional development Pakistan.* UNESCO. https://files.eric.ed.gov/fulltext/ED497053.pdf

USAID. (2006). Situation analysis of teacher education in Pakistan: Towards a strategic framework for teacher education and professional development. Retrieved 18 August 2019 from http://unesco.org.pk/education/teachereducation/files/sa1.pdf

Vagi, R., Pivovarova, M., & Miedel Barnard, W. (2019). Keeping our best? A survival analysis examining a measure of preservice teacher quality and teacher attrition. *Journal of Teacher Education, 70*(2), 115–127.

Vandevoort, L. G., Amrein-Beardsley, A., & Berliner, D. C. (2004). National Board certified teachers and their students' achievement. *Education Policy Analysis Archives*, *12*, 46. https://epaa.asu.edu/ojs/article/view/201/327

Warwick, D. P., & Reimers, F. (1994). *Hope or Despair? Learning in Pakistan's primary schools.* Praeger.

Westbrook, J., Shah, N., Durrani, N., Tikly, C., Khan, W., & Dunne, M. (2009). Becoming a teacher: Transitions from training to the classroom in the NWFP, Pakistan. *International Journal of Educational Development, 29*(4), 437–444.

World Bank. (2006). *Program document for a proposed third Punjab education sector development policy credit*. Report No. 35441-PK

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