Jasim Ahmad
Aejaz Masih *Editors*

Teaching and Teacher Education in India

Perspectives, Concerns and Trends

Springer

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Dedicated To Our Parents & Teachers

Foreword

With great pleasure I extend my warm greetings and congratulations to all involved in getting this work published from Springer Nature. This publication is a testament to the dedication, sincere efforts, and hard work of every one engaged in giving shape to this book.

Education is all a matter of building bridges connecting thoughts to reality, imagination to words, and words to action. With perseverance and determination, one can certainly transform great ideas to reality. That is how we reap the fruits of success.

The title of the book *'Teaching and Teacher Education in India: Perspectives, Concerns and Trends'* is highly appreciable as it draws the attention towards the soul of the development of any culture and civilization which totally depends upon its education and teaching-learning process which is shaped by its teachers prepared and trained by teacher education. The book covers all the key areas of the field which requires to be retuned in the light of NEP-2020. The present book is very well classified into three parts i.e. Perspectives, Concerns, and Practices & Trends in the field of Teacher Education.

The chapters of the book are quite appreciable as they are diverse ranging from history of the development of teacher education in India to teacher education in some developed countries of the world, like Canada, United Kingdom, United States, France, Germany, Italy, Japan, Russia, and Spain etc. The brief, but comparative picture on the nature, structure, and process of teacher education in these countries will certainly help the readers understand the issues and concerns related to teacher education and how these can be addressed. The book gives a detailed comparative analysis of NCFTE (National Curriculum Framework for Teacher Education), NCFSE (National Curriculum Framework of School Education), teacher education through ODL (Open and Distance Learning) which is now being called as DOE

(Distance and Online Education) because of the high input of online teaching-learning process using variety of online tools and techniques including artificial intelligence (AI). The inclusion of chapters on ICT and digital revolution and its integration with teacher education, changing concepts in Pedagogy of Science, Humanities, Languages, and Mathematics, trends of teacher education in India and the world makes this book quite worthy. Chapters on the critical analysis of policy perspectives in teacher education, Commissions and policies in teacher education including the most recent art-integrated teaching-learning as envisaged and focused by the NEP-2020, Disability management as inclusive policy in teacher education, and understanding future trends of teacher education in India. These topics will certainly ignite the minds of the faculty in the area of teacher education as well as new budding educationists and teacher educators interested in this area of study.

All chapters have been written with a focus on the theme and are research based citing examples from the current scenario from the field, which makes the book useful for all its stakeholders.

As we look forward to the future, I am confident that this book will prove worthy for all those working in the field of teacher education as faculty members, students and other stakeholders of education trying to shape the future of teacher education specifically and school education generally thereby shaping the destiny of the country and the world.

I extend my warm wishes to the editors, authors and publishing team of the book and hope these endeavors continue the journey on the road to excellence.

Prof. Najma Akhtar
Vice Chancellor
Jamia Millia Islamia
New Delhi, India

Preface

School education is the foundation stone of all building blocks of a nation contributing towards growth and development and giving it a place at the global platform. The proverb, 'as we sow - so we reap' best explains the significance of school education in overall development of the nation. One of the determining factors of good quality school education is teacher education which prepare teachers for all levels of schooling.

Despite several efforts, policies and programmes implemented towards strengthening the teacher education in India, lots of issues and challenges are still needed to be addressed. The most recent National Education Policy (NEP) 2020 has also emphasised on bringing back the lost glory and prestige of teachers to put it on the right track leading towards quality education which is competency based, experiential, and future oriented.

In the light of NEP-2020, a need was felt to provide the relevant content related to teacher education in India at one place which may provide detailed information of the field in a capsulated manner so that the stakeholders may understand the perspectives, concerns, and trends of teacher education in India and may build upon them for further enhancement and strengthening the field.

The book in hand provides almost all aspects of teacher education in India starting from 18th century i.e. the British India till the recent NEP-2020. The book has been classified into three parts. Part-I deals with the Policy Perspectives of Teacher Education. Part-II deals with the Concerns towards Teacher Education and Part-III deals with the Practices & Trends in the field of Teacher Education.

Understanding policy perspectives is one of the crucial aspects which help teachers and teacher educators comprehend the philosophy, theory, and practices in the field. It helps understand the previous policies and programmes formulated and executed in the past and up to what extent we could achieve the aspired goals. Thus, help building a sound philosophy of teacher education. Dealing with the Perspectives, Part-I through six chapters, focuses on history of Teacher Education in India, Critical Analysis of Policy Perspectives in Teacher Education, Need of a Philosophy of

Teacher Education, an overview of Teacher Education in Some Developed Countries, Commissions and Policies in Teacher Education, and National Curriculum Framework for Teacher Education (NCFTE).

Part-II of the book deals with the quality concerns and includes six chapters pertaining to different aspects like research in teacher education, quality assurance in teacher education, monitoring and supervision for quality concerns, in-service teacher education and physical education in India.

Part-III of the book deals with Practices and Trends in teacher education and builds upon Pedagogy of various school teaching subjects from all the major streams of study. It also puts light and discusses future trends of teacher education, ICT and Digitization, teacher education through Distance and Online, Disability management in teacher education and art-integrated teaching-learning.

The book provides a unique blend of chapters covering all major and significant aspects of teacher education in India. We are sure that the book will be useful for students of education in general and teacher education in particular. The book will be equally useful for the faculty members teaching the paper on teacher education or trying to investigate and understand the development of teacher education in India.

New Delhi, India
August 2023

Jasim Ahmad
Aejaz Masih

Acknowledgements

With great pleasure we extend our warm greetings and congratulations to all involved in getting this work published from Springer Nature. This publication is a testament to the dedication, sincere efforts, and hard work of every one engaged in giving shape to this book.

We thank all involved in the development of this book. Special thanks are due to the chapter contributors for their valuable and immense contributions which will go a long way in serving the field of teacher education. We acknowledge and extend our warm wishes to all the members of the publishing team of this book and hope these endeavours continue the journey on the road to excellence.

Suggestions and feedbacks are key to continuous development. We welcome the same from all the stakeholders so that by incorporating those in the future editions of the book, it can be made more future ready and up to date.

Jasim Ahmad
Aejaz Masih

Introduction

In recent years, teacher education in India has seen significant changes. From policy to curriculum framework to a technology driven education due to the Covid-19, there are several developments in the field of teacher education. This book explores the history, ongoing developments and concerns, and future direction of Indian teacher education programmes. In this book, academicians from all over India have contributed in order to study the current scenario of teacher education in India. Every chapter is well-versed research in the specific area it is focused to. This book seeks to cover a broad range of teacher education research. It includes chapters based on the history of teacher education to the future trends, comparative study of different parts of the world to the critical examination of the current policies. The book has been divided into three parts. All three parts are based on the relevance to teacher education. Each part includes chapters that will develop a clear understanding of the theme covered.

Part I is policy perspective which deals with the journey of teacher education in India through its policies. It contains chapters on history of teacher education, current policies, critical investigation of policies, issues and concerns of different policies, and its implementations. Part II of this book is quality concerns, it deals with chapters based on the inspection and supervision in teacher education, quality concerns of schooling and pre-service and in-service teacher education. Part III is practices & trends and includes chapters that deal with various practices in pedagogy of different subjects and the current and future trends of teacher education in India.

Professor Jasim Ahmad authored the first chapter 'Teacher Education in India: An Overview.' In this chapter, he wrote about the history of teacher education in India in a concise manner and also put light on the recent changes in Indian teacher education. The one–year B.Ed. programme was changed to a two–year programme in 2015, and the National Educational Policy-2020 brought a lot of changes in teacher education which has been deliberated in this chapter. This chapter tries to review the evolution of teacher education in India, analyses current problems, examines the framework for the curriculum currently in use, and suggests some potential fixes.

Professor Hriday Kant Dewan wrote in the second chapter 'Critical Analysis of Policy Perspectives in Teacher Education', the problems that teachers, the teaching profession, and the education system face. Teacher education, educational policy

makers, and administrators need to investigate these issues and devise solutions. These should also be taken into account when developing curricula and when planning and implementing transactional strategies.

Professor Nasrin and Dr. Mohammad Shaheer Siddiqui both analyse the need of philosophy in teacher education, in their chapter titled as 'Need a Philosophy of Teacher Education: Perusing the Praxis and Policies.' This chapter explores the philosophical viewpoint on teacher education in India. It also considers the praxis and future of post-colonial Indian education, as well as the necessity of a philosophy of teacher education.

Dr. Sajna Jaleel wrote the chapter 'Teacher Education in Some Developed Countries.' In order to provide a comparative analysis and help us build and create effective teacher preparation programmes, the current chapter qualitatively assesses the teacher education programmes in a few of the world's advanced economies or developed nations.

Dr. Neeti Dutta authored the chapter 'Commissions and Policies in Teacher Education'. This chapter provides a comprehensive overview of the significant commissions and policies on teacher education. Recently, various proposals were made in the New Education Policy to enhance the standard of teacher preparation, including the implementation of a four-year Integrated Teacher Education Programme. Whatever the recommendations made by the various commissions, committees, and policy documents for improvement in teacher education, many of them have not yet seen the light of day. How the recent changes suggested in the policy will change the teacher education scenario in the years to come will be revealed.

Professor Jasim Ahmad & Ms. Prerna Sharma together wrote the chapter 'National Curriculum Framework for Teacher Education (NCFTE): A Historical Analysis.' The chapter goes into detail about a number of documents, including the Committee Report of Experts on Teacher Education Curriculum from 1978, the Report of the Integrated Committee for Secondary Teacher Education from 1981, the National Commission on Teachers Report from 1983 to 1985, the NCFTE Report from 1988, the Curriculum Framework for Quality Teacher Education from 1998, and the Report of the ECCE Teacher Education Curriculum Framework. Through NCF-2005, NCFTE-2009, and NCTE regulations (2014), an effort has been made to describe the growing patterns and their implications for Indian teacher education. The chapter also covers the need for NCTE and its difficulties considering the present National Policy on Education 2020. A brief analysis and comparison of the NCTE-recommended curriculum frameworks has also been made in an effort to identify potential future directions for planning and enhancing teacher education in India.

Professor Sajid Jamal contributed the chapter 'Decline in Quality Schooling and Quality Teacher Education: Concerns and Way-Outs.' This chapter discusses the reasons for concerns of quality teacher education and suggests the way out for this gloomy situation. In this chapter the author addresses many surveys and reports that prove that there is a declining trend of quality schooling in India and that teacher education is trying hard to find the way out.

Professor Jessy Abraham wrote the chapter 'Research in Teacher Education: Trends, Status, and Prospects.' An overview of the research in teacher education is

provided in this chapter. The status of the teaching profession and how it has evolved globally over time has been the subject of numerous meta studies. The standing of teachers has gone through periods of decline and then slight increases. All levels of reporting include studies on how teachers perceive professionalism, accountability, and the impact of the pandemic on the teaching profession.

Dr. Savita Kaushal authored 'Quality Assurance in Teacher Education: Ensuring Quality in School Education.' In this paper, the various commissions, committees, policy discourses, and initiatives in curriculum reforms in India for developing a quality school education system in the country have been discussed. In India, the teacher education curriculum has been reviewed roughly every ten years over the previous two decades, specifically in 1978, 1988, 1998, and 2009. The main goal of these amendments was to acknowledge and incorporate the nation's diversity in terms of things like cultural, linguistic, and geographic differences. As a result of socio-political movements, economic upheavals, and advances in technology and communication, this programme also attempted to keep the teacher education curriculum current with the changing knowledge structures of the globe.

Professor Indrani Bhaduri wrote a chapter on 'Monitoring and Supervising Teacher Education and School Education.' With reference to teacher preparation programmes and academic programmes, this chapter goes into detail on these processes. It goes over these terms, definitions and talks about the subtle differences between monitoring, supervision, and inspection. The chapter emphasizes all relevant factors and stakeholders in the fields of teacher education and school education while concentrating on these aspects and assessments in each area. The chapter also discussed data management systems and emphasized the need for an effective system for gathering, storing, retrieving, analyzing, and interpreting data in the modern educational setting. This helps in validating the accomplishment of the institution's goals and clarifies what has been accomplished, and to what extent it has been accomplished, any gaps that may have existed, and potential actions that could be taken to strengthen the system.

Dr. Mary Vineetha Thomas has authored the chapter 'In-service Teacher Education in India: Enhancing Professionalism Among Working Teachers.' In this chapter, the author has stressed upon the need of in-service teacher education. Broadly in-service teacher training can be categorized into three approaches namely standardized approach, site-based approach, and self-directed approach.

Dr. Arif Mohammad wrote the chapter 'Physical Education in India: A Critical Review and Reflection.' This chapter discusses what is happening in physical education as far as Indian teacher training institutes are concerned. It also puts light on the expectations of all stakeholders from physical education.

Dr. Aerum Khan & Ms. Prerna Sharma has co-authored the chapter 'Teacher Education and Pedagogy of Science: Review and Reflection.' There have been evident shifts from the disciplinary approach of science teaching to a more holistic and integrated approach with inclusion of domains like health, nutrition, and environmental sciences. A transformation in the role of teacher and learner as the co-constructors of knowledge in the classroom has also been witnessed. Pedagogy of science has been focusing on new approaches like project-based, problem solving,

and discovery-based approaches to develop scientific attitudes in the learner. This chapter focuses on how the pedagogy of science has evolved in teacher education across policies at the national level.

Professor Mehnaz Ansari & Dr. Raisa Khan authored 'Teacher Education and Pedagogy of Social Sciences: Review and Reflectio.' The breadth and significance of social science in the school curriculum are extensively discussed in this chapter. It also covers important instructional techniques necessary for putting social science ideas into action successfully. Additionally, some beneficial strategies for enhancing social science educational practices and assessment are presented.

Dr. Roohi Fatima in her chapter 'Teacher Education and Pedagogy of Mathematics: Review and Reflection' discusses the factors influencing the curriculum to be taught like the need of the society, ideologies of policy makers, prevailing government influences, etc. But the purpose of education is to create a balance amongst all. This chapter would also give a view of how mathematics education should be perceived and how the notion has evolved over the years. While the pedagogy has always been a central aspect in the teaching learning process.

Professor (Dr) M. N. Mohamedunni Alias Musthafa wrote the chapter 'Conceptualizing Future Trends of Teacher Education in India.' In this chapter, the author analyses the progressive pathway of the Indian teacher education system with due stress on the quality apprehensions. The effort is made to present a futuristic curricular approach to teacher education envisaged to meet the challenges of the present and to lead the progressive movement of the nation sustainably.

Dr. Aerum Khan's chapter 'ICT and Digital Revolution: Implications for Teacher Education' talk about the post-pandemic scenarios for teacher education. This chapter aims to provide information on some of the government of India's initiatives for empowering the stakeholders and offering support in the form of study materials, resources, platforms, and various ICT-based solutions free of charge to both the school education and the higher education sectors, including teacher education. Parents and administrators can also use them for their participation in the education of our next generation. Based on empirical efforts, potential recommendations for the application and relevance of each described online solution are provided so that a more useful implementation strategy may be assessed.

Dr. Bakhteyar Ahmad wrote a chapter 'Teacher Education Through Distance and Online Learning' which deals with the historical evolution of teacher education through distance and online learning, the challenges embedded with this mode of education, the potentialities hidden in it in detail. The chapter also discusses some best practices in relation to teacher education through ODL mode.

Dr. Pettala Ramakrishna & Dr. S. K. Panda come together to write the chapter 'Essentiality of Special Education and Disability Management as Inclusive Policy in Teacher Education.' In this chapter they discussed that to attain success in the inclusive educational practices all the teachers require ample knowledge about various concerns, needs, strategies, techniques, identification, and interventional techniques of the different disabilities. So, it is possible only when teachers ought to be trained either in pre-service or in-service by inclusive disability management and special education in the curriculum as one of the compulsory core course of teacher training

programmes at Diploma, Bachelor and Master level like D.El.Ed/ D.T.Ed/ B.T.C, B.Ed and M.Ed.

Dr. Lovely Puri & Dr. Surinder Singh wrote the chapter 'Art-Integrated Teaching-Learning.' This chapter discusses how NCF 2005 has appropriately pushed for the addition of art as a topic to the school curriculum. By incorporating it into other curricular areas, arts (visual as well as performing) can also be used extremely effectively as a pedagogic tool. By giving pupils a comprehensive understanding of social and environmental events, such an art-integrated education is anticipated to benefit students in both the arts and other academic areas. Additionally, it might aid them in improving their communication talents, which would advance their linguistic capabilities.

Prof. Jasim Ahmad

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About the Editors

Jasim Ahmad is Professor of Education at the Department of Teacher Training and Non-formal Education (IASE), Faculty of Education, Jamia Millia Islamia. Prof. Ahmad has a rich experience of almost twenty two years in the field of teacher education. He is a prolific writer and has authored/edited ten books, published more than 60 research papers, presented around 60 seminar papers, and delivered more than 100 invited talks on diverse topics and issues pertaining to the field of teacher education. He has been a member of the academic council of Jamia Millia Islamia and has contributed to the university administration in many capacities like Hony. Dy. Director, Center for Innovation and Entrepreneurship; Principal (offg) Jamia Senior Secondary School; Member-Vision Document; Nodal Office-IQAC; Asst. Proctor; Sr. Warde, Member-prospectus committee, and so on. He has also served on the GOI funded projects like Monitoring of SSA and RMSA. He also contributed in developing online text and videos on different themes of teacher education being telecasted on Swayam Prabha Channel. Recently he has been awarded 'Proud Indian Eminent Professor Award 2022' in Teacher Education by IMRF, Andhra Pradesh on the occasion of India's 73rd Republic Day. His detailed profile may be accessed at: https://www.jmi.ac.in/upload/employeeresume/jahmad.pdf.

Aejaz Masih is Professor of Education and former Head, Department of Educational Studies, Jamia Millia Islamia. During his professional life, he established himself as a well-known expert of Research Methodology. Prof. Masih has successfully completed 5 Commissioned Research Projects (out of these two are in the area of Teacher Education) and guided 21 Ph.D. theses, 12 M.Phil. dissertations, and 70+ master-level dissertations. Earlier Prof. Masih served as Head of the Department of Research Evaluation and Innovation at SIEMAT Allahabad, Head, IASE, and Dean Faculty of Education at Jamia Millia Islamia. He served the University as Honorary Director of Ansari Health Centre and as Member of API Committee. He has been Member of Board of Studies and Faculty Committees of a number of universities and associated with a number of research journals as Member of their advisory or editorial board. His detailed profile may be accessed at: https://www.jmi.ac.in/upload/employeeresume/amasih.pdf.

Part I
Policy Perspectives

Chapter 1
Teacher Education in India: An Overview

Jasim Ahmad

Abstract Recently, India is encountering quick and sudden changes in teacher education. The one-year B.Ed. Program was converted into a two-year Program in 2015, and it was implemented abruptly and without much planning in the same year. While the stakeholders of teacher education are still busy in reflecting and debating the pros and cons of 2-year B.Ed. programme, NEP 2020 has declared that from 2030 the Integrated Teacher Education Programme (ITEP) i.e the 4-Year Integrated B.Ed. Programme will be the lone teacher education programme in the country for preparing secondary education teachers. It appears that teacher education is in the midst of a significant transformation. Teacher educators, pupil-teachers, and all other stakeholders are unsure what will happen and, if implemented, how it will be carried out in B.Ed. colleges and universities' departments of teacher education. The vision and mission of teacher education, which directs and decides the fate of school education, must be crystal clear. This chapter attempts to revisit the development of teacher education in India, analyses current challenges, the prevailing curriculum framework, eligibility criteria for teacher educators, and forecasts some possible solutions to the issues and challenges confronting teacher education in the country.

Keywords Teacher education · NCTE (National Council for Teacher Education) · ITEP (Integrated Teacher Education Programme) · School education

Background

The programmes of teacher education have been constantly molding to suit the present needs of the Indian education system and also to meet the global demands in the globalized world of the present time. When looking at the history of teacher education in India, it can be studied in two phases. In the first phase, we can study the

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development of teacher education in India during the pre-independence, beginning from the ancient education system to 1947. In the second phase, we can look into the history of the development of teacher education in India from 1947 to till date. The development and progress of any country totally depends upon the quality of its education system, which in turn depends upon the quality of its teachers. And for this reason, education in general and teacher education in particular needs special attention from the government, as it prepares teachers to run the school education and on whom the quality of teaching-learning depends at large. The National Policy on Education 1986 also emphasizes on the roles and importance of teachers in our society by mentioning "The status of the teacher reflects the socio-cultural ethos of the society; it is said that no people can rise above the level of its teachers". Rabindra Nath Tagore, the founder of Vishwa Bharti University and one of the greatest naturalists has emphasized the need of in-service training of teachers to update them for effective teaching duties in these words, "A teacher can never truly teach unless he is still learning himself. A lamp can never light another lamp unless it continues to burn its own flame." The profession of teaching has been one of the oldest and respected since ancient time and across the globe. Teachers' roles, functions, competence, and professional training have been constantly changing from time to time depending upon the new demands of the society in general and education system in particular. This chapter attempt to analyse and elaborate the development and progress of teacher education in India since ancient to the present.

Teacher Education in India Through the Ages

For the purpose of a systematic and comparative view, the history of teacher education in India may be divided into five phases. These are: (i) Pre-Buddhist Ancient period (2500 B.C. to 500 B.C.), (ii) Buddhist Period (500 B.C. to 1200 A.D.), (iii) Muslim Period (1200 A.D. to 1700 A.D.), (iv) British Period (1700 A.D. to 1947 A.D.), and (v) Teacher education in independent India (1947 to till date).

Pre-Buddhist Ancient Period (2500 B.C. to 500 B.C.): During this period the education system, teaching and learning was based around Vedic literatures. The four Vedas were the main source of curriculum, content and process of education. There were four classes in the society namely Brahmins, Kshatriyas, Vasyas and the Shudras. Previously, Brahmins served as community teachers, dedicated to acquiring, preserving, promoting and transmitting knowledge from generation to generation. As education was allowed only to Brahmins, so teachers and students both were Brahmins. In the Vedic period, teachers enjoyed a special status and position in the society. They were highly revered, respected and were enjoying the highest position in the social strata. Teachers were held in high esteem by the society owing to their learning and scholarship and also due to the sacred position of Brahmins as per the Vedic literature, which was the source of governance of the society. Teachers were called 'Gurus' and were an embodiment of good qualities, a fountain of knowledge

and an abode of spirituality. Teachers of high positions were known as 'Rishis' and all rishis were to impart the knowledge from the scriptures, which includes Vedas, Shruti and Smirti.

The children used to go to their ashrams (seat of learning/present day school) to get education. *Good students reflecting desired values were chosen and groomed by the Rishi to become a teacher in future after completing their education. The selection and preparation of teachers was done with a lot of rigor. There was a close proximity between the teacher and the pupils.* The 'Mahabharata' tells us about the numerous hermitages or students from far and wide flocked to get learning and instructions from famous teachers. Teaching of Upanishads was also done for the dissemination and diffusion of knowledge. Such an education system prevailed and continued till the Buddhist period (500 B.C. to 1200 A.D.).

According to Manu, the son of the teacher sometimes used to teach in place of his father. During this period individual or personal attention was given to every child. 'Gurukula' system prevailed in which there was an intimate relationship between the 'Guru'-teacher' and 'Shishya'—pupil. The teacher was placed in the highest position in the society. Teachers were teaching with great faith and responsibility. It was the teacher or Guru who used to decide the curriculum, which was totally based on scriptures like Vedas, Upanishads, Manu Smirti etc. The system of discipline was highly strict and imposed by the guru to mold the personality of the learners into the right direction. Those breaking the set discipline repeatedly were de-registered from the Gurukula. The knowledge of reasoning, literature, astronomy, arithmetic and arms were provided to the pupils in Gurukula. A glimpse of such a system of education may be seen in the Bollywood film titled as 'Mohabbatein'.

The literatures of this period do not indicate the establishment of any specialized institution of teacher training or teacher education. The selection of teachers was generally done by the Gurus or Rishis of the Gurukula and the society depending upon the academic achievements and values practiced by the individual.

Buddhist Period (500 B.C. to 1200 A.D.)

The formalized system of teachers' training seems to have emerged during this period in the form of mentoring by the seniors. There were monks in the Buddhist era, generally known as 'Bhikku' who were placed under the mentorship of superiors, qualified persons called 'Upadhyaya'. Hence, 'Upadhyaya' may be seen as a trainer and 'Bhikku' as trainees. This period is considered as strict in training of teachers which produced outstanding and hardworking teachers.

The monks were responsible for imparting education and training to pupils in monasteries. These monks were given formal teacher education and training to teach students. In the monastic system, every newly admitted novice (pupil) was placed under the supervision and guidance of a preceptor (Upadhyaya). Right to choose the upadhyaya was given to all students, and all pupils used to show their guru/upadhyaya

the utmost care and respect. The upadhyaya (teacher), on his part, had much responsibility to the novice (pupil). He has to look after the disciple fully. The basis of education was religion and scriptures. Teachers were supposed to promote learning in religion and scriptures among the disciples by teaching, by putting questions to him, by exhortation, by instruction, by oral recitation, by exposition, through debate and discussion, question–answer and by the use of stories and parables. During this period Nalanda and Takshila were the centers for higher education in India.

Muslim Period/The Medieval Period (1200 A.D. to 1700 A.D.)

The medieval or the Muslim period begins with the establishment of Delhi Sultanate followed by Mughal dynasties in India. During this period education was given in Maktabs and Madrasas by the teachers known as Molvis. Basic and elementary education was given at Maktabs whereas Madrasas were the seats of higher education. There was no formal system of teacher education or teacher training during this period.

According to the holy Quran, earning education is a duty of all human beings, not for Muslims only. Having faith in the first revealed verse of the holy Quran regarding education, is held in high esteem by the Muslim countries and by Muslim rulers. Education was public affairs in Muslim ruled lands. The Muslim rulers in India founded Maktabs (schools), Madrasas (colleges) and public libraries in their provinces. Maktabs were normally attached to the mosques wherein students were given basic education. The students were given instructions in the holy Quran. Along with the teachings of Quran, they were also trained in recitation, reading, writing and simple arithmetic. The medium of Instruction was Persian and Arabic was compulsory for all students.

The method of teaching was oral instructions, may be called as present days lecture method. Students were instructed and encouraged to consult more and more books. Practical and field works were also conducted in subjects like medicine. Analytical and inductive approach was also used in teaching–learning process.

Senior students having command on the subject, good communication and with proven skills and values were deputed to teach lower classes. Such senior students were generally inducted to the teaching profession at the end of their own education. Hence, like the ancient period during the medieval period too, the monitorial system was in practice for the preparation of prospective teachers. No separate institution was established for teacher education or training.

British Period (1700 A.D. to 1947 A.D.)

The history of teacher education in India began with the establishment of the British government in the country. The East India Company (British Government in India) constantly tried to modify the then existing system of education in India according to their own needs, aspirations and philosophy. Advanced system of education was incorporated. As English language is a foreign language for Indian teachers, so teacher education was originally intended to train Indian teachers in English language. It was formally started by several private institutions and societies such as the Native Education Society, the Calcutta School Society and the Madras School Society during the last decade of the eighteenth and early decades of the nineteenth century.

Teachers' Training Schools (1793): At Serampore in Bengal, India, the first formal teacher's training school was established. **Carey, Marshman, and Ward** established it in **1793** under the name "Normal School". Thereafter, for the improvement in teaching at Primary school the Native Education Society of Bombay also trained a number of teachers. The Calcutta School Society of Bengal pioneered teacher training work for native schools. For women teachers, the Ladies Society of Calcutta initiated a teachers' training class in the Calcutta Central School for Girls.

During the first half of the nineteenth century, a number of government teachers' training schools were also set up. Grants-in-aid were given to these training schools to train their teachers (NCTE, 1998, cited from 'National Archives of India, Educational Records, 1781–1839, Part 1, Chap. III, 1965'). Lord Moira's Minute on the judicial administration of the Presidency of Fort William from 1815, which supported the training requirements of school teachers, is the earliest evidence of state initiatives in teacher education (NCTE, 1998, cited from 'National Archives of India, Educational Records, 1781–1839, Part 1, Chap. III, 1965'). In 1826, the then Governor, Thomas Munro proposed to open school for teacher education, based on the recommendation given by the Committee of Madras School Book Society on 25th October 1824. The purpose was to expand school education system with low cost by utilizing 'native teachers'. He also proposed that training schools be established in each collectorate to ensure a steady supply of trained teachers. During this time, the Secretary of the Bombay Presidency made a similar request. All these initiatives resulted in funding for teacher education for the three private societies mentioned above. (Moira, Minute 1815 in ibid, p. 25).

Wood's Despatch (1854): The Wood's Despatch, popularly known as Magna Charta of English Education in India, recommended some significant suggestions to improve teacher education in India. It proposed that allowances be provided to persons who have an aptitude for teaching and are ready to dedicate themselves for the profession of teaching. The Despatch advocated for the development of training schools in India, as well as the implementation of the pupil-teacher system in teacher training schools on the lines of the system prevalent in England. It also urged for stipends for pupil-teachers and a little payment to the masters of the school to which pupil-teachers were

assigned. They were awarded certificates and offered employment after successfully completing their training. After Wood's Despatch, normal schools were founded in each Presidency, beginning with Madras, to train primary school teachers (1856). All trainees were given stipends in all the three Presidencies.

Lord Stanley's Despatch (1859): Secretary of State for India, Lord Stanley, highly stressed on the training of teachers. He discouraged the convention of procuring teachers from England and put emphasis on the training of teachers locally for vernacular schools. The new grant-in-aid rules of 1859 mentioned that teachers with a certificate of teacher training should receive salary grants from schools. This policy gave impetus to the teachers' training programme in British India. By 1881–82, there were 106 normal schools (for training primary school teachers), with a total enrollment of 3886 students. It had 15 institutions that were solely for women. Training classes for secondary school teachers were added to (i) the Government Normal School in Madras (1856) and (ii) the Central Training School in Lahore (1877). For preparing secondary school teachers, the first training college was established in 1886 at Saidapet in Madras. In 1889, the Nagpur Training School's Secondary Department was established. There were just six secondary school teacher training colleges in India at the end of the nineteenth century.

The Indian Education Commission/the Hunter Commission (1882): Having observed the expansion and diversification of the education system in India, the Indian Education Commission (1882), given some concrete suggestions for boosting teacher education in India. The commission authorized elementary and secondary school teacher training programmes and recommended that a separate secondary school teacher training programme with examinations in teaching principles and practices be established. Passing this exam was made a requirement for permanent employment as a teacher in any government or aided secondary school (NCTE, 1998, cited from 'National Archives of India, Educational Records, 1781–1839, Part 1, Chap. III, 1965'). As a result, for the first time, six independent training colleges were formed, one each in Allahabad, Jabalpur (founded in 1890), Kurseong, Lahore, Madras (founded in 1886), and Rajamundry (established in 1894). At the end of the training programme, these colleges used to offer a Licentiate in Teaching (LT), which was equivalent to a degree. There were 50 more training schools for secondary school teachers in addition to these six training colleges. By the end of the nineteenth century, the institutional framework of teacher education had diversified into normal schools, secondary training schools, and training colleges, all of which were run by both the state and private sector. As a result, teacher education became a significant structural set up in India.

Government of India Resolution on Education Policy (1904): Lord Curzon, India's new Viceroy (1902–05), took numerous significant initiatives to improve educational quality around the turn of the twentieth century. He passed 'Government of India Resolution of 1904' in which he expressed his concerns on quality education. For the first time, the resolution established standards for schools to receive grants and recognition, including the suitability of school teachers with regard to their qualifications,

number and character. It gave some significant recommendations to training colleges and schools in order to improve training quality and teaching–learning quality.

(a) **Training Colleges**: The resolution pronounced that the teachers should be trained in the art of teaching in order to improve Secondary Education. Following general principles of functioning of the training colleges were implemented for bringing quality in training and improving school education in general:

- Training colleges must have all of the necessary equipment.
- The training course for graduates must last one year, and the training course for undergraduates should last two years.
- Training courses must include theory and practice of teaching and must be closely linked with each other.
- To fulfill the above recommendations, one practicing school must be linked to each training college.
- To make sure pupil-teacher when start their career in school after leaving college will not neglect practice of the method which they have been taught, there must be a good linkage between training college and school.
- The course would culminate in a university degree or diploma.

(b) **Training Schools**: Establishing of more training schools especially in Bengal was recommended by the resolution of 1904. The majority of normal schools were boarding schools where students with vernacular education were admitted for training and stipends were provided. In addition to general education, they were given training in the methods of teaching and practice in teaching. Hence theory and practice of teaching were going side by side. The resolution recommended a minimum course of two years. The course was designed mainly to prepare teachers for rural schools.

The Government of India Resolution on Education Policy (1913): In 1913, through a Resolution on Education Policy, it was professed that "……under the modern system of education no teacher should be allowed to teach without a certificate that he is qualified to do so" (Sir Thomas Munro's Proposal, Point 5, March 10, 1826, in ibid. p. 74). The resolution proposed that (i) teachers be chosen from the class (society/community) of the students they will teach, (ii) teachers chosen must have passed the middle vernacular exams, and that (iii) they have completed a year of training. It suggested periodical revision of the course structure developed for the training of teachers. The resolution also urged that training college staff members exchange ideas on a regular basis and that they visit different teacher training colleges.

Calcutta University Commission (1917–19): Under the chairmanship of Dr. Sadler the Calcutta University Commission was established, which suggested that the University of Dacca and Calcutta establish a Department of Education and that 'Education' be added as an optional subject at the Intermediate, Undergraduate (B.A.), and Postgraduate (M.A.) levels. The Sadler Commission's recommendations had a positive impact on teacher education programmes in India. In 1925, Mysore University established the Faculty of Education.

Non-cooperation Movement (1920–22) and its impact on Indian Education System: The 1920–22 non-cooperation movement resulted in a slight rise in the number of educational institutions in the country. Based on the concept of a national education system, a considerable number of indigenous nationalist learning institutions were established. The expanding scale and resurgence of a parallel national education system, as well as the diminishing quality of education, disturbed the British government.

Several national institutions were established as a result of the Swadeshi Movement, which began as a protest to Bengal's partition in 1905, and Gandhi Ji's Non-cooperation Movement (1920–22). Jamia Millia Islamia, now a Central University in New Delhi, is an example. It was founded in 1920 at Aligarh, Uttar Pradesh, by some of the students and faculty who supported Gandhi Ji's call; they left Aligarh Muslim University (AMU) and established Jamia Millia Islamia inside the AMU campus. Later, in 1925, it was relocated to Karol Bagh (New Delhi) and from Karol Bagh to the present location, Okhla (New Delhi) in 1936. In 1937, Gandhi Ji convened a Basic Education Conference in Wardha (Maharashtra) and discussed his concept of indigenous basic education. He explained that Basic Education must be craft-based education which provided training in various crafts along with primary education to children, so students could begin their livelihood after finishing school. The concept of basic education was widely supported, but the key concern was how and who would train teachers for such schools. Dr. Zakir Husain, the then Principal of Jamia School, accepted the challenge, and Jamia Millia Islamia began Teachers Training for Basic Education in 1938, in its newly established Teachers College. In addition to Jamia Millia Islamia, work-based experiential training was provided in Wardha (Maharashtra) and Gandhi gram (Tamil Nadu). This was most likely the first attempt, via 'Buniyadi Shiksha' as 'Nai Taleem,' to streamline indigenous education toward nation building and social reconstruction of India. The primary goal of 'basic education' was the 'all-round development of children,' the development of secular values, nation-building leading to the development of nationalism, the use of the child's immediate environment and work as a source of knowledge, the integration of knowledge and work, the provision of experiential learning, and the use of the mother tongue as a medium of instruction and learning.

Teacher education was acknowledged as a requirement for all levels of school education by the time of independence. It was now necessary to give it a more structured shape and make it more effective in producing skilled teachers in order to improve the quality of school education.

The Hartog Committee (1929): Owing to the non-cooperation movement and the opening up of a large number of indigenous schools and colleges in the country, the British government was alarmed. They were not ready to see such mushrooming of schools and colleges and that too with low quality. In 1929 Hartog Committee was constituted under the chairmanship of Sir. Phillip Hartog, to look into the matter and to come up with the relevant suggestions. The Committee was formed primarily to investigate primary education, but it also provided broad suggestions for teacher education. It proposed that teachers for rural schools be chosen from among eligible people

who were close to rural society. This committee offered the following suggestions for primary school teacher training:

(i) The duration of the training programme must be extended.
(ii) There must be provision of adequate staffing for training institutions.
(iii) To attract and retain better quality teachers, the quality of service conditions of primary school teachers must be improved.

On the basis of these recommendations, an in-service education programme for primary school teachers was established and time durations for different teacher training programmes was specified, which were adopted by the Central Advisory Board of Education (CABE) in 1943. These were Pre-primary teachers (2 years), Junior basic (Primary) teachers (2 years), Senior basic (middle) teachers (3 years), Non-graduates in high school (2 year), and Graduates in high schools (1 year).

The Abbott-Wood Report (1937): This significant report in the realm of education was submitted in 1937. It largely examined the state of vocational education but also gave useful recommendations for teacher education. The report recommended that the duration of teacher training should be 3 years enabling the aspirants to continue with general education along with professional training of teachers (equivalent to present day integrated courses in teacher education). It further suggested a refresher course (equivalent to present in-service programmes) for the teachers so that they could get a wider experience and update their knowledge and skills.

The Sargent Report/Sargent Plan (1944): Following the Quit India Movement (1942), the British government established the Sargent Committee in 1944, which proposed the following recommendations on teacher education:

(i) The committee approved the time duration of the different training programmes as recommended by Hartog Committee and approved by CABE.
(ii) During the last two years of high school, suitable students for teaching jobs should be identified and recruited, and stipends for teacher training should be provided.
(iii) Refresher courses should be held to offer regular teachers with in-service training.
(iv) Teachers should have access to research facilities, and
(v) Teaching practice should be improved.

Teacher Education in India After Independence

India's biggest challenge after gaining independence in 1947 was to enhance the country's indigenous education system. Education has the potential to bring about the required improvements in citizens' lives through social reconstruction. At that time, the three major goals were to expand pre-service teacher education, develop supplemental routes for clearing the backlog of untrained teachers, and stabilize and expand in-service teacher education. The expansion of pre-service teacher education

was admirable. From just 10 secondary teacher training colleges in 1948 to 50 in 1965, 633 in 1995, and 16,917 in 2023 (Source: https://www.ncte.gov.in/website/statewiseTEI.aspx, retrieved on 19.2.2023). The development of teacher education in the post-independent era may be analyzed and understood under the following heads:

University Education Commission (1948–49): The University Education Commission (1948–49) stated that the school experience programme, i.e. teaching practice, was given insufficient time and weightage. The commission declared school teaching to be inadequate. It was proposed that at least 12 weeks of supervised school teaching practice be included in a year's course, and that supervisors' attendance should not be expected throughout the 12 weeks. The commission also suggested that training colleges not admit too many students for whom they cannot provide adequate school teaching practice. It also proposed that teacher education programmes be flexible and adaptive to local conditions.

Secondary Education Commission (1952–53): The Secondary Education Commission (1952–53) proposed the following major recommendations in order to improve teacher education quality:

(i) The minimal requirement for entry to the Primary Teacher Training Programme should be a High School diploma, and the training should last two years.
(ii) The minimum eligibility criteria to become secondary school teachers must be undergraduate and training should last one year, with the possibility of being expanded to two years as long-term measures.
(iii) A four-year integrated model of teacher education could be used as a novel experiment in RIEs (Regional Institute of Education) of NCERT (National Council for Educational Research and Training) to provide multipurpose orientation to school education.

The commission also proposed that graduate teachers be trained in at least two pedagogical subjects taught at the school level during their one year of training. The internship programme, or practical training, should include not only teaching practice, class observation, demonstration and criticism lessons, but also the development and administration of scholastic tests, the organization of supervised study and student societies, the conduct of library periods, and the maintenance of cumulative records.

In the light of the recommendation of SEC-1952–53 (iii-above), Kurukshetra University established the four-year integrated programme in July 1960 on the advice of Dr. A. C. Joshi, then-Vice Chancellor of Punjab University. This scheme was developed following the pattern of American Teachers College with an aim to generate 'quality teachers'. To inspire these bright and promising students, good incentives such as tuition fee exemption, monthly stipend granting, and certainty of service once training ended were provided. Later, in 1963, it was implemented at all four RIEs, and it is still in operational today.

Ford Foundation Team (1954): In 1954, the Government of India established an international team of eight experts, in collaboration with the Ford Foundation, to analyse in greater detail the significant recommendations of the Secondary Education Commission and to suggest future courses of action to strengthen teacher education. After studying, the team proposed that training institutions arrange and execute demonstrations at laboratory schools where curriculum construction experiments and progressive teaching approaches are examined for their impact on teaching, learning, and student achievement.

Education Commission (1964–66) and National Policy on Education (1968): The Indian Education Commission, widely known as the 'Kothari Commission,' advocated the establishment of supplemental routes to clear the backlog and train the enormous number of untrained teachers. Summer courses, part-time courses, correspondence-cum-contact courses, and vacation courses were established as a result. The issue of sustaining quality in teacher education occurred. An intentional attempt was made to bring all teacher educators together for more intensive attention at all levels of teacher education programmes. The commission's recommendation (1964–66) to establish comprehensive colleges of education was a significant step in this direction.

Establishment of National Council for Teacher Education (1973): The Government of India founded the National Council for Teacher Education (NCTE) in 1973 as an advisory body to the government at the Center and the State on teacher education issues. It looks after and accredits teacher education colleges in the country. Its main purpose has been to maintain the quality of teachers produced in India for school education system. In these efforts, NCTE brought National Curriculum Framework for Teacher Education (NCFTE) in 1978, 1988, 1998 and in 2009, the last one which came out with a specific term of producing humane teacher. Every time it came after the announcement of National Curriculum Framework for School Education (NCFSE) with a purpose to modify the existing teacher education curriculum so that it may suit to the new school education curriculum and objectives may be achieved through the preparation of teachers with needed quality and skills. (*For details on NCFTEs, refer Chapter-6 of this book*).

National Commission on Teachers (1983–85): The Government of India appointed a commission in 1983, chaired by Prof. D. P. Chattopadhyay, to study and guide the government on educational concerns. The commission submitted its report in 1985. With regard to improvement in the quality of teacher education, it recommended some important aspects to be taken care of while inducting the best talent into the teaching profession and to improve teacher education. These aspects were good physique, linguistic ability and communication skills, a fair degree of general mental ability, general awareness of the world, a positive outlook on life, and quality of candidates on good human relations (Rao, 1998, pp. 209). The commission also recommended that the selection process should consist of a combination of objective type test, rating scale, group discussion and personal interview. The commission also recommended that the curriculum for the preparation of professionals in teaching

should have (i) study of education as a discipline with educational psychology, educational philosophy and sociology of education, (ii) practice teaching based on content-cum-methodology, (iii) learning of a variety of skills required by the teachers including educational technology and development and use of educational software. The commission also suggested a four-year training course after senior secondary, or, a five-year course leading to graduation and teacher training together.

The National Policy on Education (NPE–1986): Based on the research studies conducted by the government and the recommendations of Chattopadhyay commission, the government came out with the National Policy on Education 1986. It was a comprehensive policy touching every level and aspects of the Indian Education system. With regard to teacher education, the policy opined that teacher education is a continuous process and its pre-service and in-service components are inseparable. The Policy and accompanying Programme of Action (1992) made a strong suggestion to improve teacher education since it was regarded to be a necessity for enhancing school education quality. The policy recommended that (i) District Institutes of Education and Training (DIETs) be established in each district, (ii) 250 colleges of education be upgraded to Colleges of Teacher Education (CTEs), (iii) 50 Institutes of Advanced Studies in Education (IASEs) be established, and (iv) the State Councils of Educational Research and Training (SCERTs) be strengthened.

The National Policy on Education (1986) and its Programme of Action (1992) asserts, "The status of the teacher reflects the socio-cultural ethos of the society; it is said that no people can rise above the level of the teachers". With this insight, the committee extend the idea that education in general and teacher education in specific needed the highest priority by the government in terms of fare recruitment and selection of teachers, expenditure on education, educational process, assessment and placement of the pupil-teachers. Teacher education and the school education system should not be threatened, and they should not be managed and organised by persons of low calibre, low morale, and no vision.

The Acharya Ramamurthi Committee (1990): A committee was appointed to review the NPE-1986 by the government under the chairmanship of Acharya Ramamurthi. It proposed in its observation report that an internship model for teacher training be implemented because ".....the internship model is firmly based on the primary value of actual field experience in a realistic situation, on the development of teaching skills by practice over a period of time." The committee also proposed that in-service programmes i.e. refresher courses for updating the knowledge and skills of in-service teachers should be according to the individual requirements of teachers, and that evaluation and follow-up should be included as a part of these programmes.

Yashpal Committee (1993): The Yashpal committee pointed out that the inadequate Programme of teacher preparation leads to unsatisfactory quality of learning in schools. Based on the recommendations of this committee the general B.Ed. programme was split to provide specialized training in B.Ed. (Secondary), B.Ed. (Elementary) and B.Ed. (Nursery). The committee suggested the duration of B.Ed. programme of 1 year after graduation and 4 years after higher secondary. The

curriculum was restructured to ensure its relevance to the changing needs of the school education. Much emphasis was given on the acquisition of the ability and skills for self-learning, independent thinking and teaching skills of the trainees. At the end of 1998–99, there were 45 DIETs, 76 CTEs, and 34 IASEs in the country. The statutory body regulating teacher education (NCTE) came out with a Curriculum Framework-1998 to provide guidelines for restructuring teacher education for qualitative improvement. As a result, many universities and state governments revised the courses of teacher education.

Justice Verma Committee (2012): Due to the country's deteriorating teacher education standards, the Justice Verma Committee (JVC) was constituted, and its report titled "Vision of Teacher Education in India: Quality and Regulatory Perspective" was submitted in August 2012. It proposed several reforms to ensure the planned and coordinated development of teacher education in India. Among the most important recommendations were:

- The government must increase its funding in teacher education institutions.
- The institutional capacity for teacher training must be enhanced, particularly in deficit areas such as the country's eastern and north-eastern states.
- Teacher education should be integrated into the higher education system.
- As per the Kothari commission (1964–66) recommendation, the duration of the teacher education programme must be extended.
- Each pre-service teacher education institution should have a designated school that serves as a laboratory for pupil-teachers to observe, experiment, discover new ideas, reflect, and refine their abilities in order to become reflective practitioners.

NCTE Regulations 2014 and Some Pertinent Issues

During the last quarter of 2014, NCTE came out with its New NCTE Regulations 2014, through which B.Ed. and M.Ed. was transformed into a two years programme. All Indian universities were engaged to design their two-year B.Ed. and two-year M.Ed. curriculum within a short span of time to implement them in the session 2015–2016. This way the long pending and needed step was taken in the field of teacher education with the purpose of bringing qualitative improvement in teacher education to prepare quality teachers to further improve school education in general.

Uniformity in 'Teacher Education Curriculum'

Curriculum and course structure differ amongst universities. Some universities provide it on a yearly basis mode (2-year course), while others offer it on a semester basis (4 Semester Course). NCTE may strictly set the criteria for running the course either annual basis or semester basis, and all universities should adhere to them.

NCTE has developed a model Course of Study or Syllabus for several teacher education programmes such as B.Ed., M.Ed., D. El. Ed. and so on. These are suggestive in nature and are not binding on the universities and colleges of teacher education to follow as it is. They are free to develop their own curriculum based on this model curriculum. If NCTE would have provided the core component whose inclusion would have been necessary and the others were just suggestive in nature, it would have aided in achieving a better degree of curriculum uniformity. In this regard, the RCI (Rehabilitation Council of India) curriculum framework for B.Ed. Special Education and M.Ed. Special Education is worth noting, as the complete curriculum is designed and provided by the RCI. Special education universities and colleges are required to follow and implement them. In B.Ed. and D. El. Ed., various universities and SCERTs have varying numbers and combinations of core, pedagogy, and elective courses in different semesters/years, reflecting a wide range of variation in the curriculum, course structure, course focus, nature and extent of field work, etc. The provision of courses and the evaluation of theory papers also says volumes about the lack of uniformity in teacher education curriculum and its transaction. The number of papers recommended ranges from 7 to 23, with evaluation weightages ranging from 1450 to 4000 points and internal assessment of obligatory papers ranging from 20 to 50 to 100%. The NCTE only fixed 1350 marks for the two-year B.Ed. course (NCTE Regulation, 2014) in its model curriculum.

Duration of the Course

Since 2015, D.El.Ed., B.Ed., and M.Ed. have all been transformed into two-year programmes. D.El.Ed. is a diploma; B.Ed. is an undergraduate and M.Ed. is a postgraduate course. We must consider the logic behind the identical duration of all courses. To make it more justified, the duration of courses should vary throughout all three levels.

Previous commissions and committees advocated increasing course duration. Based on these recommendations, NCTE made it a two-year programme with effect from the session 2015. It was implemented on an immediate basis and the universities were given no choice but to comply.

The first batch of two-year B.Ed. and M.Ed. passed in 2017. Teacher educators, teacher education colleges, schools offering school internship programmes to student-teachers, and other stakeholders are in a bind. Most self-financed/private institutions are unable to fill even their most basic seats. Colleges are forced to operate B.Ed. courses in understaffed conditions due to poor revenue from low admittance. In other circumstances, only two teachers are teaching all of the papers, and only 19 students are admitted out of 50 available seats. This is a common occurrence.

Theory Components: Past and Present

There were core papers in the former teacher education curriculum to build and develop prospective teachers' grasp of the three main roots of education-educational psychology, educational philosophy, and educational sociology. The key papers have been diluted in the current curriculum. There is no core paper that is solely founded on psychological, philosophical, or social foundations. All of them have been blended, allowing teacher educators with no specific training in these areas to be assigned to teach these papers. Educational foundations must be considered. The core papers should be retained intact and should have a strong foundation in the three disciplines mentioned above.

Language Across Curriculum

'Language across Curriculum' is a key theory paper introduced in the two-year B.Ed. curriculum that has been in place since 2015. The philosophy underlying the introduction of this paper, as envisioned by the NCTE Curriculum Framework and Curriculum Design Committee, 2014, is to help pupil teachers understand language in general, as well as language of all school teaching subjects such as language of Science, language of Maths, language of History, and so on. This paper is generally allotted to language teachers, and the professors who teach it believe they are not doing the subject justice. They, too, are unable to comprehend what they are meant to teach. In this paper, they generally teach language education and other aspects of language teaching. The very fundamental objectives of introducing this paper are most likely not fulfilled.

For the appointment of teachers in all subject areas, we have general and specific requirements. The qualifications for teaching this course have not been determined. A teacher of a single language or subject is unlikely to be able to teach or do justice to this paper. The circumstance revealed that the choice was made in haste, and it is leading to additional confusion, weakening rather than boosting teacher preparation programmes.

Gender and Society

In 2015, a new paper titled 'Gender and Society' was introduced. Previously, the subject content of this paper was taught in one of the core papers which was designated as 'Sociological and Philosophical Foundations of Education'. It should have been integrated as the core value in every paper, but instead a new paper was created, which not only loaded the curriculum, but also offered the possibility of overlapping

the information in multiple papers. It should be taught, deliberated on, and addressed as a key component of every paper in an integrated manner.

Internship Programme: Then and Now

The one-year B.Ed. had one-month's School Experience Programme (SEP). The two-year B.Ed, has a provision of five months (twenty weeks) School Internship Programme (SIP); four weeks of school observation in Ist Year and sixteen weeks SIP in the IInd Year. Previously, the ratio of programme duration to SEP duration was 12:1. (in terms of months). This ratio in two-year B.Ed. is now 24:5, or approximately 5:1. Hence the weightage of SIP duration has increased by nearly 250%. Furthermore, the practical concerns of the availability of schools for SIP were not taken into account. It would have been preferable if NCTE had included the DOE (Directorate of Education) of each state as a party to this reform and finalized this component in collaboration with them. It would have made the process of getting schools for school internship programmes easier. Schools should also be provided clear guidance on their roles in SIP, which must be supervised by higher-ups in the school education system. After all, these teachers are being trained to work at these schools in the future. The more they coordinate and guide the pupil-teachers, the better teachers they will be when they enter the system.

There is also no regularity in the administration of the school internship programme. Some do it in the second semester, some in the third, and some choose to do it in the final semester; possibly there is no agreement among specialists about the internship programme as to how and when it should be implemented during the course. The nature of internship programmes also varies, such as the number of lessons to be delivered by each pupil-teacher in each teaching subject and overall, during the term of the internship.

All other professional programmes where trainees perform internships, such as medical, engineering, and law, do it mostly at the end of the term. In all such programmes, the organisation where the trainee is undertaking internship is responsible for offering quality training and supervise the internship activities. In teacher education, the situation is exactly the opposite. Teacher educators as supervisors are given extra responsibility for guiding and assessing interns in this situation. This process must be addressed appropriately, and the role of the school teacher/mentor must be expanded. During school internship programmes, the roles and responsibilities of teacher educators as supervisors and school teachers as mentors may be reversed.

Most Needed Innovation in School Internship Programme (SIP)

Considering the need for well-trained teachers who have all of the experiences of school activities that regular teachers do on a daily basis, prospective teachers should be given the experience of the complete session, from admission to the announcement of final results. This necessitates training of pupil teachers for the duration of the session. It may be argued that the first year should be totally theoretical. The DOE should place them in school for SIP in the second year according to their needs and school vacancies. These pupil teachers should also be compensated in the form of a stipend. This initiative may assist DOE in meeting the demands of teachers in schools while also reducing the financial burden that they bear for guest teachers, as this strategy will lessen the need for guest teachers in schools. Thus, DOE, teacher Education Colleges, Schools as well as Pupil-teachers may find this useful. NCTE may finalize the other SIP mechanisms in coordination with the DOEs of all states and the Education Departments of Universities and Colleges of Teacher Education.

Enhancing Professional Capacities

The inclusion of courses on EPC (Enhancing Professional Capacities) such as 'Understanding the Self,' 'Reading and Reflection on Texts,' and so on is a notable aspect of the 2-year B.Ed. curriculum as per the regulation 2014. However, there appears to be some uncertainty over the CEPC (Courses on Enhancing Professional Capacities). Some universities incorporate some of these papers into core courses, while others classify them as electives. The addition of these courses has a long-term positive impact if they are conducted in the proper way and spirit, which is probably lacking everywhere.

Four-Year Integrated B.Ed. Programme

In the light of NEP-2020, the Government of India, through NCTE is going to implement a four-year integrated B.Ed. programme across India in phased manner. By 2030, the four-year integrated B.Ed. will be the sole teacher education programme for preparing secondary school teachers.

In the first three years following the launch of four-year integrated teacher education programmes, the two-year B.Ed. and M.Ed. programmes may be maintained to meet the expectations of individuals who have already completed or are in the process of completing their undergraduate and postgraduate courses. In other words, for individuals who have previously been admitted to three-year B.Sc., B.A., or B.

Com programmes and wish to pursue B.Ed. after graduation, the doors to B.Ed. should always be open.

Drawing the Best Talent to Teaching

To attract the best talent to the teaching profession, a well-designed process is essential. Teaching should be made a lucrative employment for people who are high achievers, have a passion for teaching, and want to join the profession out of choice rather than need. The following provisions could be considered and tested:

1. Only the freshers, with no more than a two-year gap, should be allowed to enter the teacher education programme after meeting the basic eligibility requirements (qualification).
2. There should be multi-level screening and entrance exams to choose candidates for admission to teacher education programmes, such as:

    a. A criterion of 60% or higher in aggregate and in the relevant subjects in the qualifying exams.
    b. A score of 60% or above in the entrance exam.
    c. Along with the presentation, candidates should be interviewed to assess their verbal and written communication skills.
    d. Overall behaviour of the applicants, including values and ethics, morals, and conduct in previous institutions as evidenced by their school grade point averages (X and XII). Grade 'A' should be preferred, followed by 'B'. Other graded candidates on morality should be made ineligible to apply, as the job of teacher necessitates very high levels of the aforementioned behavioural components.

3. Monitoring, supervision, or inspection of Teacher Education Colleges should be undertaken at random, without prior notifying the institution, in order to observe the actual status of teaching–learning/training and available infrastructure. The NCTE should assemble a devoted, skilled, and trustworthy team of observers for this purpose. NCTE itself needs to be headed by a person who is not guided by other centers of power, but looks only to the future of the nation which is shaped by teachers in its classroom.
4. Non-performing and Norms-ignoring colleges of teacher education should be punished, shut down and blacklisted.
5. Stipend should be provided to pupil-teachers during the school internship programme.
6. Ensuring the appointment/placement of bright candidates after a thorough selection and training process can boost their morale and help to assure excellence in school education.

National Education Policy (NEP) 2020 and Teacher Education

Looking at the National Education Policy (2020), it clearly indicates that the objective in the area of teacher education is to ensure that all students at all stages of schooling are taught by teachers who are passionate, motivated, highly qualified, professionally trained, and well equipped.

Experiences and research from India and around the world demonstrate that there are a few important attributes of teachers and teacher educators that need to be nurtured in them for effective teaching–learning and conducive school culture that enables and ensures exceptional teachers and teaching. These are:

- Teachers must be enthusiastic, motivated, highly competent, and professionally trained in the theory and practice of teaching and learning.
- It is essential that teachers connect with their learners and are invested in the communities in which they work.
- Teachers must be recognized, supported, and respected in order to perform well. Teachers and students who are joyful contribute to effective teaching and learning. Teachers and students must work in a safe, pleasant, and inviting setting on a daily basis.
- Teachers, as well as their schools, school complexes, and classrooms, must have access to the learning resources they require for quality teaching. Teachers should also be competent and skilled to create, disseminate, and use open educational resources from various platforms.
- Teachers should not be overworked, particularly with non-teaching tasks or teaching subjects outside of their area of competence.
- Teachers must be given the autonomy to innovate and teach in the manner that is most suitable for them and their students.
- Teachers must have many opportunities for Continuous Professional Development (CPD), as well as access to the most recent innovations and ideas in both pedagogy and subject matter.
- Teachers must feel a sense of belonging to a vibrant professional community.
- Teachers must work in schools that have a caring, collaborative, and inclusive culture that promotes excellence, curiosity, empathy, and equity. School principals, school complex leaders, and School Management Committees (SMCs) and School Complex Management Committees (SCMCs) must set a big part of this school culture.
- Finally, teacher career management and advancement (including promotion/salary structure, as well as the selection of school and school complex leadership posts) must be based on outstanding performance and merit, with defined standards for evaluation.

NEP-2020 gives the opening of three types of B.Ed. programmes; the first one being the four-year Integrated Teacher Education Programme (ITEP) in which students may get admission after XII and pursue B.Sc. B.Ed. or B.A. B.Ed. The

present two-year B.Ed. programme will also be continued for those who have already completed the undergraduate degree in school subject. The one-year B.Ed. will also be available to those who have already completed their Master degree. But the latter two programmes will be offered only by those colleges of teacher education or universities where ITEP is available. By the year 2030 the 4-year Integrated Teacher Education Programme will have only eligibility to become teachers at secondary level and will be provided only by the multidisciplinary colleges and universities. All standalone B.Ed. colleges will have to convert them into multidisciplinary colleges by 2030 or they will have to close offering B.Ed. programmes.

The NEP-2020 also provides guidelines for preparation of teachers for Early Childhood Care and Education (ECCE), also known as pre-primary or Nursery education which are provided at Anganwadi, Kindergarten schools, Nursery schools or Pre-primary schools. This level of school education has been made an integral part of the $5 + 3 + 3 + 4$ system of school education for the first time in the history of Indian education. There is a provision of providing a six months Certificate Programme in Teaching to those ECCE teachers who are XII class passed. And those teachers of ECCE who have less qualification will be provided one-year Diploma in Early Childhood Care and Education (DECCE). The aspirants who want to become teachers at this level may have such training in face-to-face mode or through distance mode by any university departments or colleges accredited by the relevant agencies.

To draw best talents in the field of teaching the policy talks of providing scholarships to meritorious students and students coming from rural areas. There is also a provision of offering bonuses to those teachers who are appointed and serve in rural areas and give their services to the Socio-economically Disadvantaged Groups (SEDGs).

The policy provides guidelines to have a special shorter local teacher-education programme by BITEs (Block Institute of Teacher Education) and DIETs (District Institute of Education and Training) for the 'Master Instructors' with a purpose of promoting local profession or craft or vocation and inviting them to give some time to teach at local schools and make the children introduced with their crafts and develop their skills in them. Shorter Post-B.Ed. certification course for more specialization is also envisaged by the policy such as in the field of leadership and management, inclusive education for vertical and horizontal mobility of teachers depending upon their qualification and interest.

The programmes in teacher education must offer student-teachers many opportunities to explore various aspects of being a teacher in various fields. Practical components like school readiness programs, self-development workshops, theatre in education, physical education and internships provide a ground to go deeper into the nuances of becoming a teacher. There are various theoretical subjects like psychology, sociology, philosophy which work towards the improvement of a teacher in the profession and as a person too. It helps in holistic development of a teacher which is ultimately beneficial for the holistic development of students as teachers are the bridge between the child and the society and it is utmost important for a teacher to be proficient in his/her profession as they deal with the budding future of the nation. Enhancing the quality of teacher education paves a path for other students to enter

this noble profession and also it helps in maintaining the dignity of the profession of teaching. As it is mentioned in National Education Policy (2020) that *"The high respect for teachers and the high status of the teaching profession must be revived and restored for the very best to be inspired to enter the profession.*"

Conclusion

The responsibility of teacher education is to prepare quality teachers to mould the future of the new generation, which in turn shapes the fate of the nation. If teacher educators are good, they will prepare quality school teachers, who will ultimately mould the young minds that will construct the country's future. There is no room for lapse or compromise at any level, if it is permitted, the nation will pay the price. The country's current educational scenario as a whole, and teacher education in particular, demonstrates patterns of continuing degradation in educational quality. There are numerous concerns and challenges confronting teacher education and school education that must be handled immediately, but in a well-planned and long-term manner. The deterioration of teacher education quality, dwindling morality and values among teachers and students, induction of people of low academic caliber in teaching, a lack of passion for teaching, a lack of dedication, sincerity, and essential teaching skills among teachers are some of the pressing issues and challenges we face today. These issues must be addressed as soon as possible in order to get school education back on track. The government and the regulatory authority must take the necessary efforts to eliminate any irregularities and achieve the highest possible and desired level of quality, stability, and uniformity in teacher education.

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Chapter 2
Critical Analysis of Policy Perspectives in Teacher Education

Hriday Kant Dewan

Background

The notion of a teacher and how s/he should be has dominated the policy construction and more so its implementation. The expectation of what the teacher should be like are rooted in cultural and historical notions of the teacher and what the society expects. The status of the teacher, the way the society relates to the teacher and the background, purposes, and needs of persons who are now becoming teachers influence the policy and its implementation as much as the notions the state and the public have of them and structure that is available to govern and 'manage' them. Societies have needed someone to teach young persons from very early and it is only in the last century that the idea of teaching everyone and having many more persons as teachers gained ground. The notion of who a teacher is and how the system would interact with all the teachers has undergone a lot of developments in the last 60–70 years. Even though notions of a formal school teacher, need for preparation of such persons, some process of certification, assessment, and monitoring was conceptualised and put in place in small pockets the policy statements and systems for implementing them have exponentially multiplied. These policy documents have laid down principles and also laid down steps with respect to the definition, governance, management, and development of teachers. This has been affected by and itself affects the status of the teachers in the system and in society.

Many of the previous policies have been analysed in the subsequent policy documents in an attempt to find a sensible way forward. These analyses however do not look at the gaps in the policy in the light of the reality subsequent to the policy. While the policy documents seem to make use of the earlier policies in forming the background of their arguments and suggestions, they lack a sharp analysis of why the previous policies have not worked and what additional clarity the new policy is adding

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to make it possible. Most often they gloss over philosophical and social departures from the previous policies. There is no sharp criticism of the previous policies and implementation strategies for their inability to make a difference. They rarely point towards gaps and/or philosophical disagreements with the previous policy or the difficulties with the recommendations that make them virtually non-implementable. The policy discourse therefore seems to be in a continuity even though the gap between the reality presented in these documents and what seems to be happening on the ground seems to be increasing in important ways. It may be pointed out that each policy document, even a curricular framework document or a mission statement, or a scheme does try to justify the need for itself. There it has to point out why a change is needed and then go on to answer what changes are needed in the policy. It is here we see that very little substantial reasons are offered as well as no clear shifts on policy discussed.

They however, helped in the effort to trace the development of what had happened till the time of the policy draft to some extent. But aside from these, there are many other works that examine the elements of the policy and critique them. Some of them have also suggested that the seed of the non-implementation of the policy lies in the way the policy is worded itself. In this paper, we would consider the notion of a teacher, the social-economic and political status of a teacher and its impact on the notion of being a teacher and the quality and intensity of their work. We would also consider the policy developments on their preparation and continued learning.

The chapter discusses in detail the problems faced by teachers, teaching profession, and the school education system, which the teacher education, educational policy makers, and administrators need to look into and develop mechanisms to address them. These should also be taken into consideration during the curriculum development process and planning of transactional strategies and its implementation.

Organisation of the Chapter

Policy discourse has to be preceded by an understanding of terms that form its main body and how they are perceived in the policy, its implementation, its implementers, teachers themselves, and the society in contact with school. In order to understand and in fact even coherently put down the changes in the policy documents regarding the treatment of teachers and its implications, it is important to understand the notion that prevails regarding teachers. In the absence of that, the policy articulations cannot be understood and the subtle contradictions in the recommendations are overlooked. The policy conversations are constructed around the consideration of terms that are supposed to be well defined and about which most have a shared understanding. The most important of these are, what does a teacher mean and what is teacher education. We will discuss these so that we understand the recommendations and implications of the policy better. We also know that policy is developed and implemented in the context of the situation where it is being applied. So, any analysis would have to also consider the perceptions of the society and in particular those interacting with the

teachers and the school about the teachers. This would include the way society places the teacher in the hierarchy of respect, what does it think of teaching as a profession, how does it consider the quality of their work, their salary, and work conditions, etc. What does it think about those who want to become teachers? In the subsequent part of the chapter, we would look at how these have been treated in the policy documents and what have been the common elements in these in spite of the statements to the contrary. We would also examine the nature of the formulations and principles around which recommendations have been constructed in the different policy documents and the lack of consistency between the stated principles and the recommendations made. The last section looks at the implementation of the recommendations.

Section-1: In this section, we look at the way teachers and their work is understood by society and their attitudes and dispositions to teachers, their role and status in the community, and the aspirations of those who become teachers by choice. We also look at the way teachers look at themselves and the community of teachers. The first term we look at is the notion of the teacher and what people feel about being a teacher.

The Notion of a Teacher

The popular discourse around teachers can be understood in the way they are viewed by the society. One view is reflected in verses akin to "Guru brahma, guru vishnu…", "Guru govind dono khare….' and many more and the phrase "*these masters*". The teachers are supposed to be everything rolled into one. They are expected to act like a parent for example like a mother but be firm and often as the children get older the expectation is that they do what the families cannot do. Build in the children all the energies, dispositions, values, and attitudes that each of the parents thinks appropriate. They want the school and the teachers to educate and tame the teenagers and help them get over their adolescence. The teachers are expected to be able to do more than what parents and society are able to do. While this is on one side of the expectation on the other side is utter disdain. The attitude is that teachers are people who are salary seeking, dis-interested, incapable, indolent, and derelict from duty. They do not want to work and hence must be kept under tight leash, monitored, and disciplined.

Expectations from Teachers

As to the expectations from them they are also divergent. On one side are expectations that expect them to be nice to children, love them and develop them as individuals who think and are not coerced and forced in the school, and on the other side is the pressure to ensure that all children pass examinations. And within that each parent

wants her child to be at the top of the class. This has now permeated the system and the coaching centres and one of the difficulties is that the attitude and disposition to education and teachers are largely based on what the elite and the upwardly aspiring parents want it to be. Their expectations are caught between the challenge of not having the child being scolded or pressurised and the expectation of each parent that their child would be among the top in the class and indeed among all those taking the examination. There is no consideration of the fact that the teacher is just another person and is expected to work with usually at least 30–40 children in a class and in the period of adolescence which is the most important part of the school for competing children. They do not recognise that the teacher cannot achieve what they have been themselves unable to manage as parents with far more time spent with their child and less spread across the number of children they have to engage with. Besides, in any case, we know that for a school, it is unhealthy and wrong to push children through goals and aspirations that children themselves are not interested in and allow them to feel safe, secure, and feel the comfort that there are multiple options available.

Status and Esteem of the Teachers

As for the wider society sometimes, they see teachers as builders of the nation, someone to be respected and one of the most important persons in the lives of children and even when they grow up as adults. Almost each one of us has a story of a teacher whom we can attribute our current being and person, if not the achievements to, and have instances to warm our own and the hearts of listeners whom we tell these stories but that ends with that one teacher. There is disdain for teachers in general and we mostly regard them as persons who are dis-interested in their job. So, while most have nice stories about the role of some particular teachers in their development and learning, there are rare who think positively of the teachers as a community and would consider it to be a worthwhile aspiration for their children. For most teachers as well, it is not the first preferred job even though now particularly for government school appointments, they have to work really hard to get it. In spite of that, most people continue to believe that teachers, particularly school teachers, are those who are not good in academics and have not been able to do well in their studies. They are the ones who could not clear some tests and become doctors or engineers or some officers or managers.

The teachers are therefore caught between the two images, one of being respected and revered, of being expected to be all knowing, self-sacrificing, wise and capable persons, and the other image is of a salary drawing apathetic worker, insignificant person of average capability, person of low social and economic status, low motivation and commitment. The teaching community collectively has a very low social endorsement and also a very low self-esteem. This has been worsening over the years; as inequity among people has increased manifold, education has become more commercialised and the diversity and the gap between schools has increased. This

has also led to many categories of teachers and the way they are paid and treated in their roles. Additionally increasing competition to nab the proportionately few gilt-edged jobs that can be reached through performance in tests and examinations has led to the culture of coaching, reducing further the respect for and importance of the teachers.

The children in the primary schools particularly in the beginning classes would generally think of the teacher as the ideal and the model. Many of them may want to be like their favourite teacher or being the best friend to the teacher. This gradually changes as the child becomes older and takes in the feeling prevailing around them. They slowly start to imbibe mixed signals about the teachers from their parents and other elders. They see the way teachers are generally treated and the way they are talked about. The dominant elite in particular gets the children to fairly quickly see that the teachers are really low on the social-economic ladder. In the middle years as their aspirations are getting formed, they see the glamour of jobs other than those of becoming a teacher. They derive no motivation from their teachers either as they themselves are mostly drifting with a lack of purpose and motivation in their role. As young learners they had by the time it came to make a choice not to opt for being a teacher. They had not seen any great purpose in it or a general feeling of having many role models who are enthusiastic about their jobs and have come into the role as they have a desire and a disposition to teach. As would happen to them by and large most of them would come in because they need a job and even though it may have in many cases very low salary, virtually no authority, low prestige, low respect, low appreciation, and a feeling of being inconsequential, it is still something to do. While the system could be designed to function in a manner that brings interest into the people who join the profession, what it does is the reverse. It kills the spirit of even those who join with motivation and a desire to be a teacher. We will come back to this but at the moment this is to indicate the low self-esteem of the teachers and the low esteem and status for them in the eyes of the people which eventually also includes their students.

Section-2 Earlier Notions of a Teacher in India

The roots of the notions around teachers have evolved and the way policy gets formulated and operates lies in the development of the notion of the teacher. It is often said that earlier in the Indian context the teacher and the disciple shared a close relationship. The learner was not a student but was considered to be a disciple with obedience and reverence as the core of the relationship. It was however, not expected or considered important that all children should get a teacher and have some formally structured r.

For most education would be from the family and those in contact only. It is said that the few who did go to a teacher came from privileged backgrounds in many different ways. What seems is that from those who came to a guru for learning, the teacher picked those that appeared to be competent, capable, and desirous of learning.

The choice was careful as the teacher was then responsible for ensuring the learning of the chosen disciples. There are alternative descriptions of the schools, their numbers and the children who went there, and even the teachers and their temperaments and we will not discuss those. One major stream endorsed by the education policy 2020 (pg 18 para 5.1 and Draft NEP 2019 pg 113), does however argue that at that time the teachers taught in their own manner and the knowledge they had and believed to be true. There were virtually no epistemic criteria for the validity of the knowledge transacted. The teacher or the guru was knowledgeable, pure and revered, poor and unworldly yet worldly wise. This notion of expectation from the teacher has remained although the autonomy and the flexibility have almost gone. The only authority that remains with her is on the children and that is why teachers are described as the meek dictator. We will come back to this again and what this has changed into now. The idea of a teacher in basic education partly stemmed from this idea of a teacher who did not have too many needs and who had not allowed education to make her exploitative and thus is able to instill the same feeling in the students. She helps integrate the children in the community and the local economy as she herself is a part of it and is supported and supervised by the community itself and is in some sense beholden to it. The nascent national movement recognised the importance of education in the building of the nation and suggested pathways of ensuring that roles that are very different from what was subsequently built. The notion of economy and the role of the local community in governance and planning their own lives was different and hence their control of their own lives including the education of their children. Such a system would have led to a very different policy and teacher preparation articulation. We can see shades of that in the documents on basic education that we see. But these documents are prepared in the context where there are no large requirements from the centralised governance and economy. The struggle of the basic education effort to keep its spirit and accommodate the fact that school could not be self-supporting and teachers cannot be indistinguishable in interests from the community was also hampered by the fact that no research was done around focused aspects of trades and crafts that were suggested to be the medium of education for children. The dichotomy between the craft and hobby interpretation was decided eventually in favour of the hobby simply because the exceptional requirement from a teacher to have the ability to be self-sufficient in a trade and be academically proficient was not easy to find. And knowledge focused around trades could not be foreseen as coming around.

Basic education and the teacher: Basic education is silent on the question of how they can find and/or prepare teachers in the spirit they suggest education needs to be made available in schools. What is the kind of person? While they spell out the ideal expectations from the teacher, they do not offer any mechanism to find people who can think like what the basic education school will need. The ideal teacher for this programme is one who continues to learn and accepts that she can be learning all the time and that she would also learn from the students in the areas of their knowledge. He cannot have a vendor to vendee relationship with the students and the interaction must be such that there is a genuine togetherness in the engagement. This is only possible if they are engaged in tasks together and the notion of a teacher is genuinely

transformed. This requires both empowerment as well as education of the teacher. Educational process cannot force unwanted learning on the learner by the teacher. Things that neither the teacher nor the learner values and the only reason for the transaction are the salary that is given to the teacher to fulfill this role of forcing the child to acquire this by putting all sorts of coating on the un-interesting stuff. The basic education or Nai Taleem believers would have felt vindicated by the terms 'khel-khel mein' and the other such recently discovered necessities to make the child swallow the content tedious and meaningless for her. The Nai Taleem would have not wanted the teacher to feel threatened with an external monitoring mechanism of the achievements of learners that set the goals and expected the children to reach that. It would not want that the salary to be given by an external agency making her/him beholden to that agency rather than to the children or their parents. The Nai Taleem even recognises the fact that all teachers are not committed to the task of teaching and have the attitude and disposition required would recommend a dialogical interaction that would gradually develop the understanding and not just mend but restructure the relationship with the process of teaching and the children.

There are other ways in which the Nai Taleem teachers would be different. For one it is not the cognitive knowledge, the degrees, and the certificates that are the crucial elements to decide the suitability for the role. The would-be teacher for Nai Taleem must be capable enough in a trade or a craft to be able to make a living out of that role. She must be capable of and desirous of working with her hands in doing manual labour. What that means is that the conceptualization of what a teacher would be like and what would be the background from where she would be found is very different from the present. The primary ability needed is attitudinal, dispositional, and the ability in a trade that requires human labour. The importance of this cannot be over emphasised as this notion of a teacher would force a different relationship between the teacher and the children as well as the community. Much of the current challenges of alienation of the teachers from the children, their parents, and their jobs arise from the vacuousness of the role of the teacher in teaching and the disconnect of what is to be taught from the life, purpose, and experience of children. The challenge in applying the principles and the framework underlying Nai Taleem was in the inability to link trade to disciplinary concepts in a manner that was organic. The Nai Taleem not only expected a different structure for the process of education, but it also suggested a totally different direction for knowledge development.

Today's situation: The situation we see in the minds of the teachers and in the minds of others about teachers in a large way reflects the dangers that were anticipated by Nai Taleem. The teacher is assigned a task in whose determination he has not played any role. Most often he does not even understand the rationale and the basis of what she has to teach. The children in the classroom and their parents recognise him as a person who does a job and is paid for it. They realise that he is beholden to some representative of the system that pays and has very little agency. By the time children come to the upper primary they see teachers in general as not in command as they thought they were earlier. The teacher can no longer be a decider of what goes for proper behaviour and they are also aware that he does not even control the teaching

learning pace. The lack of a commonly shared agenda implies that the children and the teachers are engaged in a task that none of them control or feel as their programme. The increasing focus on monitoring and telling teachers to follow procedures and processes of a specific type does not add to the conviction or the sense of ownership to work among the teachers. They continue to feel apathetic to the role and do not see empathy from any of the key participants linked to the school.

The teacher is expected to perform a lot of roles and many of these roles and the expectations of the manner they would perform them are contradictory. The teacher is expected to be someone who is ideal in all respects and yet identified as someone who is in the role only because she has not found any other job. Discussions around teachers bring contradictory passionate responses, expected to be capable of (knowing concepts and being academically sound), sensitive (listen to children and love them), treat children with care but with firmness, need to be teaching and be in the classrooms, and available to students all the time, yet manage mid-day meals, manage census, support elections, do community data gathering and so on. They are also expected to handle diversity in the children of their classroom and relate to each child the way it is appropriate for her but simultaneously follow commonly prescribed schedules, guidelines, and regimes. There is a lament that good graduates are not coming to become teachers and simultaneously the suggestion that the teachers' salaries need to be reduced as most of the education budget goes on salaries. And while arguing for making the role of the teacher more attractive the simultaneous suggestion that teachers should be monitored and removed if they do not 'behave'. As Dewan (2016) points out they are caught between the expectation of being like gods and being treated like devils. They are not measured from the yardstick of a normal human being and are allowed the same considerations to fulfill family responsibilities and hold aspirations to move up in the stratified society.

The Teacher in the Policy Discourse

The current situation of the notion of the teacher and her role has emerged over time and while it may not have been created by the policy but the policy articulation and even more so the manner of its implementation has not helped transform it positively. Apart from that we also notice the same equivocal articulation about the teacher and her relationship to society and mass education. Analysing the statements in the policy and program of action documents in India one gets the clear impression that the role and position of the teacher in policy documents has continued to get less secure and less meaningful. To understand where it all began, how it began, and how the perception of the role changed over time in the policy discourse it is good to start with the 1968 policy document. The Sect. 4.2, page 39 of the 1968 policy says—that the quality of education is determined by the teacher. He contributes to national development and his personal qualities and character determine the success of the educational efforts. It goes on to ask for adequate emoluments, appropriate service conditions, respect and honour for teachers. Interestingly it also considers

and recommends freedom and autonomy for them. It significantly underlines the importance of the attitude towards them, and their social standing. This is recognised as essential to being a good teacher and for a good education as a whole.

The Teacher in the Education Policy 1986–92

By the time we arrive at the National Policy on Education (1986) and the revised policy following the Programme of Action (1992b), there is a significant change in the expression of this belief. A major revision was seen in the conception of 'managing' education. Some statements regarding that change have been mentioned here. Section 7.1 of the policy states that, "Education needs to be managed in an atmosphere of utmost intellectual rigour, seriousness of purpose and, at the same time, of freedom essential for innovation and creativity. While far-reaching changes will have to be incorporated in the quality and range of education, the process of introducing discipline into the system will have to be started, here and now, in what exists" (NPE, 1986, 1992a). The use of the terms managing and discipline are worth noticing as they are directed at the teachers. While the promises of academic freedom and the exalted notion of the teacher with social respect and academic standing were never worked towards, in less than two decades the spirit of the way to resolve concern about the poor quality of engagement in schools sees a major transformation. The policy says, "The country has placed boundless trust in the educational system. The people have a right to expect concrete results. The first task is to make it work. All teachers should teach and all students study" (NPE, 1986, 7.2, pp 25). This may seem as innocuous as it is just what the teachers and students are in the school for. But the wording of the statement suggests that there has been too much lee-way and that has to be changed. The use of the term people have a right to expect results some people have not performed and they need to pull up their socks. From the rest of the policy articulation, it appears that the only reason results are not being seen is because teachers are not teaching and students are not studying. The rest of the system has to work towards ensuring that it happens by monitoring the only culprit, the teacher. It does not offer any other suggestion or reason for the reality it claims. The suggestion is to increase the accountability of the teacher and stricter appraisal of institutions and ensure that they meet the set benchmark (NPE, 1986, 199b2 7.3a, 9.2).

This shift in the attitude towards the teachers and the nature of their job and the way of their treatment was anticipated by the Nai Taleem discussions. They had feared the consequences of a system of education that was not led by the teacher and the community and was government driven. They had feared alienation and the gradual erosion of the community-school-teacher trust and the difficulty in setting up a teacher connect in a democratic manner. And while some of the recommendations of the 1986 policy suggested greater autonomy for the teacher the fact is that in spirit of the document teachers now were on the verge of being a monitored government employee at the lowest rungs of the hierarchy. Though section IX.1 of NPE 1986

stresses the importance of teachers and mentions the responsibility of society and the government in maintaining their zeal and enthusiasm, as well as talks about their freedom to discover and innovate and map out their own paths, its real intent is in the actionable points where the direction of the policy emerge clearly. And these are dominated by the accountability of teachers and a centralised evaluation system for teachers. This policy also commits to address their grievances, postings, promotion, and so on in a categorical and transparent manner. It also addresses that good performers will receive incentives and due opportunity for promotions and those who do not perform satisfactorily will be disciplined. By the time the discussions on a new education policy (NEP, 2020) began, this aspect was completely lost. Even talking about it seems impossible. The 2019 draft of the new policy did have a bit more careful analysis of this and the final NEP-2020 also mentions these concerns, but it is not clear what is the road for those ideas to be implemented.

The 1986 policy states in the preamble and in IX.1 that no nation can rise above the level of its teachers but as the policy statements and recommendations develop it is clearly shown that either it has no faith in that statement or its idea of the level to which country is to rise itself is fairly low. The 1986 policy, opened the doors for low wage teachers and relaxed the directions towards their service conditions. It recommended monitoring systems and diversification of the public run schools to schools for the bright children and schools for the rest. Further reducing the importance of a large number of govt schools as second grade and the teachers in them also as ordinary. Post 1986 Policy many things happened, one was that the primary school system expanded with low cost, low resource schools for ordinary children at their door steps with less qualified teachers whose relationship to the community was dictated by the govt but the teacher was to get salary through the panchayat leader. There was no organic link of the community with the school and the relationship was as directed by the Govt. This took away the last vestige of community respect for the teacher. The dis-interested but stranglehold control of their meager wages and in some cases also their selection, the teachers felt subservient to a few of the community leaders without either side knowing the purpose and possible benefit from this association. The community had no natural stake or control over what went on in the school and they were never a part of the conversation on what should be done in a school and hence had never thought about it. They had this responsibility of monitoring something that they did not understand on behalf of some people who did not know the local circumstances and hence could not know what should be monitored. As a result, the teacher could not be assessed meaningfully and the entire talk of answerability to the community became oppressive according to informal conversations with many teachers.

The Policy Impact on Ground

We need to take cognizance of the fact that the school got defined through this policy as a structure with two rooms, one or two teachers, and some bare infrastructure. And

there are many such structures that were set up by the government in the wake of the policy. Whatever may have been the intention for doing, they had multiple other effects on the system. The chief point is that with the inception of these informal centres (let's call them schools as the govts now do), the path to stratification of government school teachers opened up. Besides this, these centres brought a major downward shift in the salary being paid to teachers and triggered major changes in pay for teachers in the private schools as well. It also diluted the requirements in the academic qualifications but without adding any of the requirements that Nai Taleem would expect from the teachers. The new policy also gave pedagogical ideas like child-centred, activity based, and competency focused teaching. It argued that teachers should be facilitators and provide the children with activities and games that are joyful and fun to participate in. This initiated on one hand a flurry of activity making that could be given to the teachers to have done in the classrooms and on the other hand the feeling that good materials and activities are all that is needed and therefore the importance of the teacher got further diminished. The conception of a resolute, dedicated, friendly, moderately educated local youth who could facilitate learning for students at the primary and pre-primary level, evolved into a firm idea. Initiated for a temporary spell to fulfill a shortfall in areas teachers were difficult to send and keep, the idea was to ensure the presence of some adult who could empathise with the students and speak their language and know their culture and tradition as well. These youth were oriented, supported in the school, guided through regular interaction and through sharing among themselves, were carefully chosen ensuring self-motivation, and were treated with respect. This idea was however morphed into a mechanism for cutting salary costs for the new schools that were to be opened. And hence in many states, the concept of para teacher took birth. These para teachers were just underpaid and irregularly appointed teachers. They had virtually no regularity of service or promise of continuity. They were appointed and also treated in an ad hoc manner. After many struggles in which the societal conception of the teacher became that of underpaid disgruntled employees of the government, there is some pattern in the service conditions but the regular teacher has become a dying cadre in many states.

The 1986 policy has also stressed on the importance of teachers' associations. It wants that they must play a crucial role in increasing the dignity of the teachers while upholding the professional integrity and solemnity of the teachers and the role they perform. To curb professional misconduct and improve the quality of work, these associations can prepare a code of professional ethics and conduct and ensure that teachers follow it. Various studies show us (Vimala, 2016) the relation between government administration and teachers still revolves around transfers, postings, fixation, promotion, T.A.-D.A., mid-day meal, varied accounts and calculations, and other such tasks. Given that the large number of these relevant issues have not become systematised and teachers are even now not given all these in a fair way by their rights or explained why some decisions have been disallowed teachers' associations have no choice but to limit their scope of work to these tasks. The fact that the large majority of teachers still have only these expectations from the teacher unions, the nature of what the unions can do, and the nature of leadership that emerges also

leave little possibility for any other activity. There is no union for the private school teachers and they are fragmented and without a voice about their rights or for making any quality checking and reform suggestions to the school where they work. They are virtually at the mercy of the managers and directors who run these private schools; largely as business enterprises.

As for the government teacher groups, they face increasing political interference, and that substantially affects their service conditions and their morale. This political interference makes necessary interventions even on routine benefit matters that should automatically accrue and thus converts what they should get as a part of their rights to just gains from patronage and often also forces them to become parts of groups that have political affiliations.

The present situation of the problems of teachers non-addressed for more than half a century under the usual way of functioning of the system is embarrassing. This becomes worse when we recollect that the 1986 policy pointed out that most problems of the teachers can be solved without additional resource allotment. It only requires a thoughtful, well-planned, and structured approach. It also stated that the teachers were not given their due status and position due to lack of clarity. It felt the reasons given for not making it possible were trivial. The document argued that it is because of this that teachers have no accountability and their efficacy has decreased (POA, 1992b 22.3.1, 111.).

Whatever was said in the policy has not happened till now, neither the policy nor the plan of action nor any subsequent administrative thought process made the effort to elaborate the steps required to make this happen or the implications of these statements. We have by today forgotten that none of these was done and the lot of the teachers in terms of social and administrative status and self-image remains as shoddy as at that time and has indeed worsened in many-many ways. It appears to be inconceivable that some effort would be made to address this because of the great mistrust regarding teachers' working style, the stratified identity of the teacher, and their apparent lack of readiness to work as directed. The call is for them to first and foremost make themselves useful by doing a lot of other things and teach in the class, only then there can be any justification for considering the issues discussed. It is difficult to imagine that without self-respect and purpose, anyone can perform the role of a teacher meaningfully for herself and/or for the children. So, what do we plan, should respect, transparency, redressal and job clarity come first or should we attempt and ensure an enforced discipline first? Corruption and nepotism in recruitment, transfer, and posting of teachers have been a painful reality for all teachers. Apart from affecting their faith in the system, it weakens their enterprise and sense of purpose. It also compromises them and if they are the victims of unfairness, the alienation and the purposelessness generate an intense anger initially, and slowly as many teachers said in their interviews, they become apathetic. The relations between teachers and administration have always been one of an enterprise and teachers' associations have played the role of mediator between the two. For various reasons, it is arduous for teachers to accept their posting and work in a rule-bound manner. One of the factors is the availability of accommodations and other amenities. When the administration is not able to respond to these needs (or lacking the desire to

help), they post influential teachers or their favourites at the places they want to go. Often these proceedings are neither consistent with the rules nor are they logical. As a result, other teachers are also constantly looking to make influential connections. Though administratively this is difficult to do prudently, owing to the rule of wealth, politics, and nepotism there is no visible desire to make this process more transparent and logical anyway. This also informs the nature and scope of teachers' associations and will continue to do so.

The Teacher in the Yashpal Committee and the NCF 2005

The Yashpal Committee on 'Learning Without Burden' pointed out that the main reason for the burden of the school bag was not a physical burden but a burden of non-comprehension. The report went on to add that the non-comprehension was due to the way knowledge was understood and assessed and what teachers and children were expected to do. The teachers were not expected to give space to the articulation and knowledge of the children. They were expected to follow the syllabus, cover the book, and have children prepared for tests and exams. Given the nature of the examination and the amount of content, they have very little time to discuss or to do interesting elements. They have no joy in being involved in the teaching process and felt that the job of defining and improving the curriculum was with the authorities. They very rarely ask the question as to why teachers do not make the effort to be vocal and participate in the reform processes. The Yashpal committee attributes this to the perfunctory way teachers are consulted in the process of curricular changes and reform and to the lack of interest in teachers. They also attribute the pedagogical processes followed to on the one hand the pressure of the syllabus completion, text books, and the examination but also say that it is becoming ingrained as a social norm. They relate this to their dis-interest and the lack of capability but there is another critical reason associated with the way the teacher and her knowledge and worth are perceived and given space by the administration. Teachers are constantly discouraged to speak and try their own ideas. As many young teachers pointed out in their interviews that the system saps the energy and will of the teachers to attempt anything differently, present new ideas of doing things, and question the suggestions made by so-called 'experts' (Dewan, 2021b). There is a constant message that does not try to be over smart and do what you are told. Please do not point out problems as they are only in your imagination and no one else feels them. This then becomes the accepted norm and ensured that it is implemented ironically through the senior teachers themselves. The recommendation that emerges from the Yashpal committee report is that teachers and students must have autonomy. In academic matters, the teacher should have the autonomy to frame his/her course and the way he/she would like to assess his/her students.

Though all documents on the National Curriculum Framework till 2000 did not pay comprehensive attention to teachers, their training, and organisation, NCF 2005 has an entire section on this. It elaborates a lot on the Yashpal committee analysis and

extends the ideas to make specific analyses and recommendations on teachers and their roles. Section 4.8 on teacher's autonomy and professional independence clearly states that "Teacher autonomy is essential for ensuring a learning environment that addresses children's diverse needs. As much as the learner requires space, freedom, flexibility, and respect, the teacher also requires the same."

This document calls both for the voices of teachers to be heard and for equality and mutual respect in the relations with the administration. It also calls for acceptance of the need for their capacity building as also a process of reflection and rejuvenation besides recommending that they be given ample free time to build their own strategies. It states that a lot needs to be done to ensure that teachers are able to build capacity and are empowered to try their own ideas in interaction with children and ensure that children are engaged and involved and are able to build on their knowledge organically. They have suggested that teachers be given the opportunity to participate for at least 20 days in-service training per year. Though there are implications of this capacity building and pre-preparation as well as reflection to make the class engaging and meaningful, there is no specific recommendation about allowing time for this. The document is silent on the number of teaching hours expected and the need for changing the pupil-teacher ratio. Besides this, there is no recognition of the time required for other chores in the school so as to appropriately think about the above issues.

The Teacher and the RCFCE 2009

Subsequent to the NCF 2005 we have the Right of Children to Free and Compulsory Education Act in 2009, which is considered by many to be a major victory for the progress of education in the country. The act has many components and deserves detailed analysis about its formulations and recommendations. The RTE, as far as teachers are concerned, has some important operative principles. In chapter IV.24 it says that teachers have to be regular and punctual and must complete syllabus in specified time. It, at the same time in chapter II.4 together with chapter IV.15, implies that the child can join the school anytime and would be admitted in the age-appropriate class. And whenever she enters the school in the age-appropriate class irrespective of everything her studies would be completed in the manner prescribed by the Government. This coupled with the weak statements on pupil-teacher ratios and leaving no autonomy and freedom for the teacher and all the lee-way for the appropriate Government seems to be totally antithetical to the spirit of the NCF 2005, which incidentally is the attached document to the act. The act also specifies the minimum number of working days per year and the instructional hours per week in the schedule. It says that the minimum number of instructional hours including preparation need to be 45 per week. Clearly, the school having no administrative staff implies that the teachers also have to do that work. Given the fact that most of the offices work 5 days a week and have lunch breaks, these are longer working hours than most, if not all, equivalent positions. The teacher, in addition to the

instructional time, is also supposed to do the following, "assess the learning ability of each child and accordingly supplement additional instructions; hold regular meetings with parents and guardians and appraise them about the regularity in attendance, ability to learn, progress made in learning and any other relevant information about the child; and Perform such other duties as may be prescribed." These are in addition to the instructional time that the teacher is supposed to spend. In spite of that, the impression remains and is repeatedly emphasised that teaching is a light job. We will come back to this question again in the discussion. It is clear from the way the act is framed that it suspects the teacher and expects that she needs to be shackled and monitored. It clearly posits that it is not the teacher who is the protector of the right to education of the children but only the means and someone in the bureaucracy has to ensure that the means or the resource functions and delivers education to the child (Ch. VI). It doesn't give them the position to delineate a path for education through their self-motivation or resolution. It clearly outlines their responsibilities and expected way of working.

If we analyse the act carefully, the ones being eventually held accountable and targeted are the teachers. Their personal responsibilities are the only ones that are defined clearly enough and measured. And this scope of responsibilities would be defined and codified by those who are unconnected with the day-to-day task of the school. It is they who would decide the scope of these responsibilities and how well a teacher has been able to perform them. Their working conditions and morale are completely disregarded as officers can walk in any time not only take over their classrooms but also publicly humiliate them in front of their children and show them as ignorant or worse. The bulk of the weight for the smooth progress of education in schools rests on our teachers who are placed at the lowest rung of the massive frame of our education system. This act encourages the attempts to guide and tell teachers what and how to do and at what pace. There is no space left for the teacher to leave aside her strengths and dispositions to even accommodate the world view and experience of the children.

The act also does not make the state govt responsible for determining the needs of the teachers and in chapter III 7.6 states that the central government shall enforce standards of training for teachers. From the quest of NCF 2005 to decentralise and have a syllabus virtually at school level to the central govt specifying training giving a schedule of norms and standards seems a long distance already travelled.

The present context: The RTE has had a lot of impact on the lives of teachers in different ways. At one level it has brought in the need for them to obtain a diploma or a degree that certifies them as a teacher. This need was already there but the act made it mandatory and so lakhs of teachers were trained in short intervals through various mechanisms, some reasonable and some dubious. The RTE also brought in its wake all kinds of data gathering and repeated assessment procedures besides pressures to answer other questions. The major challenge of looking at the teacher as an instrument that has to be used and guided and the pressures of scrutiny and ensuring leaning levels led to many state governments bringing in organisations that promised to ensure that learning levels would be achieved and reduced the importance

of the teachers and their agency by handing them materials that they had not created or approved to use with children. In many of these, the materials were taken away by youngsters appointed by the organisation who had been brought in by the state and feedback given by them.

This is part of the strategy that is currently growing and has been advocated by not just the new 'educational experts' i.e. the bureaucrats who handle education, but many people active in education who appear to be well intentioned and concerned and teachers believe that it is more important to spend on materials including specialised equipments than on teachers training and their salary. Many of these argue that teachers can neither be made capable of nor motivated to think. They cannot be left to decide what to do in the classroom and have to be told what to do. So detailed lesson plans are laid out for them to follow. These are prepared by people many of whom have not spent a week at a stretch in the school and with the same class alone. Many not even one full day. This is an extension of the growing belief that teaching is a trivial job and anyone without any preparation can teach. They base it on their 5-min interaction where the students have been forewarned to be on their best behaviour and experience of other such instances. The fact that they have not spent time in school as a teacher for a sufficiently long time means that they have no real idea what it means to be in that role and what all does a teacher have to do to ensure that the classroom functions.

If we think seriously for a moment of our homes and neighbourhood and think about the children here, whom we interact with, and our relationship with them, we can see the task is not easy. The classroom has many more children and they are to be taken care of together for some continuous time in a task that may be neither interesting nor meaningful to them. The children are from diverse backgrounds and the teacher has no long-term relationship with them. The school besides requiring the children to be cooped up in the classroom also has them interact with different sets of children. Besides, the children move up classes, can change schools, or just change due to circumstances at the home of which the teacher has no inkling, there are new children coming in every year and they have to be broken into the school culture. There are usual normal tensions in the classroom among children that have to be intervened in and resolved. And then there are tensions in the society outside that are brought into the school and the class and that also the teacher has to deal with. Each day there are new dynamics and new situations as children grow and develop and interact and rub against each other. All this is to be done willy-nilly by the teachers. This is made more complicated by the fact that each person who has something to do with the school, has a different expectation from the teacher. These are so contradictory that they require teachers to be this as well as that at the same time; playing multiple roles concurrently.

It is not a surprise that being a teacher is not a coveted job particularly now when the teacher as the ideal image has started being shattered from the early primary classes itself. Young children form their views very early by the way they see teachers treated and the way they are thought of and talked about by the adults. There is a tacit acceptance of the statement that it is better to go into a service with railways, banks, or police or take up a management job rather than teaching. The reason these

jobs are coveted is not because of the expected role but it is to do with the sense of glitter and the social respect that comes with it. In reality, none of these jobs demands as much of the emotional and mental investment as the role of the teacher. And the role could be very exciting and meaningful too. Everyday there is something new to be done and there are relationships to be maintained with the students and a watch has also to be kept on relationships among students. The multiple relationships with students have to be balanced between closeness and keeping distance as a teacher and there are problems if you are on either side. Children grow and develop all the time and therefore these relationships also have to be adjusted accordingly. Teacher on the one hand is expected to know these changes and accommodate them in his/her interaction with students and on the other hand not have any agency or autonomy to decide how to proceed. Often there is talk of teacher proof systems and there are all kinds of channels selling educational content and openly suggesting that there is no need for a teacher. The entire human aspects of the relationships in the classroom and the school is not talked about when the role of the teacher is discussed and this is also not even considered as a part of education except as lip service.

System, society, and teachers: Considering the whole picture it appears that while the society has not thought through the work of a teacher and is not sensitive to the kind of work, she does but in a sense it also appears that the society has not yet come to terms with the fact that the teachers are a part of the society and are not people who have renounced the world and worldly goods. There is a wish for the same kind of teacher as described in fables and tales but with a very different role in a very different situation and these are now needed in much larger numbers and for very different children. Their relationship with society is also very different. Unlike what is thought to be the autonomy available to the teachers (Gurus) of the past, the present-day teachers are thought of as 'servants' of the Government or of the private management, they have to do what they are told (Vimala, 2016). The policy discourse in the 2016–17 formulation did not consider analysing and addressing the low morale, crushed self-image, and lack of motivation to work among teachers or considered thinking seriously about changing their working context and ambience. It believed the only thing important for teachers is the salary and since their salary has been increased therefore, they should do what the officials expect of them (Dewan & Mahadale, 2016). They should work more and be more answerable, a spirit continued from the spirit of placing the problem of teachers squarely in the ambit of administration and managed alone.

Conversations with teachers repeatedly bring out the fact that they are never praised. Each day as we have seen is a set of challenges for them yet whosoever comes to the school comes with the attitude of finding faults and pointing out gaps. As one teacher put it, everyone needs appreciation and sometimes even false praise is good as it gives you the urge to reach that level. We need to think if we would commend the ninety days of regular challenging work or talk about the one day of bad aberration when something out of the ordinary happened. It is also true that in the past few decades, teaching has started being commodified. Teachers in private schools are paid very low salaries and encouraged to earn as much as they can through tuition.

The entire educational process has become a corrupt business. Teachers mostly have no options as they have no financial security or security of continuity in the school job during vacations, they have no pensions or even health insurance. It is perhaps wrong to blame teachers for taking tuitions. The commodification of education has not happened because of them. The entire society and more so the management of the private schools are not just complicit in it but actually the cause of it. Teachers in an open discussion during a workshop earnestly said that the system makes us complicit in its corruption. We do not want to handle mid-day meal accounts or the school building account. In the name of decentralization although we have been made responsible but actually, we have to just sign and do what we are told. We are powerless to prevent leakage and have to cover up the gap. How do we tell children to be honest? Why do they not just let us teach? Another teacher talked about the large number of proforma they have to fill. She said there are so many tests and so many scores to be filled up and there is other data also to be maintained and sent to superiors. It leaves us no time for teaching. We do not know what they use the data for, I find it is just a burden and takes valuable time from the teachers and the students.

Teachers are also unhappy about the categories of appointments at different salaries and different service conditions. There are para teachers, samvida teachers, guest teachers, and temporary teachers. The young teachers who have come through stiff struggles to become school teachers are piqued as they have been appointed for a short period at a fixed wage. They are anxious as they are not sure what the future holds. It is not that they do not want to perform and do not want to teach seriously and hence are afraid of being found out but because they are scared of the unpredictability of the system. Who knows what would annoy which superior officer. As one young teacher said in response to why do you not help in correcting the system, "there is no one to listen". And if you speak often and point out gaps or present alternative ways you are marked as a trouble maker. You have to anyway do what they were saying in the first place so why argue. And if you try to use your mind and do something different you have to explain why you chose to do it differently. Nobody would appreciate what you did. So, you do not use your mind and just do as you are told. We are not going to get a medal for the point that we make or the new idea we try. Seniors see some of us young chaps and say this is a new recruit and so is jumping around. Would quieten by and by. The new teacher who comes in with enthusiasm and wanting to do something slowly loses all that and becomes a routine govt servant. Many new youngsters in fact get into a state of depression as they confront the lack of purpose, support, and appreciation.

Teachers were also unhappy about the imposition of ideas on them and the brash youngsters having nothing to do with education being put into the roles of their supervisors or monitors. Some of the senior teachers who were proud of being teachers were very unhappy with this and the fact that every six months or even lesser there is a new bunch of people with different ideas, different pedagogies, different materials, and different strategies that land up. We adjust to one set of people and what they want us to do and it comes another bunch with another package. These arbitrary changes are very harmful. In addition to these there are a whole bunch of administrators that

keep coming. The collector, deputy collector, the district education officer, the block education officer, and so on. Each of these has their own pet notions and perspectives. They want to see what they want to see and we are helpless as they enter and take over the class without permission and throw their weight around. They do not sit quietly, stay for a while and listen to what is going on. What they want is to belittle the teacher, find some mistake and publicise it so that it sends a message of terror. There is no effort to be appreciative and observe what the children are doing and what they have become capable of doing. And they also said the system is actually not interested in what happens to children and if they learn or not. Their interest is in getting the data and pictures. They do not want to reflect on what has happened and what has not and why. There is no space for constructive feedback and the system it appears does not believe that children can learn and become self-learners, all it is interested in is making them pass the test and fulfill the data expectation in terms of test scores.

Some teachers also reported that they are not sure who is their controlling department. Being recruited for example by the tribal department as a teacher they come under the purview of both the departments. They said often we get conflicting orders and it is difficult for us to decide which to follow. They are often asked to report at different places at the same time by the officers of the two departments. The officer that is directly linked to them is not from the department which has given them appointment. One of the teachers said, whichever order I follow I have a problem as the other officer would say I have not obeyed a government order. Teachers were also confused by the frequent interferences by the revenue department officers and the directions from them. In view of the missions and the tracking of learning by MHRD, multiple authorities got created and the teachers had to listen to and follow all instructions and somehow juggle if the instructions did not appear to completely align.

Going in to the 2020 Policy: Before we come to the policy draft of 2019 and the subsequent 2020 policy, (to which the larger document of 2019 may be taken as addenda for elaboration), which teachers have in parts a very different take, we would like to examine how some ideas have been interpreted and implemented in policies in the past. We have pointed out that the recognition of the need for administrative reform to free the teacher and give her autonomy and agency has been very strongly voiced in the NCF 2005 and as far back as the Education policy of 1986. However, neither the administrative reforms happened nor the shackles were removed. The NCF 2005 suggested that children should be allowed to learn in their own way and freed from the burden of examination and teachers should find paths and ways to make children learn the way they can best. In this they use the knowledge children bring to the classroom and in working with them assess what they have learned constantly and move the way they feel is the best for the situation. This was the idea of Continuous and Comprehensive Evaluation. The NCERT brought in experts who argued over the word evaluation and assessment. And how the exercise should not become impractical and tyrannical for the teachers and the task of teaching–learning. How the whole process should be between the teacher and her students

and gave examples in the source book as to how teachers can keep track of holistic development. But the system is loath to relinquish the reins of learning into the hands of the learners and teachers. It is not clear if they are anxious and doubting teachers or is it just the urge to control. The system functions without any respect for the teacher or faith in her or the children. It does not show a confidence that the school would ever deliver learning. The teacher is not a person with desires and dispositions and is directed to follow the module that has been designed and assessed as thought relevant. All the ideas of diversity and accommodation of that is thrown out of the window. The teachers and children are pushed to follow the same time-line ignoring the differences. Given the hurry and inadequate time and opportunity to think and plan the teacher cannot cope with all expectations. There is of course no additional support and resource provided, a strange interpretation of equitability of opportunity. The desire is to have dashboards and children numbers rather than individuals and persons with trajectories of their own. And as Dewan (2016) points out, in any case, the attitudes and beliefs of the teachers are also not very sympathetic to the possibility that all children irrespective of their background and the house they have been born in and have been brought up would be able to learn. They are also not necessarily concerned that the commitment in the constitution needs to be met and that the teacher has the responsibility of providing equitable opportunity to all children in her charge.

So, the challenge remains the same as it was a long time ago when JP Naik first summarised the challenge of a stratified India aspiring to provide equitable education to all children. He concretised it as the elusive triangle of equality, access, and quality. If anything, the challenge is even more difficult to respond to today. We have built access through various mechanisms but the journey towards quality has not yet started and equality may not even be worth talking about at the moment. The Government of India has got a committee to relook at the draft NPE 2016 and the committee has chosen to rewrite it. The committee has submitted the report after incorporating the large number of suggestions that have come from the public after the draft report was made public. The report is yet to be accepted and still is a draft report. We look at the chapter on teachers in the draft. It is indeed remarkable that an entire chapter has been devoted to teachers in the policy.

Teacher in the 2020 Policy (and in the 2019 Draft Education Policy)

The National Education policy 2020 lays down its objective as ensuring that all children are taught by teachers who are passionate and motivated. It wants them to be highly qualified and professionally trained who are well equipped in every way. It upfront admits the harsh reality that according to the Government data there are over 1 million vacancies of teachers and that gives a Pupil-teacher ratio of as high as 60:1 in some regions. It also points out that teachers have to spend a lot of time

on mid-day meals including its preparation and administrative tasks, the interesting new point is that it also lists elections as one of the non-teaching tasks that teachers have to spend a lot of time on. This suggests that the policy wants to suggest that the teachers be relieved of even such responsibilities that had been assumed as theirs as the default option. It recognises the practice of transfer of teachers as harmful and says "it will be halted with immediate effect" (NEP, 2020, Sect. 5). This manner of writing is also different as it is imperative and not merely suggestive. And the reason it gives is a recognition of the need for teachers to build relationships and invest in the communities students come from. It also thinks that it is important for the students to have a continuity of teachers. It wants to see teachers as role models for their students and it seems their concern about well-being, capacity development, motivation and a sense of purpose is a consequence of this. That this is an important need for the student to develop an urge to learn and acquire the sense of co-operation as a basis of learning and have an aspirational possibility to encourage her effort and offer her becoming that seems meaningful and positive has been well recognised (Ramanathan, 1962; Dewan & Dewan, 2016; Dewan & Mahadale, 2015), but it is important for the policy to have taken a holistic view on the teacher.

The policy makes the statement that is similar to what has been said in all policy documents that teachers shape the future of the children and the nation. It also emphasises that they are at the centre of the progress of a society and the country. What it adds is the statement that teachers help develop values, knowledge, empathy, and creativity in children. It suggests their role is also to provide ethics, life skills, and social responsibility. It sees them as the key to progress towards a just, educated, and prosperous society. It suggests that the status of the teacher needs to be raised and also their sense of purpose, capability, and motivation. The policy claims that unlike in the ancient time where gurus were respected, were knowledgeable, and were given full autonomy and hence developed personalised learning plans for every student, today's teacher is not treated the same way. The policy adds that teachers are poorly trained, their terms of service and deployment are all deficient and there are no mechanisms to empower them (NEP, 2020, Sect. 5.1). For itself it places the goal of reviving and restoring the high respect for teachers and their profession. It wants the system to be able to attract the best persons, value, support, and respect them and inspire them to become teachers. It suggests autonomy and freedom for innovation, have them teach in their own style, and wants teachers to relate to their students and the communities the students come from. It says that both teachers and children must be happy with a safe, comfortable, and inviting working environment. The working ambience for the teacher must be inclusive, full of empathy and equity. A culture that promotes curiosity, exploration, and excellence. It takes cognizance of the overworked teacher and suggests that they not be given any non-teaching activities or forced to teach subjects that they are not capable of teaching (NEP, 2020, Sects. 5.8, 5.9, 5.12).

It makes far-reaching suggestions about the continuous capacity development and career progress. It suggests that each teacher must have the possibility to learn what she wants to and grow in her career based not on which class she teaches but on the basis of merit and performance. Capable teachers should grow into roles of helping

others do better. They must feel proud of their work and feel themselves to be a part of a supportive and collaborative professional community that is constantly learning and sharing ideas. It says that the schools, school complexes, and classrooms must have resources for supporting learning. The school complexes should be the key to the learning culture sustained by the school principals and complex leaders and have school complex committees that catalyse and sustain it (NEP, 2020, Sect. 5.15). The policy commits that there will be parity in the service conditions of teachers across all stages of school education. It recommends a change in the structure such that a teacher can be promoted in any school stage. It would change the current structure that only leaves the only way for a primary teacher to get a higher grade is by going to the upper primary or secondary school. It promises an assurance of growth in the career of a teacher in the same stage of school. The reason for this would be the recognition that all stages-namely the Foundational, Preparatory, Middle, or Secondary stages as per the new policy, are important and require abilities and effort that may be different in dimensions but not in the intent and effort. The experience of a teacher in the foundational stage makes her more valuable for that stage and improves her ability to engage with students and also to reflect on her experience and document it for others to learn. It wants to stop the career progression-related incentive to move from being teachers in early stages to later stages as that may not match the capability or the interest. It allows such career moves across stages only if the teacher so desires and has the required qualifications for such a move. To quote from the policy, "This is to support the fact that all stages of school education will require the highest-quality teachers, and no stage will be considered more important than any other" (NEP, 2020, 5.18).

It also tries to bridge the gap between the so-called teaching role and the education support, facilitation, and administration role and says that "outstanding teachers with demonstrated leadership and management skills would be trained over time to take on academic leadership positions in schools, school complexes, and BRCs, CRCs, BITEs, DIETs as well as relevant government departments and ministries" (NEP, 2020, 5.19).

In a nutshell, the policy presents harsh reality and radical solutions. The question is if these will survive, in the same language and form, in the process of scrutiny for adoption by the parliament. And if they survive what other clauses would be added or are already embedded in the policy that would counter the radical implications of this policy. It would appear that the essence of the draft policy has not been substantially affected and in any case, the draft policy is available to always elaborate the intent of the final policy. But the important concern is the last mile of going from policy to practice. How these would be interpreted and in the declining allocations for education how resources would be mobilised for this? What parts of this would be picked up and pushed and which will remain just as points in the document? We have seen the stark policy-practice gap earlier also. So, how does it become lesser this time, and the intent of the policy is implemented in letter and spirit? The important concern is how all the stakeholders read it and what is the effect on their interests as a result of the policy. We are aware that the teachers are a part of the campaign machinery (Beteille, 2015, p. 949, Béteille & Ramachandran, 2016) and hence they

also have politicians beholden to them and vice versa and how the unions and the politically powerful would therefore respond to this document needs to be seen. The biggest challenge of course would be of changing the perception about the teachers before we even think of all of these in a comprehensive manner. A long political and bureaucratic understanding, commitment, and effort to see this through. Doing this would require a reform of the entire system. We have in the past also seen many interesting and far-sighted statements and promises but they have not been sincerely acted on. So it is not clear whether this policy document would have a better fate.

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Chapter 3
Need a Philosophy of Teacher Education: Perusing the Praxis and Policies

Nasrin and Mohammad Shaheer Siddiqui

> "The excellence of a thing is relative to its proper function."
> –Aristotle, *Nicomachean Ethics,* Book VI, Chap. 2

Abstract In Indian Traditions, Teacher, being intellectual pivot, was bestowed to humanity as one of the 'gems' in *samudra manthan'* hence, philosophically his role is prominent for bringing reforms in society. However, the spirit of Indian Education System is underpinned in the Philosophical Traditions, the reflections of Western and Islamic Philosophical thought cannot be ignored. NCFTE-2009 and NEP-2020, in spirit and essence, too repoint the need of a Philosophy of Teacher Education. This Paper discusses teacher Education in India in its philosophical perspective. It also makes a perusal whether the need of a Philosophy of teacher Education is significant in post-colonial Indian Education, in its praxis and prospects.

Keywords Philosophy of education · Teacher education · Indian intellectual traditions · Ideology · Teacher training

Introduction

The concepts of Liberty, Justice, Equality, Democracy, and Freedom as well as instincts of Love, compassion, obligations, sympathy, etc. all were the outcome of man's brooding as an eternal intellectual quest of the human mind evoluting the enterprise of Philosophical Enquiry. Socrates long before treated the young minds as germinating saplings of enquiry and questioning in all the affairs of life. Plato through his Academia and Aristotle in his Lyceum, in the remote past evoked the

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same quest for wisdom and search for the 'hidden' what, Sages and Rishis initiated in their Meditation in Ancient India or Buddha bestowed under 'Bodhi tree' or Sufi found in their whirling and shriving, all led to philosophical fermentation of human mind since the dawn of civilization. A Philosophy of Teacher Education is thus a guiding principle enabling the human person to perform three functions of education viz. creation, preservation, and transmission of knowledge as well as actively engaging in educational process to reorganise the outcomes of knowledge, skills, attitude, and experiences. A glimpse of status of the Philosophy of Education in Global scenario indicates that during the last century, American universities revaluated thoroughly their education system that got momentum with John Dewey's Philosophical thought. India too initiated its educational reframing with university Education Commission-1948, still continuing the dilemma, as mentioned in latest document on Teacher Education, NCFTE 2009, to search for a philosophy of teacher Education. The question is more relevant as why do we need a philosophy of Teacher Education?

What Role Does Philosophy Play?

Philosophy plays a curious role in Education. Philosophical Liberty, in different ages, remained a bookish bastion for educational fundamentalists. Questions like, 'What this liberty is? Or how to achieve this liberty?' What is justice or freedom? etc. are still some perennial curiosities. Philosophy, in Indian context is the very basis of Educational Aspirations that redirect and reinterpret the fundamental problems of Education to be solved. Education is for Liberation, in Indian Philosophy.

Plato conceptualised 'that virtue can be obtained through three stages of development of knowledge: knowledge of one's own job, self-knowledge, and knowledge of the Idea of the Good. (Lee, 1994).

Without equal educational opportunity, an unjust society appears, Plato was, in this sense, viewed Democracy as a defective political system if virtues or educational excellence is not there to guide the masses in decision-making for the good of the nation as a whole. He proposed the 'Philosopher King' for enhancing the Dignity of knowledge and wisdom suited to rule the Nation. John Dewey too talks about Democracy and Education links that influenced Philosophy of Education globally.

A number of factors, says Carlsen (1949), influence the need of a Philosophy of Teacher Education viz. length of Teacher Education Programme, Curriculum, and pedagogy. More important is to contextualise the kind of Philosophical studies desirable in the Teacher Education. Smith (1962) defines five basic tasks of Philosophy of Education

1. The first of these tasks is concerned with the instruction which is carried on by complying logical operations in educational process.

2. The second task to which educational philosophy is relevant is that of giving direction to the educational enterprise. This task requires that the philosopher be concerned with the purposes and directions of the total educational programme.
3. The third task to which philosophy is relevant is the development of educational programmes. A systematic philosophy of education is incomplete if it does not contain at least the outlines of a comprehensive programme consistent with its fundamental tenets.
4. The fourth task is that of keeping educational concepts as clear as possible.
5. Finally, there is the task of examining and solving educational problems concerning with epistemological, pedagogical, or axiological aspects.

A great deal of the difficulty encountered by teachers in the classroom arises from the fact that they do not understand language. They run into all sorts of elementary semantic problems with which they cannot deal for the simple reason that they have no knowledge of the logical and semantic dimensions of verbal behaviour.

Problem of understanding, while elaborating, the technical terms by students and making sense of the language of the students by the teacher, are, if not generally, exigent distortions, to be attended by Philosophers of education. There arises a problem of semantic distortion when a teacher is equally vague in grasping the meaning of very common terms in its operational sense.

The lack of intellectual rigor in the classroom is due not to the teacher's lack of knowledge of his subject, but rather to the fact that he neither understands the logical structure of his subject matter nor has command of its logical operations.

Meanings are relative or may be specific to context, however, the general meaning of the term gives only a superficial understanding distorting the Philosophical approaches. Sometimes the question of defining a term is the primary exercise which, often is not handled properly by the teacher, for example, teaching a topic on 'equality in education' requires, first to grasp, what equality is.

Take another example; it is dubious to declare it reasonable to say that India is a Democratic-Secular Country, unless we work out a definition of democracy and secularism to satisfy the reasonability of the statement. Philosophy of Education determines the very idea of the concept and its logical understanding before deliberation on an issue in Education.

Another problem that Philosophy of Education relooks is the way of thinking differently and dubiously, from the ordinary perspective when you are in the classroom. If a teacher thinks in the way of a person who is unfamiliar with the Educational problems in hand to be solved with Philosophy, he/she is, to the largest extent, deals with the things in a less substantial manner, and may not be academic. Educational Problems may vary for example, such questions as why there will be education imparted to the desirous? Who deserves to get education? Who will teach? What methods of instruction will be taken into consideration? What will be the subject matter to be delivered? What type of discipline will be employed in educational process? Although they all do not involve a philosophical context, yet have their philosophical aspects. These preliminary aspects of Educational philosophy that are involved may belong to epistemological, pedagogical, sociological, psychological,

axiological, or metaphysical concerns. Reflecting the concepts by taking them to task and treating the things critically are the fundamental exercises in Philosophy. A Philosopher's approach, undoubtedly is to clarify the doubts but with raising the systematic questioning and doubting the procedures. Thinking paradigms make distinguishable differences among pedagogical approaches.

A Philosophy of Teacher Education

It is interesting to note that some 50 years back observed that the problem which Indian education faces is not simply the obvious tensions in the national consciousness between the ancient and the modern, the spiritual and the scientific, the East and the West. It is all of these gathered together in a crisis of faith which affects university students and intellectuals generally.

Some other thinkers observed

> …to my mind, the first component of the malaise from which the Indian intellectual suffers is utter uncertainty and instability.... Utter lack of faith is the culmination of the Indian intellectual's neurosis.[1]

> …the new university has no ideal attachments, no philosophy, no urge to help in creating a national ethos, no readiness to supply any intellectual and moral basis for the great enterprises of evolving a good life in a free country, no sense of mission... lacking moral foundations of wider loyalties to the nation and humanity.[2]

Although a humanist philosophical basis of Indian Education, was thought of since independence yet, for the last at the very least fifty years as says Dhankar (2020) "it has been an arena of irresponsible play of unexamined and half understood ideas. This happens in the name of improvement and keeping abreast with current developments. The remedy is not to stifle new ideas through any kind of systemic restrictions that would be a disaster as it will kill all new initiatives. The solution lies in rigorous philosophical examination of all such attempts and ideas, and a proliferation of philosophical writing which is closely connected with the practice at the ground one hand and most generalised and abstract but rigorous theory on the other".

The role of Human factor in education has been highly appreciated after independence. In its task of promoting emotional and national integration, the first objective of every school in India was thought of not only to inculcate love and loyalty of the motherland in all its students, but to educate them, irrespective of caste, creed, or community to be good Indian first and good Bengali, or Punjabi, Marathi, Gujarati or Hindu, Muslim, Parsis or Christian second."[3]

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[1] Sampuranand, *The Indian Intellectual*, pp. 4, 6, 15 ff.

[2] Zakir Hussain, addressing the Convocation of the Punjab University. Reported in The Indian Express for December 18, 1960.

[3] D'Souza, A. Austin, p. 151.

"The growing generation" says Humayun Kabir, "must be trained to be Indian who accepts their total heritage".[4] India has always been recognised as having a great tradition for plurality and assimilation from all cultures.'[5] For disseminating, the purpose main instrument was obviously the curriculum with amenable role of teachers who, undoubtedly, are the producers, agents, and promoters of peace, love, fraternity, knowledge, and national integration. Abdul Kalam (2001) advocates 'school-teachers to be the role model of students'.[6]

Richard Pring (2020) gives a very appealing example of 'humane Teacher' whose task is to educate persons in humanity through Education, but the very idea of Education is itself ambiguous.

The paradox of 'educated' is finely expressed in a letter which the principal of an American High School sent to her new teachers-

Dear Teacher

I am the survivor of a concentration camp.

My eyes saw what no man should witness:

Gas chambers built by learned engineers

Children poisoned by educated physicians

Infants killed by trained nurses

Women & children shot and burned by high school and college graduates

So, I am suspicious of education.

My request is: Help your students become human.

Your efforts must never produce learned monsters, skilled psychopaths, and educated ichmans.

Reading, writing, arithmetic are important but only if they serve to make our children more human.

Similar case may also be taken from a Position Paper on Education for Peace (NCERT, 2006) where a student makes a complaint about his teachers fifty years after his unripe education,

…..A teacher had a dream in which she saw one of her students fifty years from today. The student was angry and asked,… 'Why was I not better educated?...With ever greater anger, the student shouted, 'You helped me extend my hands with incredible machines, my eyes with telescopes and microscopes, my ears with telephones, radios and sonar, my brain with computers, but you did not help me extend my heart, love, and concern for the human family. Teacher, you gave me half a loaf.' (Education for Peace, p. 34)

A Philosophy of Teacher Education, thus, is much more than a mere structural caricature of the curriculum and pedagogy. It requires a conceptual and behavioural aspects both to be revamped.

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[4] Humayun Kabir, p. 35.

[5] Krishna Sobti, p. 64.

[6] APJ Abdul Kalam, p. 39.

Teacher and Teachers' Training: Policy Perspectives

Buchanan (1948) romantically says, "I realize that each of us has his own Socrates". One may witness a lengthened legacy of teacher oriented philosophical heritage in Indian traditions where teacher-student bonding occupies a splendid place often proclaimed with the epitomes of Dronacharya-Eklavya, Ramananda-Kabir, Krishna-Arjuna, Paramhans-Vivekanda- etc. The conventional saying, is that. "Teachers are born" however is now reviewed as the Kothari commission realised that "the Destiny of India is being shaped in her classrooms". In spite of critics who say a teacher is born and not made, no one has been able to discover really distinguishing characteristics between the good and the poor teacher. (Carlsen, 1949). And so, we feel that the ability to teach can be learned with a correctly organised training programme. It is not fair to impose a philosophy of education on teachers. If we are to strive to let students develop their own philosophies, we are certainly called upon to expose them to courses springing from many philosophies of education: the Constructivist, the Existentialist, the Humanist, the Pragmatist, and so on.

National Curriculum Framework (NCF 2005) recognises the importance of competent teachers to the nation's school system. It suggests that three primary factors viz. teacher competence, sensitivity, and teacher motivation determine, to the largest extent the quality of learning whereas essential learning conditions play a crucial role in shaping academic and professional standards of teachers for achieving educational goals. Some of the essential conditions according to the draft would include

1. The duration of academic preparation,
2. Teachers' pedagogical skills
3. Diversity in learning situations
4. Awareness towards contemporary issues
5. Motivation for Curriculum transaction
6. Processes of social transformation.
7. Working conditions
8. Teacher's academic and professional education.

The Philosophy, in Toto, frames the guiding principles at decision-making and implementation levels of a policy. The fundamental stereotype that knowledge is 'given' is now shifted towards the 'construction' of knowledge.

NCFTE indicates not only the need of a Philosophy but also aggregates the reasons behind

> *.....Teachers need to be creators of knowledge and thinking professionals. They need to be empowered to recognize and value what children learn from their home, social and cultural environment and to create opportunities for children to discover, learn and develop.* (p. 13)

> *...Education is not a mechanical activity of information transmission and teachers are not information dispensers. Teachers need to be looked at as crucial mediating agents through whom curriculum is transacted and knowledge is co-constructed along with learners. Text-books by themselves do not help in developing knowledge and understanding. Learning*

> *is not confined to the four walls of the classroom. For this to happen, there is a need to connect knowledge to life outside the school and enrich the curriculum by making it less textbook-centered.* (p. 14)

Education as an area of interdisciplinary knowledge is not merely an application of a few core disciplines, but a praxis and a context where theories and practical wisdom are generated continuously. Likewise, Training is not a panacea until the thought is shaped. We train dogs and horses. We educate persons (Pring 2020).

As far as Teacher Education Institutions are concerned, they train teachers to adjust to a system in which education is seen as a transmission of information. (NCERT, 2005). The NCF has described the current concerns of teacher education as follows:

1. Experiences in the practice of teacher education indicate that knowledge is treated as 'given', embedded in the curriculum, and accepted without question; there is no engagement with the curriculum. Curriculum, syllabi, and textbooks are never critically examined by the student teacher or the regular teacher.
2. Language proficiency of the teacher needs to be enhanced, but existing programmes do not recognise the centrality of language in the curriculum.

Further, exclusion in education is a Philosophical Problem till we define the term to the context. Generally, there are two types of Exclusion (NCFTE 2009). The first is the exclusion of the children with disabilities of different kinds and learning difficulties, and second is the social exclusion of children who come from socially and economically deprived backgrounds with diverse learning needs.

The Problems often get unaddressed. The desire for change should be evocative without a biased or prejudiced attitude. NCFTE elaborates

> ….. *Inclusive education refers to a philosophical position as well as an arrangement of institutional facilities and processes. This is to ensure access to and conditions of success in education for everybody, including those in the margins, either with learning difficulties because of physical or mental disabilities or because of their social position.* (p.13)

> ……. *It is necessary that teachers who teach and manage the classroom are sensitized and made aware of the philosophy of inclusive education and oriented to the different kinds of adjustments.* (P.14)

Another important issue that cannot be dealt with without Philosophical Approach is regarding Sustainable Development perspectives of gender equity, values for peace, and respecting the rights of all.

Education plays a crucial role in promoting values of peace based on equal respect of self and others. In the views of a recent scenario, as NCFTE 2009 explains that Teaching is a Profession that requires, technically, a long period of academic training, an organised body of knowledge on which the undertaking is based, duration of formal and rigorous professional training with practical experience in the field and a code of professional ethics that binds its members into a fraternity.

These dimensions acquire critical importance. Teachers are concerned, in an important way, with the holistic development of students—physical, intellectual, emotional, social, moral, and spiritual.

It is observed that earlier Curriculum Draft and Policies on Education, substantially, reflect whether an ideology or a Philosophy steers educational framework. Discerning the prevailing ideology before searching any Philosophy of Teacher Education is indeed a dialectic effort paraphrasing the factors that influence the very idea and concerns of 'Teaching and Learning Activity' in changing global scenarios where things are more interrelated than inclusive.

Observation of NCFTE about Teacher Education will say

1. Teacher education is integrative and eclectic.
2. It is free from the hold of 'schools of philosophy and psychology.'
3. Functions under a global canvas of 'learning society'
4. Becoming more liberal, humanistic, and responsive to the need of inclusive education.
5. Teaching becoming non-didactic and dialogical explorations.
6. Pedagogy is derived more from sociological and anthropological insights
7. Recognising potential of social context in teaching and learning
8. Promoting multi-cultural education and teaching for diversity
9. Paradigm shift in knowledge-base of teacher education.
10. Making practices more reflective.

Under this changing scenario and reflective paradigm, there requires a drastic veracity in formulating a philosophy of Teacher Education. The National Education Policy 2020, however devotes utmost attention to the rejuvenation of Teacher Education through its structural overhauling in global professional need well-knit in Indian Traditional Morphemes but to paying heed of a systematic philosophy to much extent.

Teacher is the pivot of all Educational Policies who philosophises the aspirations and turns them into being for reflections on personalities and attitudes keeping in view the formation of a 'Professional and Humane Teacher.'[7]

The Philosophical Concerns in NEP 2020 are self-explanatory in terms of the extension in Praxis for the realisation of Indian Values, Intellectual Heritage, and Potential to keep pace with the advancing world with its cultural treasure within. It considers in its spirit collaborating the local to the global concerns on the line *sarve bhavantu sukhina.*

Following seem to be the major Philosophical concerns

1. Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all" by 2030 as per Goal 4 (SDG4) of the 2030 Agenda for Sustainable Development
2. Education thus, must move towards less content, and more towards learning about-
    a. How to think critically and solve problems,
    b. How to be creative and multidisciplinary,

[7] For detailed discussion see NCFTE-2009, p. 20.

   c. And how to innovate, adapt, and absorb new material in novel and changing fields.
   d. Pedagogy must evolve to make education more experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centred, discussion-based, flexible, and, enjoyable.
3. Development of the creative potential of each individual.
4. Multidisciplinary and a holistic education across the sciences, social sciences, arts, humanities, and sports for a multidisciplinary world in order to ensure the unity and integrity of all knowledge;
5. Creativity and critical thinking to encourage logical decision-making and innovation;
6. Promoting multilingualism and the power of language in teaching and learning;
7. Life skills such as communication, cooperation, teamwork, and resilience;
8. Respect for diversity and respect for the local context,
9. Emphasis on conceptual understanding rather than rote learning and learning-for-exams;
10. The rich heritage of ancient and eternal Indian knowledge and thought as prime source of conceptual and functional facade;
11. A rootedness and pride in India, and its rich, diverse, ancient, and modern culture and knowledge systems, and traditions.

The philosophical Heritage of Indian Intellectual Traditions offers a guiding principle for searching and adapting a philosophy of Teacher Education too.

> *....The rich heritage of ancient and eternal Indian knowledge and thought has been a guiding light for this Policy. The pursuit of knowledge (Jnan), wisdom (Pragyaa), and truth (Satya) was always considered in Indian thought and philosophy as the highest human goal. The aim of education in ancient India was not just the acquisition of knowledge as preparation for life in this world, or life beyond schooling, but for the complete realization and liberation of the self. World-class institutions of ancient India such as Takshashila, Nalanda, Vikramshila, Vallabhi, set the highest standards of multidisciplinary teaching and research and hosted scholars and students from across backgrounds and countries. The Indian education system produced great scholars such as Charaka, Susruta, Aryabhata, Varahamihira, Bhaskaracharya, Brahmagupta, Chanakya, Chakrapani Datta, Madhava, Panini, Patanjali, Nagarjuna, Gautama, Pingala, Sankardev, Maitreyi, Gargi and Thiruvalluvar, among numerous others, who made seminal contributions to world knowledge in diverse fields such as mathematics, astronomy, metallurgy, medical science and surgery, civil engineering, architecture, shipbuilding and navigation, yoga, fine arts, chess, and more. Indian culture and philosophy have had a strong influence on the world. These rich legacies to world heritage must not only be nurtured and preserved for posterity but also researched, enhanced, and put to new uses through our education system.* (NEP 2020, p. 4)

The National Policy visualises an Education System deeply rooted in Ancient Indian Cultural Heritage and Philosophical Traditions……. by providing high-quality education to all, thereby making India a global knowledge superpower (i.e. Visva-Guru)…… to instill among the learners a deep-rooted pride in being Indian, …….reflecting a truly global citizen (i.e. the ideal of *Vasudhaiv Kutumbakam*).

It, by no means, indicates a discretion, however an intention to the need of a working Philosophy, in the Making for generation next, to instill among the learners

a deep-rooted pride in being Indian, not only in thought, but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values, and dispositions that support responsible commitment to human rights, sustainable development and living, and global well-being, thereby reflecting a truly global citizen.

Apart from the Politics of Language, the Philosophy has much to do with the interpretation of Language in Teaching and Learning Process. NEP 2020, reconsiders the Philosophical role of language by equally encountering dialectically and aptly the historical statement of Macaulay, it says so-

> *…..Sanskrit, while also an important modern language, possesses a classical literature that is greater in volume than that of Latin and Greek put together, containing vast treasures of mathematics, philosophy, grammar, music, politics, medicine, architecture, metallurgy, drama, poetry, storytelling, and more (known as 'Sanskrit Knowledge Systems'), written by people of various religions as well as non-religious people, and by people from all walks of life and a wide range of socio-economic backgrounds over thousands of years.* (NEP 2020, p. 14)

The problem of language is one of the fundamental philosophical problems in classroom teaching and learning. The very basis of both reflections and refractions of thought is language competency to understand the knowledge, culture, people, traditions, and even emotive aspects. The more knowledge available across the languages (through translations) one is aware of, the more he would be able to bridge the gaps among minds and hearts. NEP-2020, realises this power of language and hence considers its role as prominent in constructing a cultural camaraderie.

Conclusion

Notwithstanding, from classical viewpoints of *Astik* or *Nastik* schools, there are many other readings to Indian Philosophy viz. Buddhist Readings, Jain Readings, Dalit Readings, Secular Readings, Religious readings, Pragmatic readings, and Sikh, Muslim, or Christian readings too that might equally study what constitutes upbringing and education. Further, a contextual concern for deterring an equivocal framework highlighting the need, perspectives, and provision for a philosophical paradigm shift in educational practices and the reconceptualisation of Teacher, Teaching, and Learning is a need of the time. The Three basic concerns of the NEP-2020 reflect revamping all aspects of the education structure, twenty-first century education including SDGs, and building upon India's traditions and value systems. In fact, Indian education for the last seventy years has been an arena of irresponsible play of unexamined and half understood ideas. There is a wide gap between theory and practice. It is further unfortunate that this happens in the name of reforms and innovations and overhauling. Rather than contextualising with an ideology, Teacher Education should be appreciated, genuinely, in its philosophical identity. It is further a paradoxical issue to distinguish between ideology and Philosophy often unanswered in the intellectual arena as the politics of Education is inevitably an emerging area to be treated in the academic periphery.

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Chapter 4
Teacher Education in Some Developed Countries

Sajna Jaleel

Abstract In the twenty-first century globalised world, teacher training institutions should design programmes that help prospective teachers to know and understand deeply about a wide array of things about teaching and learning in their social and cultural contexts. Moreover, they have to be able to apply these understandings in complex classroom situations containing increasingly diverse types of students. If a teacher in the twenty-first century should succeed in this task, teacher training institutions must further design programmes by which both new and experienced teachers teach and become competent teachers. Differences in the structure of education systems in various countries often make international comparison a complex process, but helpful in developing a deeper understanding of the area. To improve the comparability of education indicators, UNESCO worked with countries to create an internationally comparable method for describing levels of education across nations called the International Standard Classification of Education (ISCED) (Sen, Partelow, and Miller, (2005). The present chapter qualitatively analyses the teacher education programmes in some of the advanced economies or developed nations of the world to have a comparative view so that we may design and develop good teacher preparation programmes by taking insights from these developed countries.

Keywords Teacher education · G8 countries · New knowledge economy · Cyberspace

Introduction

The teacher training institutions should take up the charge of educating policy makers and the general public about what is actually effective to teach both in terms of knowledge and skills and in terms of the school contexts that must be created for teachers to develop and use what they know about their students (Boaduo et al., 2011). All levels of public and private instruction from primary to university such as

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technical, vocational, and professional training, the employment and labour market, productivity, innovation and competitiveness in the new knowledge economy, and the role of cyberspace are included in the field of education of developed countries. Furthermore, it also includes social and political subjects, such as gender equality in education, access to education in developing countries, literacy, and free information flows. Developed countries like the USA, UK, France, Canada, Italy, Japan, etc. have become an effective centre of global education governance in the twenty-first century. As a global education platform, these nations have aimed to sustain high performance across all of its domestic political management, direction-setting, decision-making, delivery, and development of global governance tasks.

Structure of a Globalised Teacher Education and Training Curricula

Different nations triggered many discussions based on the reformative initiatives on the structure of Teacher education and training programmes (Hėbert, 2001) and certification of programmes which suitably fit these programmes. Stronger models for teacher preparation are essential in the 21st century which require adequate and progressive knowledge for teaching the subjects that the teacher is aimed to teach. In this perspective, teacher education and training should be the focus of the curriculum.

The—What of Globalised Teacher Education and Training Curriculum

In the United States, the National Academy of Education Committee on Teacher Education developed a framework for organising three interconnecting areas of knowledge found in standards for teaching which is apt for considering in the 21st century teacher education and training curriculum. Understanding of curriculum content and goals, incorporating the subject matter and skills that are to be taught in the light of disciplinary demands, student needs, and the social purposes of education; understanding of skills for teaching, including content knowledge about a specific subject, pedagogical content knowledge for teaching diverse learners are the areas recognised by an understanding of assessment and about how to construct and manage a productive classroom. Teacher education curriculum should be inclusive and give importance to lifelong learning, development of technology, and its applications for planning suitable alternatives for benefiting students. Importance must be given to democratic principles and practices. The institutionalisation will make teachers able to see the role of schools and their contribution to the development of democratic values, skills, and behaviour from a global perspective.

The—How of Globalised Teacher Education and Training Curricula

Professionally, teachers should understand and be able to do a wide variety of things spontaneously. Teachers should understand and have to respond to the diverse nature of the classroom environment, and multiple academic and social goals from time to time (Jackson, 1974). In general, 21st century teachers have to learn about how to deal with the problem of complexity that is making the situation more intense by changing the nature of teaching and learning in the overall teaching-learning environment.

The International Standard Classification of Education (ISCED) Levels

ISCED is a type of framework which allows the organisation of educational content of programs using multiple classification criteria. There are six ISCED levels. ISCED level 0 is known as pre-primary education. It is defined as the initial stage of organised instruction, designed primarily for introducing very young children to a school-type environment. ISCED level 1 consists of primary education lasting for 4 to 6 years. This begins between ages 5 and 7, and is the stage where they start to study basic subjects such as reading, writing, and arithmetic. In the United States of America, elementary school is classified as ISCED level 1. During ISCED level 2 or lower secondary school, students continue learning their basic subjects taught in level 1, but in a more subject-focused way, and are taught by specialised teachers. This level usually lasts between 2 and 6 years, and starts around the age of 11.

At ISCED level 3, or upper secondary education, student learning becomes more subject specific and taught by highly specialised teachers. Students usually start the upper secondary education at the age of 15 or 16 and are able to attend anywhere from 2 to 5 years. This level prepares students for university and further schooling, or task force. ISCED level 4 programs include post-secondary non tertiary programs. Post-secondary programs are generally vocational in nature and are given after completing secondary school with a content that is not more advanced. This level is included as part of secondary education in all G8 countries except the United States.

The ISCED level 4 programs in the United States are generally 1-year certificate programs offered at community colleges. Tertiary programs are divided into ISCED levels 5A, 5B, and 6. ISCED level 5A is the first stage of academic higher education. They are aimed to provide the required qualifications for obtaining entry into advanced research programs and professions needing high skill requirements. The international classification includes programs of medium length which are less than 5 years in duration and long programs of 5 to 7 years duration. U.S. bachelor's and master's degree programs are generally coming under ISCED level 5A. ISCED level 5B often stands for technical and vocational higher education. They give a higher

level of technical and vocational education and are designed to prepare students for the labour market. In the international classification, these programs are of 2 to 4 years duration. ISCED 6 is Bachelor's degree or equivalent tertiary education level. ISCED 7 is equal to the Master's degree or equivalent tertiary education level. Whereas, ISCED 8 provides a Doctoral degree or equivalent tertiary education level. It usually demands the completion of a research thesis or dissertation.

Need and Significance

When looking at the concept of research and how it applies to the 21st century school teaching-learning environment, it enables the professional teacher to identify the fact that research is a major part of professional practice. Problems of various kinds and magnitudes are there in the teaching-learning environment and they would increase four times in the 21st century school environment. Whenever such problems arise and cause a threat to the survival of the students and their progress, a critical study would be conducted to find solutions for solving the threat and thereby improving the situation.

Nowadays the teaching council of every country with specific objectives registers professionally qualified teachers before starting practice. They all have their own requirements that should be met by professional teachers in order to register and practice as a teacher. In the USA the teaching council of every state registers professionally qualified teachers and certifies them with a licence to practice. For making teaching more professional worldwide, there is a need for a 21st century globalised teaching council. The necessary condition of this council is to collaborate with institutions which are responsible for teacher education and training to develop a common-core teacher education and training curriculum and also for the establishment of teacher professional registration council which is responsible to issue professional teaching licence for practitioners recognised worldwide to make teacher mobility from region to region and country to country an easy practice.

The investigator felt a need for analysing the present teacher education programmes of G8 countries so that it will throw light into the need for reforming the teacher education programmes in India in a global context. This will make the reform a valid and authentic one. Moreover, the reforms that are going to be implemented in the present teacher education programmes will get global standards and benchmarks. Hence the investigator decided to qualitatively analyse the trends and patterns of teacher education programmes in G8 countries and thereby elucidate the possible educational implications.

Objectives

The main objectives of this chapter include:

- To highlight the trends and patterns of teacher education programmes in G8 Countries
- To highlight the major educational implications related to teacher education programmes in G8 countries

Methodology

The investigator adopted a qualitative method for the study. The investigator selected documents and review analysis for the smooth conduction of the study. The investigator collected review studies and possible documents available for bringing out the trends and patterns of teacher education programmes in some developed countries.

Teacher Education Programmes in Some Developed Countries

Let us see the salient features of the teacher education programme being executed in different G8 countries for preparing teachers to meet the teaching needs at different levels of school education.

Teacher Education in Canada

Canadian teacher education has undergone several remarkable changes in the past 60 years. Teacher education in Canada moved from normal schools to universities by the middle of the 20th century which brought increased challenges for teacher education programmes and thereby getting a balance between theoretical and practical aspects of the curriculum. It also allows faculties of education to establish academic respectability at the university and beyond level (Sorenson et al., 2005; Young et al., 2007). With these ongoing struggles since the 1960s, there have been more major shifts. The teacher education programmes in major provinces of Canada are elucidated as follows:

Manitoba: In 2003, the Government of Manitoba declared the requirement for the new teacher which are (i) a minimum of 150 credit hours of post-secondary coursework, out of which at least 60 credit hours should be in educational studies; (ii) two degrees, including a Bachelor of Education, arrived at either sequentially or concurrently; (iii) a minimum of 30 credit hours or 24 weeks of supervised school

internship experience; and (iv) at least 30 credit hours of successful study in a major teachable area and 18 credit hours in a minor teachable area.

British Columbia: The BC college of teachers is the professional body in British Columbia that defines the criteria and requirements for teacher certification. Teacher education institutions should demonstrate their programmes before BCCT which are essential to prepare the students to meet the standard developed by the college. The teacher profession amendment act (2003) marked a turning point in teacher education programmes by setting standards for teacher certification and not approving those programmes which do not meet the standards (Walker & von Bergmann, 2014).

Ontario: Ontario college of teachers which was established in 1994 is the professional association in Ontario which develops the standards for the teaching profession and sets reviews for the accreditation of new teacher education institutions. The higher educational quality council is the quality assurance board in higher education. The higher education quality council of Ontario (HEQCO) is the quality assurance board in higher education and Ontario is the only province that has the quality assurance board in higher education. The higher education quality council of Ontario (HEQCO) was created based on the higher education quality council of the Ontario Act (2005) which evaluates the quality and enhances the quality and accountability of higher education institutions.

Teacher Education in United Kingdom

The United Kingdom greatly recognises the significance of education as an essential factor in the all-round progress of a country since long, the fruit of which the UK has enjoyed in its flourished golden era when it ruled over a large part of the world. It has made large contributions to both direct and indirect changes in its educational system, increased the needs for teachers, in analysing social changes, and also in carefully adapting teaching to fit in the new situations (Ragnarsdóttir & Jóhannesson, 2014). The entire education system is controlled by the Ministry of Education and made mandatory from 6 to 16 years of age period.

By the Act on Education, the minimum requirement for teachers of all school stages must be a five-year master's degree as per the new regulations (UNESCO, 2012). Those who are completing either the master's degree or its equivalent are eligible for granting the professional certification for Compulsory School Teacher at Upper Secondary School.

In Iceland, 20 years is fixed as the student age for completing upper secondary studies. The University of Iceland currently gives teacher education at the master's degree level. There are more choices in specialisation and high professionalism, job satisfaction, and job facilities are promoted by new rules. Only those teachers are allowed to teach their specific subject at the lower secondary and upper secondary levels who complete the training in the model at the University of Iceland and Akureyri University.

Masters' degree in education is awarded in accordance with the act only after the completion of two parts of the teacher training program. A three-year programme on Bachelor degree in Education with 180 credits is the first part of the teacher training program. The second part of the teacher training programme includes a two-year M.Ed. degree with 120 credits which can be carried out on a part-time basis. For the admission to M.Ed. program, bachelor's degrees from other higher education institutions are also accepted. After completing bachelor's degrees with first class grades of 7.25 out of 10, the upcoming upper secondary school teachers of the University of Iceland choose their master's degree from the college of teacher education. The structure of M.Ed. compulsory courses are campus based. The courses have only a narrow connection to the field. The practical training is combined with academic subjects. For the practical training, all students are allotted a school (EURYDICE, 2011). Coursework is divided into core courses in pedagogy, methodology and theories in educational studies, courses on a specific field of study in upper secondary schools, and finally a thesis. The master studies are important based on independent reading and projects requiring critical thinking and analytical ability. For collecting and sharing knowledge the student-teachers are assumed to use many paths. In a nutshell, student-teachers should attain the given competencies during their training such as:

- In-depth knowledge about research in the field of contemporary education and school system.
- A list of practical skills related to education and teaching.
- Ability to tackle novice situations arising in the field of teaching, research, and development.

Teacher Education in United States

As a result of the 10th amendment of the United States Constitution local governance is predominant in the American public education system. Each state in the union sets its own certification requirements for upgrading the teaching profession and this is the significance of this system.

The fastest growing group of students in higher secondary schools are English language students. Due to this Texas attempted to adapt with an increasingly diverse student population (Palmer & Snodgrass Rangel, 2011). This usually required training teachers with intercultural understanding.

A great change happened in the preparation of teachers in the United States during the second half of the twentieth century and it is the multiple certification systems for ending the monopoly of universities (Mitchell, 2011) which are known by the name alternative certification programs. The most common way *for the* teacher certification is through an accredited college or university. In addition to the fundamental teacher training programme, the prospective teachers should complete an academic major. They also have to satisfy the certification requirements of Title 19 of the Texas

Administrative Code. This code gives the responsibility for teacher educator preparation programs in the state public and private schools. The state of Texas provides the certification for participants in education and that will enable them to teach. The candidates are recommended for certification in one or more fields by universities and alternative certification programs.

Students must be enrolled in an accredited institution of higher education for admission to a teacher preparation program. Candidates from an alternative certification programme must have a four-year degree secured from an accredited institution of higher education. They have to acquire a GPA of 2.5. Moreover, for applying to teacher training courses, they should complete 12 credits in the subject area which they are choosing.

The coursework in the teacher education programme consists of areas namely child development, motivation, learning theories, and about special populations as mentioned in the course work curriculum. Coursework must be for a period of minimum of 300 h. 30 h of field-work and 80 h of coursework must be completed in student teaching as the practicum. The period of student teaching must be for a period of 12 weeks on a full-time basis.

During the period of student teaching, the teacher candidates are assigned with a cooperating teacher in order to enhance teacher retention. The student-teacher gets guidance and ongoing support by recording the observations from a field supervisor as a faculty member from the university and also provides written feedback to the student-teacher. In a 12-week student internship period the field supervisor must carry out a minimum of three 45-minute observations. They have to qualify the criterion referenced Texas Examination of Education standards.

Teacher Education in France

To become a fully qualified teacher in France, a teacher has to hold a master's degree and tea her has to pass a competitive recruitment examination which was organised by the education ministry of France. Only those teachers who satisfied these two criteria become the civil servants in France after one probation. Private schools must recruit the teachers only those teachers who passed competitive examinations and the teachers of grant-aided institutions will be paid by the state (Picard and Ria, 2011). Master's degree study is for a period of two years and have to qualify the national competitive examination. Only those students are allowed to write the competitive examination with 60ECTS after completing first-year masters. The students have to study for a period of two years to complete their masters and also have to qualify a national competitive examination. (Eurypedia, 2013; IUFM, 2005). After that the students will complete the second year of masters. If a teacher gets recruitment will become the civil servant of the state with the status of a trainee in the first year of work. To become secondary teachers, they have to go to universities for completing the masters but for the primary teachers it is from IUFMs. Students at the end of the

first year of masters have to take any one of the competitive examinations as per the field of specialisation.

- Certificate for teaching one particular subject—foreign language/mathematics/sciences/etc.—at secondary level (CAPES)
- The certificate for technical school teaching (CAPET)
- The certificate for physical and sports education (CAPEPS)
- The certificate for vocational lycée teaching (CAPLP)
- The Aggregation

Curriculum for the competitive examination for the primary and secondary teachers are different but the nature is almost similar. The competitive examination has two parts, first part is a written examination and second part is a viva voce. For primary school teachers, written examinations consist of two papers of 4 h each. Paper I—French, Civics, History, Geography; Paper II—Math, Science, and Technology. The viva voce examination is also divided into two parts—lesson planning in French, and education system and lesson planning in maths and arts/music/physical education. Secondary school teachers' competitive examination mainly focuses on their school subject. The competitive examination for secondary school teachers mainly focuses on their school subjects. Like primary school teachers, secondary school teachers have to also pass both the competitive examinations and Masters to become permanent teachers in secondary schools.

Teaching and Training

Primary school teachers have to complete 2 semesters in the first year, and 2 semesters in the second year of Masters. During the 2 years of study, they have to learn various subjects and activities such as Humanities and science namely academic and didactic approach; along with it they have to complete knowledge, tools, and methods in teaching, teaching practice, and reflective analysis, Research in education, seminars, project, and dissertation.

During semesters 1 & 2 they have to go for class observation and supervised teaching practice as a practical activity. The supervised teaching practice will continue in the third semester also after that the students must go for independent practice teaching. During the practice teaching period, the students are observed by a mentor and teacher educator and gives an observation sheet with feedback as an advice for the improvement. In the final semester, the students go for independent practice teaching. The practice of teaching has two phases which last for maximum six weeks and during this period they get a chance to participate in the real exercise of teaching profession. In phase one, trainees go for observation and supervised practice in the class of a senior teacher. The second phase is termed as work experience with responsibility. In this phase, teacher trainees act as real classroom teachers under the supervision of mentors.

During the training phase, students are given maximum support and attend several trainee-specific meetings, depending on the available budget. Expert instructors and educational advisers and tutors provide guidance and support under the control of inspectors (Picard and Ria, 2011).

The ten skills that must be expected to acquire by the teachers include, to behave as a civil servant in an ethical and responsible way, good command of French .good academic knowledge of their curricular subject and general knowledge, to plan lessons and teach from lesson plans, to organise class work, to differentiate their teaching, to assess learners' knowledge and skills, to use ICT in their teaching, to work in collaboration with parents and other educational partners innovative and willing to train further-Continuous Professional Development (CPD)

Teacher Education in Germany

Germany consists of 16 federal states. The individual federal state is responsible for schooling and teacher education in Germany even though there is a common basic structure in the education system. For facilitating cooperation among federal states, a common framework is provided and sets comparable standards for the cultural affairs. Primary school teachers, lower primary school teachers, higher secondary school teachers, vocational school teachers and teachers of various mentally or physically disabled students are the Different levels of school teachers. Those who have completed 13 years of schooling and holding higher education entrance qualifications are eligible to become teachers. Teacher training consists of two stages, the initial phase and secondary phase. In the initial phase of teacher education, students have to study for 3 to 4 years for primary school teaching and 4 to 6 years for higher secondary teaching and the subjects of the study are at least two subjects, or subject areas and theoretical and psychological perspective. The second phase of teacher education is a two-year practical training at different teacher education training schools paid with a trainee salary. The teachers of Germany are public servants and they have to pass a state examination to finish their university studies, and a second state examination at the end of their practical training phase.

Teacher Education in Italy

In the early nineties, the School of Education developed three main curricula such as Sciences of Education, Care-giving, and Expert in Training Processes. It was not anymore, a minor Faculty, but a faculty devoted to the training of educational professionals. In 1998, the renewed academic structure for the degree programmes in science of primary education was implemented for the first time in the history of Italy.

For this programme, only 50 students are admitted as it is fixed by the ministry of public education in each state.

Four-year curriculum was organised for the degree programme in sciences of primary education in which the first common biennium of foundation disciplines and second biennium of specialisation. It consists of 180 credits of psycho-pedagogical and disciplinary contents which are taught in 3-6 credits.

Next, the course goes deeper into laboratories in which students join for theoretical knowledge to teaching practice. School based teaching practice is a period in which students go to schools in order to prove themselves as teachers in a real operational context. Students have to present a written dissertation often linked with their school practice activities in front of the commission which consists of an inspector of the Ministry of public education at the end of the curriculum. Official enrolment in the list of teachers of public schools takes place after the final exam.

Parallel to the second biennial curriculum students have to enrol for a biennial special education programme and at the end of which they are qualified as special education teachers for children and or primary school. School practice supervisors help the students during their track towards the degree. The expert teachers selected by a mixed commission of university teachers and officers of the Regional School Office are selecting the expert teachers and they are very important collaborators of the whole training project. The expert teacher works for half of their job time in the school, and spends the other half in the University, as a support of the practical part of the curriculum for students. They follow a small group of students in their contacts with the schools who will accept them for practice, in writing the teaching project, in their implementation of the project among the school, and in their self-evaluation of the experience, through a final paper.

Secondary School Teachers

The second revolutionary reform in the Italian teacher's training system was the implementation of the Inter academic Graduate School of Secondary School Teacher Training in 1999. It is a very long denomination often shortened by the acronym SSIS. By implementing this system, all the future teachers of the Italian School system finally receive a specific training at the academic level. The consortium of the universities formulates the SSIS regional institution and is governed by a director. The SSIS is established by the Ministry of Education with a fixed number of students according to the trends of the labour market.

The curriculum is organised as a two-year program. In the first-year classes, Common Areas are taught and some disciplines and their didactics. In the second year, the specialisation 1 area only—the disciplines and the didactics of the school subject matters are taught in the secondary school. A national examination will be conducted at the end of the training course. Students who are enrolled in a class of teaching thus get the qualification for teaching a specific subject matter in a specific branch of the secondary school system. Personnel of the SSIS include academic

teachers and expert school teachers and both are hired with contract as school practice supervisors. This interchange of persons partly covered the gap between the two institutions, university, and high school.

In the academic year 2008-2009 the SSIS programme was suspended for one year. Italy did not provide training for its secondary school teachers, a rather weird event for an almost hyper-western and post-industrial society. Since February 2009 for the children's school and primary school teachers, there was a five-year study program, giving the double chance to teach in both schools. The commission had chosen to decrease the weight of the transversal curriculum, leaving only a few credits to psychological disciplines, and reinforcing the disciplines, especially mathematics and sciences, with the abolition of the formal difference between disciplines and didactics of the discipline.

For the secondary school teachers, all the aspirant teachers should have to follow a 3+2 academic programme, and are enrolled in a sixth year of formative active school practice, managed by a university with the assistance of the Regional School Office. The role of the disciplines is very limited, and the main activities are the school practices and the didactical laboratories.

The Italian teacher training system grew up, starting from the beginning to nowadays as a sort of appendix of the whole school system, without a general framework which is able to identify social needs and training abilities. The national system of teacher education is still based on the coexistence of the so-called simultaneous model at the level of kindergarten and elementary school teachers, and the so-called consecutive model at the level of secondary school teachers. While in the first model, the professional skills are embedded in the whole curriculum, in the second one a strong disciplinary competence is required, followed by a one- or two-year programme of teaching-oriented curriculum.

Teacher Education in Japan

In Japan the Educational Personnel Certification Law was developed in 1949 which allows a person who had earned the required academic degree credits, to be certified as a teacher, regardless of his or her field of study. It is often known as an open system of teacher education. Teacher education certificates were given by boards of education. Specific changes happened to this Law in 1954, 1988, and 1999. An accreditation system was introduced in 1953 for improving the quality of new teachers. Student-teachers have to acquire the credits in professional and academic subjects from accredited institutions of the Educational Personnel Training Council working under the Ministry of Education. All teacher education programs and changes to the programs or instructors needed approval from the council.

Present Qualifications and Credits Required for Teacher Certification

The advanced certificate is awarded to those who acquire a master's degree at graduate school and Class 1 certificate is given to those who secure a bachelor's degree at university and Class 2 certificate is given to those who have earned an associate degree at junior college. The Class 1 certificate is the most popular among all types. Applicants for elementary school teachers have to earn a minimum of 8 credits related to elementary school subject matters, 41 credits of teaching, and 10 credits in optional subjects. Applicants for junior high school teachers have to earn a minimum of 20 credits of junior high school subject, 31 credits of teaching, and 8 credits of optional subject. The law for teacher certification in Japan decides teacher education programs at colleges and universities.

Types and Programs of Teacher Education Institutions

There are various types of teacher education institutions in Japan namely 'schools of teacher education', 'semi schools of teacher education', 'graduate schools of education', 'professional departments of education', and other schools, colleges, junior colleges, and teacher education programs of specialised training recognised by Japanese Ministry of Education Council.

Schools of Teacher Education

These schools are for teaching future school teachers at a comprehensive level under either a university or a university specialised for teacher education. There are 44 such schools of teacher education in Japan. They provide compulsory school teachers in every state. Students of this course have to fulfill courses and credits in order to achieve teaching certificates. They also serve as agencies to provide staff development in state level bodies of education. The teacher education courses are expanding slowly as the demand for teachers increases. Large schools often have numerous teacher education courses with 150 or more faculties, but normal schools of education often have a single comprehensive teacher education course with less than 100 faculties.

Semi Schools of Teacher Education

Teachers get educated at the department of teacher education and the size of teacher education courses at these schools is quite smaller when compared with full schools

of teacher education. Along with teacher education departments, there are other non-education departments having the name of education. In addition to these, child education, and human development have been started at private universities from 2004 onwards due to upcoming increase in demand for elementary school teachers and are accredited as elementary school teacher education programs. Students in these courses do not have to earn professional certificates.

Schools of Education in Research Universities

These schools in research universities teach and execute research in areas such as educational studies and educational psychology. They offer doctoral research programs. Hiroshima University and the University of Tsukuba are examples for such schools incorporating large teacher education programs.

Graduate Schools of Education

These schools of education working in various national universities traditionally consist of master's degree programs in education. Now they are recently adding professional teacher education courses.

Departments of Education

New types of professional post graduate degree programs are developing at national teacher education schools with two objectives such as educating innovative teachers with practical abilities and developing faculty or school leaders with theoretical and practical capacities. The fundamental idea was to integrate theory and practice, find out novice teaching methods, inculcation of practical knowledge, and guidance by the staff. The educational programme consists of five common core papers and specialised papers like designing of school curriculum, teaching practicals related to subjects, student guidance and counselling, school and classroom management, and recent school and teacher related issues. Master's degree dissertation is not required rather than completing 10 credits of either student teaching or clinical experiences in public schools.

The universities do agreements with boards of education and public schools regarding student teaching. Mentor teachers and faculty members supervise student-teachers jointly at the public school. Students who are securing 45 or more credits in

a two-year programme are awarded with a Master's degree in Education. 19 professional schools of education were newly started in 2008. Professional teacher education programs are established in 2017 at all teacher education schools of national universities.

Other Schools/Colleges Than Education School

There are accredited teacher education programs in most colleges and schools of literature, science, law, economics, etc. Students must complete sufficient teacher education courses besides academic and professional courses offered by the department. It is somewhat similar to post graduate degree programs offered in graduate school.

Teacher Education in Russia

Teachers were trained in Russia at 670 educational institutions during 1998–1999 which consist of 81 pedagogical universities, 61 classical universities, 183 pedagogical colleges, 163 pedagogical universities, and 96 institutions of advanced professional training. Pedagogical schools and pedagogical colleges are the centres of secondary professional-level of teacher training. Pedagogical colleges are usually affiliated with higher educational institutions.

Pre-primary, primary, and incomplete secondary school teachers got training at pedagogical schools and colleges and the course of study is for a period of two or three years in which students got specialisation in labour, art technical drawing, music, singing, and physical training. The subjects of the psychological and pedagogical cycle consist of anatomy, physiology hygiene, psychology, and methods of teaching are included in the curriculum. Great attention is also given to the profile disciplines which provide the necessary professional level in a particular area. This type of education is regarded as the initial stage of teacher training. Graduates can continue to study at higher educational institutions.

A traditional five-year model or a new four plus two years model are the higher pedagogical education programmes that consist of module blocks rather than subject cycles. The curriculum includes six areas of knowledge of natural sciences, socio-economic issues, humanitarian issues, professional training, pedagogy, and art. Students are required to engage in teaching practice, which lasts for several weeks. Most of the teachers are trained in two specialties. The workload of teachers is usually 18 h per week. Teachers will get extra pay for the additional work done and for the additional responsibilities as class academic directors. Every five years teachers have to participate in advanced training which is organised by specialised training institutes or departments. There is close contact with local methodological councils and institutes of advanced training.

The short-term courses offered by the Institute of advanced training are a combination of full-time and part-time studies, independent work, individual consultations, and problem-solving seminars. Teachers also take part in professional development seminars and conferences and they attend university professors' lectures and colleagues' demonstration classes. State social organisations like the Council for Teacher Training Education, the Association of Pedagogical Universities and Institutes, and local councils of directors of secondary pedagogical institutions play an important part in the exploration of an effective teachers' network.

Primary and secondary school teachers' attestation is done by the Ministry of education based on common principles developed in 1992. Teachers' professional level get reflects in 12 qualification groups and four categories. Every five years a special commission will assess the teachers' qualifications and it consists of a two-stage process. The first stage involves a qualification test in the form of an examination, interview, report, or defence of a project and an analysis of the teacher's lessons—testing the students' knowledge; colleague, parent, and student evaluation of the teacher's work. Those teachers with significant teaching experience, excellent subject knowledge, usage of innovative methods and materials, leadership creativity, and active participation in extracurricular activities are included in the highest group which is the first category. University professors are recruited from capable graduates with good research potential and there is no special training for university professors. The annual workload of university professors is for 1550 h which includes activities such as teaching, research, methodological and extracurricular work. Each faculty member can decide on the number of classroom hours. Every five years, a university professor has to upgrade their qualification. They can take a period from one to twelve months long to study the experience of their colleagues at other universities by consulting with senior scholars or by doing research of their own. After five years of work in a particular faculty position, university teachers have to go through a competitive process. They have to submit a report on the previous five years of work with recommendations for the future made by immediate supervisors and colleagues.

The National Doctrine of Education, the laws on Education, Higher and Post-Graduate Education, and the Programme for the development of Teacher Training Education in Russia from 2001 to 2010 have formulated the following requirements for the system of teacher training such as to provide higher education for all the teachers employed in pre-primary and general educational institutions, to create conditions for their further professional growth through advanced training; to attract talented specialists to the educational system, and to ensure adequate conditions for the work of specialists with advanced degrees in institutions of higher learning.

Some of the important characteristics of the teacher training curriculum in Russia are as under:

- No certification requirement in Russian Federation
- Ministry of Education will centrally design the standards for the curriculum
- Teacher qualifications confirmed through the award of the title of teacher, pedagogue, or instructor on the diploma

- No specialisation in any subject is needed for Preschool and Lower Elementary Teachers.
- Lower Secondary (Upper Elementary) and Upper Secondary teachers choose a teaching major, sometimes also a minor
- Pedagogical subjects typically include: Elements of Medicine and School Hygiene, History of Pedagogy, Developmental Psychology, Pedagogy, Methods of Teaching, Audio-Visual Aids in Teaching, and Pedagogical Practices. In university-level programs, some students also choose a pedagogical specialisation and write their final thesis on an education-related subject.
- Upgrade courses are available beyond diploma/degree programs at specialised institutions meant for upgrading qualifications.

Teacher Education in Some Other Countries

Luxembourg

In Luxembourg, prospective teachers of general secondary education do their master's degree from abroad and complete their professional training within the country. Teacher training is controlled by an Act passed on the 10th of June 1980. Several changes have taken place in this Act over the last three decades. Among the changes, the most important one is the creation of University of Luxembourg in 2003 by combining independent institutions that existed previously into one structure. Student-teachers need to possess an accredited higher education degree. A good knowledge of three official languages and the Luxembourg educational system is essential for all future secondary education teachers. For teachers to secure the profession, they must have to qualify for the national recruitment examination. Civil servant status is only granted to teachers who successfully complete a two-year probationary period.

The secondary education teachers get professional training at the time of internship which is completed within 2 years after the board examinations. The University of Luxembourg designed a professional training programme for secondary education teachers by combining it with one-year teaching practice in schools. At the end, the examination is held based on a project-based pedagogy and legal aspects of education and assessment. The student-teacher is assessed by a jury including state commissioner, school principal, and three secondary education teachers from the field after the successful completion of the program. It imparts progressive integration into the teaching process through a tutorial system and also gives training in various areas.

The student's teaching load ranges from 7 to 18 h per week with the assistance of a tutor. The tutor provides the help for securing required competencies and gradually integrates into the teaching profession. As a part of the personal project, the student-teachers must conduct extracurricular activities and the content of the activities is discussed and approved in advance by the subject coordinator. The student-teacher meets with the tutor after completing the first and third terms of training. The subject

and module coordinators provide feedback and updates about the work done. It helps in identifying the tasks required for improving the skills that they have not yet fully mastered. The student-teacher needs to develop a self-assessment profile about the training course after each interview. The different dimensions are:

- Communication with internal and external school partners
- Construction of one's own professional project
- Familiarising with the institutional framework of the educational system
- Supervising the activities
- Learning adjustment in a formative aspect
- Applying technological advancements
- Exploration of school and socio-cultural data with respect to students
- Assessment and evaluation of student knowledge and know-how in view of certification
- Assistance for students to become independent and building their own personal projects
- Constant and active reflection with respect to practice
- Active participation in school development
- Assistance for students to become independent in school and socio-cultural skills.

Spain

The training of student-teachers in Spain has become increasingly important in educational policy during the past few years. In order to establish a single master's degree, the Spanish government restructured the secondary school teachers training programme in 2009. After completing a four-year bachelor's degree in secondary school subject, the future secondary school teachers can access the Masters. Initially, the student-teachers receive a general education for obtaining a degree in the main subject or branch of study. At the end of study, the student-teachers can enrol in a programme of initial professional training which enables them to qualify as teachers. In order to apply for admission in masters, the student-teachers must get an additional requirement of achievement in foreign language proficiency. There are two modules for masters, one general and one elective.

A tutor is deputed for coordinating, examining, and appraising the student-teacher during the teaching practice at the allocated school through an assessment report. An academic tutor at the university along with a professional tutor at a teaching practice school are combinedly responsible for assessing and signing the record as per the assessment report.

A project report or study involving the application of acquired knowledge during the Master's degree is included in the final essay. It gives an opportunity for implementing and developing knowledge during the teaching practice reflected in the light of theoretical contributions. The essay starts from the experience gained during the school practice and related works. The Master's degree consists of theoretical and practical periods. Theoretical periods taken essentially through master's classes

combining several methodological strategies and practical periods take place in secondary education schools with an aim to understand and reflect major processes at schools. The student-teachers are required to become conscious about the complexity of teaching. They are also required to develop certain attitudes such as adaptability, teamwork, pursuit of improvement, and innovation.

The students who wish to become a teacher after finishing their Master's degree have to pass a state examination which requires the demonstration of abilities and skills in a particular subject. The state examination has two parts. The first part of the examination is for proving the knowledge and ability to plan a class and the second part is to assess teaching experience, academic writing, and lifelong learning.

The Common Replicable Features

In spite of outward differences, the Teacher Education programmes in above discussed advanced countries have the following seven things in common:

1. Provided a clear and common vision for good teaching that includes all course work and practical experience which create a coherent set of learning experience.
2. Professional practice and performance standards are well defined which are used to guide and evaluate the course and practice.
3. Knowledge about child, adolescent development and learning, social and cultural context understandings evaluation and assessment, subject matter content, pedagogical knowledge and skills, and curriculum design and reform are taught in the curriculum and practice.
4. Extended teaching experience is for a period of minimum 24 weeks to a maximum of 36 weeks under supervision in which students get an opportunity to teach.
5. Get a chance to apply learning in real life problems by the extensive usage of a variety of methods, teacher research, performance assessment, and portfolio evaluation.
6. Explicit strategies to help students to confront their own deep-seated beliefs and assumptions about learning and the learners and to learn about the experiences of people different from themselves.
7. Strong relationship, common knowledge, and shared belief among school-based and university-based faculty jointly engaged in transforming teaching, schooling, and teacher education and training.

Educational Implications

The analytical study of the teacher education programme being implemented in the advanced countries, especially the G8 countries, for the training of teachers shows some paths which may be followed to establish a better teacher education programme in India.

1. There is a very urgent need for participatory teacher education**.** Teachers in training should play an active role in the training process. They should become participants in decisions regarding the needs to which their training must respond; problems must be resolved in the day-to-day work environment and what specific knowledge and skills required must be transmitted to them. In this approach, teachers must be self-directed and self-taught. Every aspect of the training must be based on reflection and introspection. The needs, problems, statuses, and roles must be clearly defined, examined, and analysed by them. The actual concrete experiences of working with students should be emphasised. Teachers should be able to jointly examine and analyse their after-effects assisted by trainers in solving problems (Akinpelu, 1998; Akyeampong, 2003). This is necessary while reforming the teacher education programme.
2. The new teacher education and training should not lose the power of technology for both teachers and students' learning. The real power of technology will come when teachers have been trained well and have captured the potential of technology themselves. In this way, teachers would be able to contribute to model the behaviour that the students are expected to learn thereby making them grow up to be more humane, creative, and productive (Burke, 2000; Holmes Group, 1986). Presently teacher education programmes are giving emphasis for the implementation of ICT. But more stress should be given to student-teachers for the use of ICT related resources such as Digital charts, e-content, videos, Educational Blogs, Virtual laboratory, etc. during their school internship programmes.
3. Need for in-depth content and practical knowledge of research for teachers. Research must be a major priority in teacher education and preparation in the twenty-first century. Professional teachers naturally seek answers to questions and solutions to problems that enable them to help their students to learn. They are decision makers; make thousands of choices on hourly basis regarding the choice of texts, literature, appropriate and relevant technology integration, curriculum, pedagogy, assessment, and measurement. They are highly reflective and sensitive to the needs of their students. They encounter failures and successes. Their key to success is a mystery. Teachers seek multiple means of looking at their world of teaching and learning and that of their students by unlocking the secrets within the classrooms. Research is one such potential element to unlock these secrets.

Conclusion

In the present scenario, employment at the global level is undergoing a changing pattern. There are so many professions in our modern world and this will surely multiply in the coming years. The new directions in teacher education and training should consider that teachers should be prepared to play multiple roles and take their rightful positions in the teaching-learning environment to face these challenges confidently. We must improve the quality of education worldwide for our students by providing teachers with the required skills, knowledge, and experiences. One which

deserves mention is the ability of the 21st century teachers to have control over the disruptive behaviour of students in the classroom. For this reason, teacher education and training institutions should equip teachers with knowledge and skills in management which will enable them to address such problems effectively and efficiently. The advanced economies of the world are looking at teacher education programmes in a serious manner to equip their young citizens with all required knowledge, skills, competencies, and values. The trend and pattern of teacher education programmes adopted by these nations have proved to be a milestone in the reformation of teacher education programmes in the global context.

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Chapter 5
Commissions and Policies in Teacher Education

Neeti Dutta

Abstract Historically, India has had a strong, robust, and well-established education system. The main pillar of this education system has always been the teacher. Teacher is the one whom everybody considers as the real source of knowledge who enlightens and empowers the students with wisdom, righteousness, and self-realisation. Teachers in the Indian education system occupy the central position and the epi-centre of teaching-learning process including knowledge generation, sharing, and transmission. Decades and decades of past had made many efforts to dismantle the Indian education system along with the position of the teachers in the society but it is the teacher who stood tall and strong against all those difficult circumstances and able to perform the duties and responsibilities entrusted by the society. But, with the advent of colonial rule when aims of education were suddenly changed, the role of teacher was also changed. The new normal of education was to prepare students for the world of work rather than on developing wisdom, self-realisation, and spiritualism. As a result, a new curriculum was introduced focusing on teaching some special subjects which have economic and social relevance. Therefore, a system of education was developed where teachers were given the responsibility of teaching students to make them skilled workers who can manage offices, factories, run administration, etc. This system of education required teachers who were proficient in the art of teaching. For that, colonial rulers set up teacher training schools wherein students who opt for teaching were given intensive training on theoretical and practical inputs of teacher preparation. This legacy of training of teachers continued even today through various educational institutions normally called as teacher training colleges or more refined as teacher education colleges. Post-Independence, it was decided by our leaders and policymakers to revamp the education system and thus made many structural and functional reforms in the education system with establishment of various higher educational institutions and apex organisations controlling these educational institutions. Teacher Training was one of the areas where our leaders and policymakers intended to make changes and even, they did it as suggested by the

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various commissions, committees, and policy documents. But most of the recommendations and suggestions were based on what was being followed in the western countries especially USA and USSR. Initially, in first 35 years, teacher training was confined to university education departments, teacher training institutions and regional colleges of education (under NCERT) and they had full autonomy to run the teacher training programme and they followed what was being suggested by the government based on the recommendations of commissions and committee's observation and suggestions with few exceptions in terms of innovation. Due to the absence of any apex organisation like NCTE, several experiments took place in teacher training including teacher training through distance mode in the mid-70s. But undoubtedly, it can be said that various commissions and committees that were set up mostly look the teacher training as a small part of the whole education system till the appointment of Chattopadhyay Committee (GOI (1985). Report on national commission on teacher: teachers and society, Ministry of Human Resource Development, New Delhi.), which was especially constituted to review the status of teachers in the society and preparation of teachers for school and higher education. Immediately after Chattopadhyay Committee GOI drafted the National Policy of Education (GOI (1986). National policy on education, Ministry of Human Resource Development, New Delhi.) wherein for the first time several points were highlighted with regard to the training of teachers or teacher preparation in India including curricular and structural aspects of teacher training in India. Taking no credit away from the past regarding improvement in teacher training, but post 1986 some significant and systematic changes were seen especially creating of DIET, upgradation of teacher training to teacher education colleges, university departments to IASE, etc. with full support from government. Post 1990s till 2010, three major things happened in teacher education which almost affected the quality of teacher education. Due to rapid expansion in primary education, India needed a large number of teachers. As teacher education institutions are almost handful in numbers and mostly operating in government sectors, having limited intake capacity. Therefore, it was decided to give recognition to private teacher education colleges to match the demand and supply. Moreover, NCTE that was set up as a constitutional body to look after the quality of Teacher Education failed miserably thus leading to commercialisation of teacher education. Thus, neither on the structural front nor curricular front any substantial things changed on the ground. NCF (NCERT (2005). National curriculum framework, NCERT, New Delhi.) highlighted in its document that quality of teacher education is at its lowest level as is reflected by Yashpal Committee report on Learning without Burden (GOI (1993). Learning without Burden, Ministry of Human Resource Development, New Delhi.) showing the concern for lack of quality teachers. Finally, the NCFTE (2010) document was published by NCTE to change the structural and functional aspects of teacher education but it was in 2012 Justice Verma Committee that pointed out not only the inferior quality of teacher education but also huge commercialisation in teacher education that has been promoted in the nation. Committee pointed out that the agencies that are regulating teacher education in India have failed miserably in their duties. Based on certain recommendations, NCTE in 2014 came up with a policy of teacher education programme wherein it not

only increases duration of teacher education programme but also change the functional aspect of teacher education in India. Recently in the New Education Policy, several recommendations were suggested to improve the quality of teacher education including starting a four years Integrated Teacher Education Programme. How the recent change suggested in the policy will bring change in the teacher education scenario following years will tell us but one thing is definite, i.e. whatever the suggestions given by the various commissions, committees, and policy documents for improvement in teacher education many of them have not yet seen light of the day. This chapter will discuss the important Commissions and Policies on Teacher Education in a very synoptic manner.

Introduction

Indian civilisation is almost 5000 years old and so the Indian education system. In the Indian education system, teachers have always been the epicenter of education and that's why the position of teacher has always been revered. Though there are a number of Shlokas that depict the place and importance of "teachers" in the society, but the most widely recited shloka is as follows, wherein teacher is equated with God:

गुरुर्ब्रह्मा ग्रुरुर्विष्णुः गुरुर्देवो महेश्वरः।
गुरुः साक्षात् परं ब्रह्म तस्मै श्री गुरवे नमः।।
-Subhastani

The role of guru or teacher in the life of the students is insurmountable and that's why even after independence all the policy documents, commissions, and committees have highlighted the role of teacher especially for character and nation building. India has the legacy of having Guru/Teacher like Vishwamitra, Dronacharya, Chanakya to modern day Ramakrishna Parhmans, Dr. Sarvapalli Radhakrishnan and off late Dr. A P J Abdul Kalam remind us that these teachers who with their knowledge and wisdom are able to transform the lives of many of the students who came in contact with them. Moreover, another significant aspect of these teachers was that they taught only a handful of students but they inspired generations after generations. The time and period during which they teach students were not so challenging. But in the last 20 odd years as classrooms are more diversified than ever before, along with knowledge explosion and communication is taking place at supersonic speed, it increases the challenge multifold for the teachers. Teaching as a profession requires epitome of knowledge, skills, values, emotions, and most importantly a nurturer and caregiver.

Till the advent of Britishers, India did not have formal schools set up and therefore no question of having teacher training. Teaching was confined to pathshalas, maktabs,

and madrasas where only a few selected families used to send their children to receive education. Later on, when Britishers established schools, they brought with them the curriculum where students were taught different subjects. They required educated and trained persons to teach various subjects to the children. As like in their country, they also established in India teacher training colleges in which teachers were trained before inducting them into the teaching profession. Training was given in the area of pedagogical skills and foundational knowledge of subjects that were then existed in their teacher education system. Many of the commissions and committees set up prior to independence have reiterated in their recommendations to give strong and robust training to teachers for teaching the young ones in the school. So, one would say that teacher training colleges/institutions established during the colonial time continued to perform the same task after independence. It is worth mentioning here that the structure of teacher training colleges that was there in pre-independence time remained so till the late 1980s. Though various commissions, committees and policy did recommend drastic changes in the teacher training programme, nothing concrete was seen except for a few cosmic changes. Till date, there is hardly any policy document that exclusively deals with teacher education in a comprehensive manner especially for teacher training. Most of the documents available look at teacher and teacher training in a segregated and isolated manner (not connected) and that's why whatever reform that has taken place in teacher and teacher training adopted a piece-meal approach with respect to time and period. Before we start our discussion on landmark documents submitted to national governments in the area of education and within the education domain-teacher education, let us understand the concept of teacher training and teacher education. The word "training" is often associated with imparting certain specific skills necessary to carry out a particular task whereas education connotes knowledge which translates into wisdom. Globally, almost in mid 1950s, the term training was abandoned as not only it has a narrow meaning but also word training is more aptly used for animals rather than humans. But India continued with the concept of "teacher training" rather than "teacher education" even today. The National Policy of Education (1986) has referred to the term "teacher training colleges" to indicate that "teacher training" was commonly used in Indian documents. In the policy documents "Teacher Education" word is commonly used but teacher training word is still prevalent and activities carried out in these institutes still resort to training. According to J. S. Verma Committee (2012) "*the prospective teachers are trained with window-less minds who refuse to change with the change in the classroom situations*" (p. 12). As teacher training has not been changed in decades so is the frame of mind in which it operates and still in many documents, places, and even in common parlance teacher education is equated with teacher training.

India has a strong, robust, and well-established education system. The main pillar of this education system has always been the teacher. Teacher is the one whom everybody considers as the real source of knowledge and epi-centre of the teaching-learning process including knowledge generation, sharing, and transmission. In-spite of continuous efforts in the past of dismantling the Indian education system, it is the teachers who stood tall and strong against all those difficult circumstances and were able to perform the duties and responsibilities entrusted by the society. But,

with the advent of colonial rule suddenly the aims of education were changed. New curriculum was introduced focusing on teaching subjects that have economic and social relevance rather than on spiritual relevance. Therefore, a system of education was developed where teachers were given responsibility of teaching students to make them into skilled workers who will manage the factories, industries, ledgers, and accounts, etc. So, the new system of education required teachers who were proficient in the art and science of teaching. Colonial rulers set up teacher training schools wherein admitted students were given intensive training on how to teach in the classrooms. This legacy of training of teachers continues even today through various educational institutions normally called "teacher training" colleges or more refined as "teacher education" colleges. Though post-Independence, various commissions and committees were set up to review the then curricular and structural aspects of teacher training in India and gave several recommendations to improve the teacher training system but till 1986 nothing substantial curricular and structural changes were being done. It was post 1986 policy that systemic changes were brought into the teacher training with structural and curricular changes both at local and at national level. Taking no credit away from the past regarding improvement in teacher training, but post 1986 some significant and systematic changes were seen especially creation of local level teacher training institutions known as DIETs, upgrading the existing teacher training institution to teacher education colleges, strengthening the university departments and upgrade into Institute of Advanced Studies in Education (IASE) with full financial support from central government. Post 1990s to 2010, three major things happened in teacher education that affected the quality of teacher education. First, due to the rapid expansion in the area of primary education, India needed a large number of teachers to manage the schools and India did not have enough trained teachers. As teacher education institutions are almost handful in numbers and mostly operating in government sectors, having limited intake capacity. Therefore, it was decided to adopt a two-pronged approach: One, initially allowing distance education institutions to offer teacher education courses pan India through study centres and thereafter restricting them to offer teacher education courses in their own state with sanctioned intake capacity (due to NCTE regulation). This resulted into a situation where many aspirants did undertake teacher education courses from these DEIs. It was often said that commercialisation of teacher education started from these DEIs itself as teacher education programmes offered by these institutions lacks quality, rigourness, robustness, and most importantly hardly had any curricular and pedagogical inputs from teachers to students (personal contact programme was more of ritual sake) to give recognition to private teacher education colleges to match the demand and supply. Moreover, NCTE that was set up as a constitutional body to look after the quality of Teacher Education failed miserably thus leading to commercialisation of teacher education. Thus, neither on the structural front nor curricular front any substantial things changed on the ground. NCF (2005) highlighted in its document that quality of teacher education is at lowest ebb as is reflected by Yashpal Committee report on Learning without Burden (1993) showing the concern for lack of quality teachers. Finally, the NCFTE (2010) document was published by NCTE to change the structural and functional aspects of teacher education but it was the Justice Verma

Committee (2012), which pointed out not only the inferior quality of teacher education but also huge commercialisation in teacher education that has been promoted in the nation. Committee pointed out that the agencies that are regulating teacher education in India have failed miserably in their duties. Based on its recommendations, NCTE in 2014 came up with a policy of teacher education programme wherein it not only increases duration of teacher education programme but also changes the functional aspect of teacher education in India. Recently in the New Education Policy, several recommendations were suggested to improve the quality of teacher education including starting a four years Integrated Teacher Education Programme (ITEP). How the recent change suggested in the policy will bring change in the teacher education scenario following years' time will only tell us but one thing definitely, whatever the suggestions given by the various commissions, committees, and policy documents for improvement in teacher education many of them have not yet seen light of the day. The following section briefly outlines the various recommendations suggested by the commissions and policies on teacher education along with its implications in teacher education programmes.

University Education Commission (1948)

The very first commission that was set up after Independence was the University Education Commission popularly known as Radhakrishnan Commission in 1948–49. The commission has extensively toured India and visited various universities and based on their observations they suggested various recommendations on different aspects of university education. The University Education Commission studied the whole of teacher education under the umbrella of Education. The major observations and recommendations of the commission were:

1. Teacher training is a professional course and it requires intensive preparation.
2. Theory papers are almost alike in all the teacher training institutions and university departments but there is gross variation in practical work especially in practice teaching. Not only in the number of lessons being delivered during the training programme but also in its supervision. It has been reported that those training colleges having in-house demonstration schools maintained quality teaching practice but those who haven't have less efficient training of the pupil-teachers.
3. Commission feel that teacher training colleges failed to understand that "education" should be the focal point of study in the teacher training colleges rather than an associate of Philosophy, Sociology, History, Psychology as the responsibility of training of teachers is looked from the perspective of "*the place of the school in the nation's life and the right training of children in the school*" (p. 184) rather than teaching the courses for normal employment opportunities. In other words, all the subjects taught in education must be centred around education, school, and students.

4. The commission observed that the existing system of teaching practice is grossly inadequate not in terms of time but also in terms of assessment of students' performance and the way it is being carried out in schools. It is reported that students were never failing in practice teaching and mere possession of a teaching degree did not guarantee a good teacher who can teach or control the class.
5. Commission remarked that the presence of supervisor for all days of teaching practice is unessential as it will not help the students to find out its feet. In other words, the commission is trying to emphasise on being a reflective practitioner who learns from its own mistakes.
6. One of the most critical observations made by the commission related to teaching practice was that teacher training colleges did not use sufficient numbers of teaching practice schools for training of students. They highlighted one instance wherein one demonstration school was used by a teacher training college to give practical training to all its 100 students affecting the quality of teacher being prepared. So, a synergy should be created between intake capacity, number of schools for teaching practice so that regular school routine should not jeopardise, rather student teachers coming for practice should follow the practices of schools and make the best use of it.
7. Quality of teacher training is a concern in many of the teacher training colleges as many of the training colleges are not meeting up the expectation level irrespective of whether it is being run by private or government as both of them follow the same pattern of teacher training.
8. The Commission observed that teachers working in the training institutions had no exposure to school teaching and suggested that at least 50% of the teachers of training colleges should have school teaching experiences then only recognition should be given to that institution.
9. It is further observed by the commission that in many institutions there is hardly any synergy between theory and practice. Moreover, theory courses are overloaded with content and that too non-specific and non-localised and it outweighs the practice. ***(Source: University Education Commission Vol I, p.188).***

Other recommendations/suggestions that could be inferred from observations are as follows.

1. Uniformity in number of lesson plans delivered as well as supervision of the lesson plans.
2. Need to have in-house demonstration schools and if not possible have sufficient number of teaching practice schools so that all the students must get equal and sufficient opportunity to undergo practice teaching. In this regard, Education departments must come forward and work jointly with teacher training institutions to provide a sufficient number of schools for practice teaching.
3. Right blend of theory and practice wherein students can think of problems they would confront in school and theory would help them to solve those problems.
4. Increase the duration of teaching practice at least to 12 weeks.

5. Recognition of teacher training institutions only either they have their own demonstration schools or sufficient number of teaching practice schools for training of students.

Many of the observations and recommendations which university education commission highlighted in teacher education had not seen the light of the day and some of them are.

1. There is hardly any synergy between school and teacher education institutions and most of the theory that has been taught in the teacher training programme is being hardly used by the pupil-teachers. In fact, students practice their delivery of lessons in complete isolation with the needs and demands of the classroom.
2. Most of the teacher training staff are currently into the teaching profession either having inadequate school teaching experiences or no school teaching experiences, though in the 1960s, 1970s, 1980s and even till 1990s, there is a practice that school teachers after acquiring higher qualifications come into the teacher training institutions.
3. Unfortunately, most of the courses designed in the teacher education programmes hardly take into cognizance the changing nature of school classrooms-their social, cultural, political, and economic dimension. Student-teachers enrolled in teacher education programmes studied theory of education from the perspective of western thinkers, sociologists, psychologists, etc. and that's why they are unable to correlate it with Indian classrooms especially if the classroom is in rural, tribal, and hilly areas. "Uniformity of the curriculum" has become the essence of the teacher education programme. Teacher education colleges are able to teach the theory of education in isolation as given facts rather than with contextualisation.
4. With the mushrooming of teacher education colleges mostly private, the quality of training which is the concern of university education commission is still not being addressed. In fact, it would not be wrong to say that what Justice Verma Committee (2012) highlighted in the report that commercialisation of teacher education has happened at mass level and quality of teacher education programmes is at the lowest ebb.

Recommendation given by the University Education Commission for teacher education in India is far reaching and would certainly change the course of teacher education that has been inherited from the legacy of colonial rule. Many of these recommendations were reiterated by later commissions, committees, and policy-level documents. Baring few changes in teacher education in context to the implementation level, majority of the recommendations have never found its place in the teacher education system till today like internship programme, insulated environment of teacher education systems, intellectual isolation, segregated and compartmentalised knowledge, etc.

Mudaliar Commission Report (1952–53)

After independence, the second commission set up by the Govt. of India was Secondary Education Commission popularly known as Mudaliar Commission. The Commission looked into all the aspects of secondary education and had given exhaustive recommendations in each area to re-structure, expand, and improve the quality of secondary education. In this context, Mudaliar Commission also highlighted that majority of the schools untrained teachers were teaching, and it is necessary that schools run by private organisations or government should appoint trained teachers to teach the students. As trained teachers are better equipped to teach the students and nurture them appropriately into future citizens of the country. In fact, while visiting the various teacher training institutions and studying their functionality, the commission was of the opinion that there is a considerable variation in teacher training across institutions, inadequate number of teacher training institutions and prospects of attracting the best talent of the country was far from satisfactory, a similar observation made by University Education Commission (1948). Following are the important observations and recommendations made by the commission:

1. The commission identified that three types of teacher training institutions were in operation at that time: (i) Primary Basic Training, (ii) Secondary Teacher Training, and (iii) Graduate Teacher Training.
2. Primary teacher training was of 2 years duration but the eligibility to enter teacher training college was completion of the elementary stage of education. But the commission was of the opinion that educational qualification was too less as per the roles and responsibilities of the primary teacher, therefore anyone who wants to become a primary teacher must have at least a Higher Secondary School Leaving Certificate.
3. Secondary teacher training was also of 2 years duration similar to primary teacher training but minimum eligibility to become an entrant of secondary teacher training was School Leaving Certificate or the Higher Secondary School Leaving Certificate. Teachers for Secondary Teacher Training was prepared to teach nursery or primary students; therefore, the Commission was of the opinion only secondary teacher training courses should be promoted as more academically qualified trained teachers would do more justice in equipping students with knowledge and skills of life. The first year of the course was devoted to general education and second year for teaching practice. In the second year itself some special training should be provided to pupil-teachers either on craft-centred education or organisation of curricular activities.
4. **Graduate teacher Training:** On Graduate training, they believed its duration may be increased to one more academic year from the existing one year. They further emphasised that graduate teacher training should be within the ambit of the university education department and its affiliated training colleges rather than in the hands of the state education department as it was found in many states. The logic behind it was that being a postgraduate degree-based programme, universities deal with all kinds of post-graduate programmes.

Therefore, graduate training programmes are being conducted by university and affiliated colleges. Two teaching methods should be chosen for teaching practice based on the subjects studied at least at the intermediate level. The subjects that were studied in the graduation but these subjects were not part of the school curriculum, therefore, these graduates must be discouraged to enter into the teaching profession.

5. Like University Education Commission, Mudaliar Commission was too stressed for the need of intensive practice teaching wherein student-teacher must practice all those duties and responsibilities which a regular teacher did in the school.
6. Training of teachers to be able to teach the Children with Special Needs (CWSN).
7. Training in various co-curricular activities helps the pupil-teachers to develop their personality, leadership skills as well as develop in them the skills of planning, organising, managing, and conducting these activities at school level. Training in co-curricular activities would help their students to come closer to society and develop a feeling of doing social services.
8. Training colleges should be incubation places of research especially in the field of pedagogy and that's why they should have demonstration schools.
9. Personnel with higher academic and professional qualification should be given priority for appointment of training college teachers as they would enable them to make good school teachers.
10. Practice of giving stipend to student-teachers by the state should continue and no fees should be charged from student-teachers so that right type of teachers would be encouraged into teaching profession.
11. In-service teachers who are not professionally trained must be given chance to pursue the course with salary and other facilities.
12. Due to the short duration of the course, adequate residential facilities be provided to student-teachers to engage with school life, and community life, etc.
13. Like the University Education Commission, Mudaliar Commission suggested that post-graduate degrees in education should be offered to those teachers who had done 3 years of minimum school teaching.

Source: MUDALIAR COMMISSION REPORT P.145–146.

Mudaliar commission was appointed to look into the various aspects of secondary education but it also studied the teacher education system in the country. Whatever the observations and recommendations of Mudaliar Commission was, it was quite similar to that of the University Education Commission, which was reported 4 years ago. Mudaliar Commission did recommend specialised training for early education, primary education, and secondary education, this was followed by the NCTE in its NCFTE (2009), almost 60 years later. This indicates that the commission was aware of the specialised needs of the different levels of training programmes because of their context, content, and distinct character.

Report of the Education Commission (1964–66)

Kothari Commission was the third commission in the series after post-Independence, which was set up by the government of India to bring in qualitative improvement in the entire education system right from school to higher education including professional and technical education. The Kothari Commission report was entitled "Education and National Development" meaning the mandate of the commission was to study the education system of India in entirety and then provide recommendations in totality in almost all the areas of education so that in true sense education could be the wheel of national development. Kothari Commission constituted 12 task forces, which looked into 12 areas of education and teacher education was one of them. The Commission had realised the significance of teachers in national development and that's why in the chapter teacher education, the commission emphasised on sound professional education of teachers for bringing in qualitative improvement in the education system. The Commission believed that "*investment in teacher education can yield very rich dividends because the financial resources required are small when measured against the resulting improvements in the education of millions" (p. 113).* That's why the commission was of the opinion that a country like India needs high-quality teacher training institutions. The observations made by the earlier two commissions-University Education Commission and Secondary Education Commission with respect to teacher education were almost similar. Nothing substantial change was observed till then with regard to isolation of teacher training institutions from academic life of the university or from the school academic life, majority of the training institutions were of inferior quality, poor quality of teaching staff, vitality and realism were lacking in curriculum and programme; highly conventional and rigid practices of practice teaching followed in training institutions, far away from contemporary needs and requirements, practices followed were largely without any strong research base and unscientific, etc. Therefore, the commission was of the view that the following areas of teacher education should be deeply looked at and suggested a list of recommendations to improve the quality of teacher education in the country. These were related to the following five important areas:

- Academic isolation of teacher training institutions from the university life, school life and also among teacher education institutions.
- Quality of teacher training institutions and their programme.
- Extension services of teacher training institutions.
- Training institution as hub of teacher professional development.
- Creation of national and state agencies for maintenance of standard in teacher training.

Breaking of Teacher Training Institution Isolation from University: For breaking of teacher training institution isolation from the universities, Kothari Commission suggested the following recommendations:

1. Education should be treated either as an independent academic discipline or allied discipline of social science and it should be offered in UG programme combination with other subjects.
2. Apart from UG course, a PG programme of 2 year should be introduced at university departments wherein it should be offered with combination of other social science or humanities subjects.
3. Teaching practice of minimum duration should be kept compulsorily in UG and PG programme.
4. Opening of School/Institute of Education in selected universities and main function is to build the professional capacities of in-service teachers along with pre-service training for different levels of teachers.
5. Work in close collaboration with schools so that schools can be incubation place for research, teaching techniques, and better curriculum.

Breaking of Teacher Training Institution Isolation from Schools: For breaking the isolation between teacher training institutions and schools, the commission recommended.

1. Training institutions should build a symbiotic relationship with schools so that they are breeding ground for innovations in teaching, evaluation, extensions services so that both the training institutions and schools can improve their quality.
2. Setting up of department of extension services in all the teacher training institutions.
3. A good and effective alumni association of pupil-teachers and their periodic interactions with teachers of the training college would help immensely by giving valuable inputs related to the programmes, and it will help teacher training institutions to modify the curriculum or the practices of teacher training as per the needs and demands of the school or get ideas about probable future programmes for school education.
4. As the university education commission and Mudaliar commission found that the weakest link in entire teacher training was the practice teaching, the same was observed by the Kothari commission. The Commission recommended that to break the isolation from school a comprehensive internship/practice teaching plan should be worked out in collaboration and cooperation with school and their teachers. Moreover, education departments should give special status, grants, incentives to these schools and teachers which help them not only in supervising pupil-teachers but also in felicitating them in public.
5. Another way to break the isolation between school and teacher education institutions is a mutual exchange programme wherein teachers from both sides work in "other" institutions and learn about their world of work. This will enhance the understanding of the teachers of either side regarding functioning of schools and teacher training institutions; along with learning of other different kind of works carried out in either institution.
6. Breaking of Isolation Among Teacher Training Institutions: Commission observed that there is complete defragmentation of teacher training institutions

not only in terms of levels of teacher training institutions like pre-primary, primary, and secondary, etc. but also in terms of institutions affiliated to state departments of education and University. In regard to breaking of isolation among teachers, these different kinds of teacher training institutions, commission recommended that:

- Bringing all the teacher training institutions at par and under the university departments following the prescribed standard curricula.
- Phase-wise upgradation of all the teacher training institutions into comprehensive colleges of teacher education wherein all types of teacher training programmes must be offered.
- State Boards of Teacher Education (SBTE) must be created to not only facilitate the smooth transition from the ambit of state departments of education to university departments.
- SBTE act as a body that would function as: prescribing standards for teacher training, development of curriculum, norms of educational qualifications, examinations, development of educational resources along with supervision of teacher training institutions and providing consultative services as and when required.

Improving the quality of Teacher Education: Commission was equally concerned with ongoing teacher training programmes in the nation and echoed what has been observed by earlier two commissions. The Commission was of the view that poor quality of teacher training is not only wastage of financial resources but also leads to poor standard of education in the nation. So, it is imperative that quality of teacher training should be given high priority. In this regard, commission suggested the following recommendations:

(i) Re-orientation of Subject Knowledge: The prospective teacher who are entering into the field of teacher education must not only be given theoretical knowledge on different courses of the curriculum like philosophical, sociological psychological, and pedagogical but also given enough opportunities for content enrichment and mastery in their school subject. This would be done in collaboration with other discipline-based university departments, which would help prospective teachers to teach their students in a creative and effective manner.

Duration of Programme: Though, the commission was in favour of increasing the duration of all teacher training programmes from 1 year to 2 years with increase in subject matter course. But, due to financial implications, the commission suggested that the number of days in a year should be increased to at least 230 days from existing 180 to 190 days.

Integrating General and Professional Education: Commission was of the view that an integration of general education with professional education (B.A/B.Sc + Teacher Education) should be started in university departments in collaboration with other university departments or colleges that already have existing facilities as these courses needed huge financial implications.

Vitalising Professional Studies: Commission was of the view that the major defects of the teacher education were inadequate researches on Indian problems as a result knowledge imparted in training colleges are hardly being contextualised by the students in Indian classrooms. Moreover, the content taught in the syllabus of teacher training is far from realistic in regard to the needs of the Indian classroom. So, there is an urgent need to revise the syllabus completely and university departments must focus on doing research on Indian problems and thus generate knowledge which can be easily comprehend by students and utilise them in classroom teaching.

Improvement in Teaching and Evaluation: According to the commission, teachers should practice those methods of teaching in their classrooms which their students can practice when they go for an internship or in regular classrooms. So, teachers must do away with traditional methods of teaching and practice methods, which encourage students to engage themselves during the teaching-learning process like discussion, seminar presentation, project work, case studies, etc. Even the evaluation methods adopted in teacher training institutions are largely traditional. Institutions should adopt a continuous internal assessment system for the benefit of the students as it gives enough scope to learn from their own mistakes.

Practice Teaching: Like Radhakrishnan and Mudaliar commission, Kothari Commission also observed the way the practice teaching being carried out in teacher training institutions and commented that "practice teaching being practiced leaves much to be desired". In other words, quality of practice teaching is abysmally low and requires much needed improvement not only in terms of duration and delivery of lessons but also in terms of supervision. The commission suggested that Master in Education courses may be revitalised and made more intensive, specialised and research oriented with one and half year duration;

Improving The Quality of Training Institutions: Regarding improvement of quality of training institutions, following recommendations were made by the commission**.**

- Teacher educators should have a double master's degree, one in school subject and other in education.
- Teachers who do not have professional degrees in training but are specialised in subjects like psychology, philosophy or sociology may be appointed.
- Arrangement of correspondence/special courses/part-time courses may be done to train the untrained teachers.
- Summer institutes for in-service training may be initiated.
- There must be a first degree in school subjects to come into the field of teacher training.
- Every training institution must have a Demonstration School attached to them.
- Regular Orientation of working teachers by the teacher training institutions should be conducted.
- UGC and State Boards should be made responsible for maintaining the standards of teacher training.

- Central governments should provide central assistance to state governments to upgrade the quality of teacher training.

National Commission of Teachers (1985): In 1985, Govt. of India constituted National Commission of Teachers popularly known as Chattopadhyay Committee under Prof Chattopadhyay. The report was entitled *Teachers and Society.* The commission was constituted to look into the various facets of teachers, i.e. status of teachers, role and professionalism of teachers, professional excellence, service conditions and welfare measures, training of teachers, etc. The commission constituted six working groups looking into each of the aspects concerning teachers. This was the first commission after Independence which was set up exclusively to deal with teachers whether the teacher is teaching at school or higher education level. The report highlighted that there is an interdependence of school education and higher education and the quality of teachers in school is largely being determined by the quality of education being provided in higher education and being at the top of the education system, it cannot shrug its responsibility. The report highlighted and I quote: *If the university falters in this key function, there is little that can be done to save the school system from the deleterious effects of its dysfunctionality (p. 3).* So, it is easily understandable that the higher education system has to play a bigger role in imparting quality education to its graduates and post-graduates who are likely to become future teachers. In its report, it was highlighted that the role of the teacher should not be confined to only 3 R's and preparing students for prescribed examinations or jobs, but the role of teacher is much greater than that by becoming an essential and responsible partner in achieving the national goals through shaping the character of his/her students. Commission was also equally concerned of the status of the teachers in the society remarked in the opening paragraph of chapter-3 "The Status, Working Conditions and Welfare of the Teacher" that until and unless education system is unable to attract best quality teachers and purge the professionally incompetent teachers, the standards of education in the nation would not improve. Report emphasised that in India the position of teacher, i.e. "Guru" has a greater position than the "GOD" but the same teacher is striving hard for decades to earn the status which was once held in ancient times. The report highlighted that the status of teachers cannot only be redeemed by giving only high salaries but teachers have to earn it through knowledge and professional competence which can only be achieved through professional preparation. The key observations of the commission in regard to teacher preparation and training were as follows:

- The overall capacity of training of teachers is adequate.
- There is a regional variation in training of teachers.
- Chronic shortage of teachers of science and mathematics.
- Gender-based preparation/training of teachers is highly skewed and in favour of men.
- The academic profile of teachers is woefully poor.
- Training institutions are working in isolation without taking into cognisance needs of the classrooms, and national goals.

- Emphasis on non-formal education—challenge for teacher education to prepare teachers for them.
- Irrelevance and ineffectiveness of the teacher training curricula.
- Lack of systematic field research to validate training curricula.
- Teacher training institutions are inadequate in terms of changing needs of society.
- Variations in the qualifications and duration in the training of elementary teachers.
- Internship or practice teaching being practiced in demonstration schools lack planning, rigor, routinised, and mechanised with no innovations.

The main recommendations of the Commission in different areas of teacher education are given below:

A. **Teacher Education Programmes**: Commission was of the view that the existing duration of the teacher training programme and curriculum was insufficient enough to prepare teachers for the school. In view of that it recommended:

   - Integrated Teacher Education Programme: Commission recommended to start a 4-year integrated teacher education programme in line with NCERT four-year B.A/B.Sc. B.Ed programme across the country.
   - Initially duration may be of 4 years but later it may be extended to 5 years similar to any other professional and technical programmes running in the country.
   - Integrated programme may be opened for students after class 12.
   - The course may be combination of general and professional running concurrently.
   - For easy upward mobility for elementary teachers to secondary and higher level, it is proposed that a 4-year integrated elementary teacher training course may be started after class 10.
   - State should initiate to open integrated college of education wherein college of science and arts are there.
   - The 4-year integrated curriculum would be drawn out from general (discipline) and professional education.
   - Since there is a wide variation across states in training of elementary teachers with respect to qualifications and durations it was suggested that a uniform training of 2 years of elementary teachers may be adopted.
   - In regard to integrated curriculum, university departments, colleges of education and others concerned should sit together and prepare new curriculum based on the existing models. Schools, teacher-educators have to be oriented for the new curriculum.
   - In the integrated courses, general education would include study of languages, three to four subjects belonging to science, social science and humanities discipline along with projects, seminars, field trips, etc.
   - For upward mobility of students, university in consultation with various national and state educational agencies prepare a curriculum framework of 4-year integrated course whose degree is treated equivalent to others.

B. **Existing Teacher Education programmes**:

- Qualitative improvement in the existing 1-year B.Ed programme by increasing the working days from 170–180 to 220 days and increasing the working hours along with the revamping of the curriculum.
- Selection of trainee teachers for teacher education courses would be based on more comprehensive testing which includes testing on standardised format, group discussion, linguistic and communication ability, etc.

C. **Practice Teaching/Internship**:

- Soul of the teacher training is internship and as the other earlier commissions had observed nothing substantial change has been observed even after three decades so the commission recommended that both schools and colleges of education/university departments come together and jointly take the responsibility and chalk out in detail how internship would go about. Moreover, it further recommended that at least 4 weeks of internship in third and 8 weeks in fourth year of integrated programme; in case of 1 year B. Ed at least 6 weeks internship is proposed.
- Pupil-teachers should be trained in organising various co-curricular and extension activities.
- The word Practice Teaching may be replaced by word Internship and it would be joint responsibility of College of Teacher Education and Practice Teaching Schools.
- The professional preparation of teachers includes, study of education as discipline, internship in schools and learning other practical skills like skills on blackboard, use of technology, preparing improvised teaching aids, etc. should be promoted.
- Students should be given extensive experiences in literacy, cultural, and sports activities to prune their talents.
- In regard to assessments of students, teacher-educators may evolve their own tools for assessing the various practical skills of the students.
- For 1 year B.Ed. programme, it is important that students should be oriented to school education at least 6 weeks before sending to practice teaching schools and students should also visit practicing school and observe at least for a week to get familiarise with working and functions of the schools.

D. **Teacher Educators**:

- Teacher educators should be drawn from school subjects as well as from education disciplines.
- Minimum qualification for teacher educators may be postgraduate degree in schools and B.Ed. The teacher educators who have done M.Ed. may be preferred.
- College of teacher education should offer only those subjects in which they have faculty available to them.

- High quality of teacher educators may be appointed who are proficient in multitasking activities like technology, administrative, etc.
- Teacher-educators may be sent to Bal Bhavan, National school of Drama, National Film Institute to develop proficiencies in conducting co-curricular activities for their trainees.
- The teacher-educators of elementary training institutes may be drawn from primary schools having qualification of PG in school subject and B.Ed. degree.
- Induction of more faculty members in teacher training colleges.
- One of the suggestions was to prepare a cadre of teacher educators proficient in educational technology and each college of education may have such educator.
- Media-based education may be imparted to both teachers and teacher educators and CIET department may facilitate it.

E. **B.Ed. Distance Programme**: As per the commission view, B.Ed. distance mode may be continued only and only if arrangements of supervision and contact programme are appropriately arranged.

F. **Postgraduate Programme**:

- Existing post graduate programme is insufficient to cater to the needs of teacher education colleges so, there is an urgent need to revamp the programme with more robust and rigour.
- Further, the commission is of the view that the M.Ed. programme should be more specialised.
- Experiences of SCERT, NCERT, and other teacher educational bodies may be involved in developing the curriculum of M.Ed. programme.

G. **Others**:

- NCTE may prepare norms for secondary and elementary teacher training institutes, especially of 4-year integrated programmes.
- Sufficient grants may be provided to both elementary and secondary teacher training institutions for better infrastructural resources.

H. **In-Service Education**:

- It was also suggested that those students who are first class graduates and post-graduates and have aptitude for teaching, they may be given on-site training and subsequently followed completion of B.Ed. programme through correspondence course.
- In-service programmes may be based on the need analysis and survey.
- Proper planning needed for in-service education programmes.
- Resource persons may be drawn out from different fields of practitioners.
- In-service education programmes must be conducted in workshop mode.
- Mass media should be extensively used in training programmes.
- For qualitative improvement of in-service programmes, certain action may be taken like: development of study materials; inclusion of different form of

visuals and performing arts; study leave to teachers; deputation in the centres of excellence; fellowships to teachers for encouragement and motivation.
- At least once in 5 years, in-service training programme is mandated for every teacher.
- Development of school complexes/cluster schools for in-service training of teachers as an economical, efficient, and need-based in-service programmes.

Majority of the recommendations given by the Commission were far reaching for pre-service and in-service teacher training programmes and may change the course of the teacher education programme of the nation. But, within a 1-year period, the national government came up with a New Policy on Education (1986). As a result, many of the recommendations never saw the light of the day.

National Policy on Education 1986/POA 1992

The National Policy on Education (1986) and its Programme of Action (1992) was historic in many senses in the area of teacher education. As the policy envisaged the massification of education especially at lower stages of school education, therefore realising the importance of teachers and their training, it also suggested some important recommendations in the field of teacher education which had far reaching implications in the next two decades since the implementation of the epilepsy in 1986. Some of the important recommendations were as follows:

- Realising the importance of training of teachers, NPE (1986) looked both pre-service and in-service teacher education in continuum.
- Gauzing the inadequacy of number of teacher training institutions at elementary level, it recommended to open District Institutes of Education and Training (DIET) across all districts to provide pre-service and in-service training at local level along with other carrying out academic tasks as entrusted by state or central government.
- Phasing out sub-standard teacher training institutions operating at local level or converting them into DIETs.
- Secondary teacher education institutions continued to offer teacher education programmes as affiliated colleges of teacher education. Exceptional colleges of education (250) would be upgraded to Colleges of Teacher Education (CTE) to supplement the work of State Council of Educational Research and Training (SCERT).
- Some 50 university education departments would be upgraded to Institute of Advanced Studies in Education (IASE) to carry out innovation in teaching, research, and extension services. They would also act as a centre of in-service training for secondary teachers; these centres will be given autonomous status.
- Strengthening of the existing SCERTS.
- A 4-year integrated teacher education programme may be introduced after secondary stage which would be offered by comprehensive colleges.

- NPE 1986 focused on the professional development of teachers and that's why it recommended continuous in-service training of teachers. SCERTs and DIETs were given key responsibilities to not only continue with in-service training of teachers in curricular and co-curricular areas but also to carry out other works like material development, curriculum revision, research and extension services, training of personnel at state and local level working in the field of teacher education, etc.
- As, face to face mode has limitations in terms of intake capacity and resources, so open and distance learning would be used an alternative mode to train in-service teachers across India through digital medium.
- Curriculum revision of teacher education programmes is much needed as content are heavily inclined on Western ideas rather than on Indian philosophical, sociological or psychological concepts and thus did not fulfil the requirements of school education.
- Emerging areas like Educational Technology, Planning and Management may be included in the curriculum.
- Internship model of teacher training in TEIs as it is based on actual field experiences in real situations which help the pupil-teachers to develop skill by practice over the period of time.
- NCTE, established for teacher education may be conferred autonomous and statutory status so that it can act as apex agency in teacher education to improve the quality of teacher education in India. NCTE may perform following functions:

1. Laying down norms and standards of teacher education.
2. Develop curriculum for teacher education programmes.
3. Give recognition to teacher education institutions to start teacher education programmes.
4. Check the quality of teacher education programmes in the institutions and if found substandard, it may derecognised the programmes and the institutions.

NPE (1986) has changed the discourse of education in India. Policy has focused on universal provision of primary education to the children of at least 6–14 years of age. As a result, a rapid expansion of primary education was initiated post 1990s. This rapid expansion of primary education resulted in a big drive towards appointment of teachers. Since the capacity of the existing teacher education institutions was limited therefore several measures were taken up right from opening of DIETs in almost all the districts of India, upgrading of teacher training institutions to colleges of teacher education and University department were upgraded to Institutes of advanced Studies in Education. More so, open and distance learning channels were opened for teacher training so that the untrained teachers may become trained teachers.

Yashpal Committee Report (Learning Without Burden) (1993) A committee was specially constituted by MHRD-GoI, under the Chairmanship of Prof. Yashpal was Learning without Burden. The committee term of reference was (i) to advise the central government on qualitative improvement in the learning and (ii) to reduce the burden of learning among students. The committee extensively studied and observed

the learning system in schools and sensed the learning as a burden of curriculum, textbook, examination, etc. but it also looked into the aspect of process of learning and its relation with teachers and teacher training programme. The committee submitted its reports under the heading "Learning without Burden", which became popular, liked and debated across the country. Following were the major observations of the committee regarding teacher education programmes:

1. In regard to the process of learning, the Committee observed that the educational process instead of becoming inquisitive, didactic, and explorative has become monologue, textbook-focused, and examination oriented where getting marks is the sole aim of education. This makes learning boring, unpleasant and bitter experience for children. Committee had squarely blame it on the way the teacher preparation which takes place in teacher training institutions. Though, teachers are made aware during the training about the importance of broader aims of education, education as a social process and more importantly working on holistic development of children, yet majority of the teachers either never know or have not enough skills to practice in the real settings and thus completely ignores the broader aims of education.
2. Regarding the convention of teaching the text, the committee felt that **what and how** the content has been written in the textbook is normally beyond the comprehension level of the children. It is the role of the teacher which is utmost important as the teacher is the one who deciphers the meaning out of the content and makes it simple and understandable to children. But the convention is that most of the subject teachers, be it science or languages, teach the content in a mechanised and non-interactive manner. This leads to cramming of every content and the process begins from early schooling. In fact, teachers assist the child to memorise the *written truths* in the textbook by heart. Committee observed that most of the teachers took the textbook as sacrosanct and *perceived the textbook as the rigid boundary or definer of the work in the classroom* and played their role as translators of curriculum and complete it within the prescribed time. Committee further feels that most of the teachers believe that it is not within their jurisdiction to challenge the content written o\in the textbook. Committee feels that the origin of the problems lies with the kind of teacher training that has been practiced over the decades in teacher education institutions. Non-empowerment of trainee teachers to critically investigate the various existing practices of teacher-training is deeply rooted which makes the trainee teachers as well as teachers to believe that they can do little to improve the situation along with non-practicing of innovative pedagogical methods is the essence of whole problem.
3. Most of the teacher training institutions are working in isolation with the mainstream departments.
4. Running of teacher education programmes in Distance mode is a matter of concern in the field of professional training.
5. Reviewing of policies related to nursery teacher training as well as teacher training institutions and their functioning.

6. Reviewing of policies related to different teacher education programmes offering certificate, diploma and degree courses.

Based on the Observations Made by the Committee, It Gave Major Recommendations to Improve Teacher Education in India, These Were as Follows

- Voluntary organisations that are actively engaged in pedagogical innovations need to be provided academic support in the development of curriculum, textbooks including teacher training programmes.
- Poor quality of teacher preparation programmes leads to poor quality of teachers and learning in schools. Therefore, existing programme of B.Ed. should offer specialisation at various stages of school education to equip them in terms of perspectives, contexts, and build their capacity to understand child and his/her learning process.
- Duration of programme is insufficient and its length should be increased to 3–4 years after class 12 and 1 year after graduation.
- In regard to the curriculum of teacher education, there is an urgent need to restructure the curriculum of teacher education programmes with the changing needs of school education. Focus should be more on practicum and on development of critical thinking and self-learning.
- Discontinuation of teacher education programmes running through correspondence or distance mode.
- In regard to in-service training programmes, it should be institutionalised and must be focusing on professional growth of teachers.
- Envisaging in making NCTE statutory body to regulate the teacher education programmes and revamp the structure and curriculum of teacher education in the country.

National Curriculum Framework (2005): In the year 2005, a new National Curriculum Framework was prepared for school education after reviewing the existing school education curriculum. One of the committees of NCF was assigned to look into teacher education. The Committee brought out a position paper on teacher education entitled as "Teacher Education for Curriculum Renewal" exclusively focusing on the curriculum of teacher education. In the summary section, position paper highlighted three reports—Kothari Commission (1964–66), Chattopadhyay Committee Report (1985) on Teachers and Society and Yashpal Committee Report (1993) on "Learning without Burden", all these indicated the woeful condition of teacher education in India. The document in its initial pages further reiterated that any attempt to change the school education will fall flat if the epi-centre of the school education, i.e. teacher and its training are not addressed properly. The NCF (2005) document highlighted that design and practice of teacher education programmes are based on certain assumptions. It has been assumed that disciplinary

knowledge acquired during general education by the learners (pupil teachers) has no connections while they undergo professional training, which actually hinders both the personal and professional growth of the students in the field of teacher education. The major observations of NCF 2005 are as follows:

- The teacher education programmes completely ignore the language proficiency of students as it is understood that it is beyond the scope of the teacher education programme. But the fact of the matter is that language is the means of communication irrespective of the subject taught and if a student-teacher is poor in language proficiency, school and students will suffer till the last breath of the teacher in the school service.
- Another major observation of the committee was that it is assumed in teacher education programmes that practicing few isolated lessons in schools during internship would build professional competencies which is highly unlikely. NCF (2005) highlighted that various theories and ideas taught during teacher education programmes in psychology, sociology, philosophy, and other pedagogic subjects will be automatically sync with practice is far from reality. Until and unless the pupil-teachers did not reflect on these theories and ideas with the existing ground realities of school and classroom situations, it is quite unlikely that pupil-teachers could connect and validate those theories or ideas.
- Another, major shortcoming of the teacher education programme was that "given knowledge" provided in the textbooks is sacrosanct and they took it as "knowledge" which cannot be contested without critically evaluating the "given knowledge" in light of the evidence. They never thought of challenging the curriculum or syllabi as they thought this is beyond their scope of training.
- NCF (2005) further reiterated that teachers have their own set of beliefs, assumptions and biases about the children's knowledge and learning and training of teachers set aside this notion and compel them to teach in a manner which has been prescribed. That's why much of the teaching in schools is mechanised, routinized and without any thought process.
- Even the current teacher education does not provide enough scope to pupil-teachers to reflect upon their own learnings and experiences and follow the dictum of their teacher-educators. It is important that teachers of today must address the existing realities of the classrooms and assimilate and accommodate themselves according to it.
- Present teacher education must do away with norm-based activities that are being currently followed in teacher education institutions: preparing lesson plans in standardised format, rituals of fulfilling the delivery of number of lesson plans, supervision of lesson plans in isolation, conducting activities in routinized manner, etc.

NCF (2005) held that pupil-teachers without understanding the nuances of development of lesson plans are acculturated into the teaching profession in a way which neither makes them aware about the underlying assumptions of knowledge and curriculum nor they know how it affects the practices.

Based on the observations, NCF-2005 gives some important recommendations to bring improvement in teacher education programmes, which are as follows.

Major Recommendations

1. Curriculum of the teacher education should be so designed that it gives enough opportunities to pupil-teachers to make them enable to observe, listen, interact, and internalise the different social, cultural, cognitive, and emotional phenomena happening within and outside the classrooms so that they understand the learner in much better manner.
2. Learning is a participatory process, which happens in social milieu, therefore whatever theories, ideas, laws, taught in the classrooms by the teacher-educators, teacher-educators must provide enough space to teacher-trainees to construct the knowledge through the process of *absorption, observation, interaction and reflection,* so that they are able to deconstruct, reconstruct, and apply the knowledge at the grass root level.
3. Another major recommendation for the teacher education programme is that the role of the teachers has changed and they are no longer the sole custodian of knowledge transmitters. The role of the teacher in the present scenario is much bigger and challenging. Now the teacher has to convert the available information into knowledge/wisdom, through playing the roles of a facilitator of resources, manager of organising various curricular activities, a guardian and thick and thin of the students, and a counsellor to develop in the child the insights of his/her true potentials, etc.
4. Rather than putting the theoretical ideas in front of the trainee-teachers as received from the disciplines, it is important that contextualisation and implication of theories are discussed and presented which they can experience.
5. NCF (2005) highlighted that the teacher education programme must provide enough scope and opportunities to understand and sync the theoretical underpinnings with its practical aspects in the real settings. This would help the teacher-trainees to understand and create a learning environment which facilitates learning rather than succumbing to the existing environment.
6. NCF (2005) highlights the social environment of the schools which exerts tremendous influence in the learning of the students, it is important that trainee-teachers must understand the socio-cultural, economic, and political context of the learner rather than emphasising on psychological characteristics.
7. Teacher education programmes must help the teacher-trainees to engage with the various socio-political and other issues of contemporary society as it helps the teachers not only in *contextualising education but also help in deeper understanding of education and its relationship with society (p. 110).*
8. Assessment in teacher preparation is a continuous process that not only confined in few tests, assignments, or few observations but it is much wider in scope wherein one has to assess the values, behaviours, personality, emotions, for which

simply giving marks for each activity is not enough but proper assessment process is required based on formative and scaling. Multiple ways of assessment can be adopted like self-assessment, peer assessment, tutor-marked assessment, etc. The main objective of all types of assessment is to prepare a teacher who has a knowledge of self-strength, weakness, opportunities and challenges, etc., so that it can be improved upon.

NCF (2005) in its document has highlighted that the soul of teacher education programmes is the curriculum and it is the responsibility of teacher educators and trainee-teachers that knowledge embedded in the teacher education curriculum may not be taken in a routine manner. But it is important that both teacher-educators and trainee-teachers try to understand and internalise the process of teacher preparation and whatever has been internalised must be cross-validated in context to the classroom's socio-cultural and political environment. Teachers' notions about child, child learning, knowledge, etc. need to be revisited by the trainee-teachers to change the dynamics of the classrooms apart from being a constructive, critical, and reflective teacher.

National Knowledge Commission (NKC): In the year 2005, the Hon'ble Prime Minister of India constituted a committee under the Chairmanship of Prof. Sam Pitroda. It was an advisory body of the PM to give concrete suggestions to restructure the knowledge-related institutions and their infrastructure so as to make India globally competitive in a knowledge-based economy. Commission identified knowledge pentagon focusing on access to knowledge, knowledge concepts, knowledge creation, knowledge application, knowledge services. NKC had submitted its report in different areas based on the knowledge pentagon. Access to knowledge areas that were addressed were: Literacy, translation, libraries, language, networks, and portals. Areas under knowledge concepts were: School education, Higher education, Vocational education. Professional education and Open and Distance Learning. Knowledge creation consisted of Innovation & Entrepreneurship (IE), Intellectual Property Rights (IPR) and Science & Technology (ST). In knowledge application areas covered were: Agriculture, Indigenous Knowledge, Small & Medium Scale Enterprises (SMSE), whereas under knowledge services e-Governance was addressed. First report of the commission was submitted in 2007 and second report was submitted in 2008 to the nation. In the NKC report 2007, one of the sub-areas was teachers and their training. In the comprehensive report submitted to the nation, it showed the concerns about teacher training, both pre-service and in-service, with special focus on its management, quality of training and most importantly the commercialisation of teacher education. Some observations were made by the commission and gave specific recommendations to improve the situation. Few of the important observations are as follows:

- Mushrooming of teacher education colleges across the country and majority of them are sub-standard.
- No mechanism in place to regulate and monitor the growth of teacher education colleges especially the B.Ed. teacher education programme.

- Courses done through distance mode or correspondence mode lacks rigour and practical exposures.
- Role of internship in teacher education (B.Ed.) has been underplayed.
- Large number of teachers appointed in the school system without formal training actually downplay the role of pre-service teacher training.
- In regard to in-service training, commission observed that most of the training programmes are of poor quality, done in ritualistic manner, hardly any planning, almost no qualitative inputs, outdated and poorly managed.
- Large number of teachers are there in the system who did not receive any kind of in-service training.
- DIETs that have been created after NPE-1986 to fulfil the demands of teachers at local level through pre-service and in-service are poorly staffed, having poor quality of teachers having no experience of school education, and also poorly resourced, etc..
- In-service training organised by DIETs is often of poor quality and mis-managed.
- SCERTs, which act as intermediary between NCERT and DIET as well as policy-making body in state for school education are poorly staffed, often hire contractual teachers to work and that too with compromised quality.

Suggestions/Recommendations

In light of the above observations, the NKC recommended the following measures to address the issues and concerns:

1. Stringent regulations and monitoring of the teacher education institutions especially private institutions is required.
2. Restructuring and strengthening of DIETs are needed to be done in most of the states. Complete revamp of state-level teacher training institutions. Where there is no state-level teacher training institution, a state level teacher training institution may be opened. Apart from the qualified and experienced faculty members preferably having school experience may be inducted in DIETs and SCERTs. Hiring of contractual teachers in DIETs/SCERTs may be kept to a minimum.
3. University departments must maintain a symbiotic relationship with the practice teaching schools.
4. Administrative and academic hierarchy of personnel may be clearly delineated so that overlapping of working area may be avoided.
5. Teacher training is not a one-time activity but it is a sustained process that continues for lifelong. Therefore, a feedback mechanism needs to be developed or put in place to improve the classroom process and practices of trained teachers. For that, it is necessary that teachers' in-service must remain in contact with their training institutions to not only learn new pedagogical strategies but also use classroom for innovations.

6. Regarding in-service training, the commission found that most of the training programmes are woefully inadequate as per the needs of the school and children. Mostly, these programmes are forced upon by the CRC/BRC/DIETs/SCERTs on predetermined themes which have hardly classroom relevance. So, it is suggested that flexibility should be given to the teachers to choose the courses/programmes they want to participate in. These will not only motivate them to learn new things but can also easily be applied by the teachers in the classroom settings. Teachers are allowed to participate in face to face or distance mode in-service training programs/courses offered by educational agencies other than the DIETs /SCERTs subject to the quality of the programme.
7. Incentivisation of in-service programmes is to be promoted.
8. Commissions suggested that there is a need to reform the existing curriculum as it is ill-suited for the classrooms. Present classrooms are diverse in nature and the curriculum did not address this diversity. So curricular inputs from the teachers to make curriculum relevant and practical-oriented is essential.
9. Use of ICT is to be promoted in teacher-training institutions and so is the development of an Open Educational Resources (OER) for its access to prospective teachers.
10. Most of the suggestions/recommendations given by the NKC (2009) was almost the same as it was earlier recommended by many of the commissions and committees constituted before by the national government. But, if we look one major recommendation of NKC (2009), definitely it would be restructuring of SCERTs and DIETs, as commission found that DIETs and SCERTs have failed in their functions especially in regard to two aspects: quality in-service and pre-service teacher education and second lack of pedagogical innovations at their level resulting into teacher being trained in old pattern and classrooms and its environment remain passive, boring, non-interactive thus non-motivating the students to schools.

National Curriculum Framework for Teacher Education (2009): Preparing curriculum for teacher education programmes is one of the essential functions of NCTE. Since its inception, NCTE has brought out four curriculum frameworks for teacher education, first in 1978, second in 1988, third in 1998 and the fourth one in 2009. Two of the curriculum frameworks (1978 & 1988) were brought by NCTE when it was not a statutory body. But the last two curriculum frameworks brought out called Curriculum framework for Quality Education (1998) and National Curriculum Framework for Teacher Education (2009) were significant in teacher education in few senses. First, post-1993, it becomes a statutory body, so being a regulatory body, it has the mandate of maintaining high professional standards in teacher education in the country, secondly, to meet the demand and supply of teachers in the nation, third, developed norms and standards of teacher education programmes for teacher education institutions, fourth prepared model curriculum for teacher education programmes. Being an apex body of teacher education, it has to prepare curriculum keeping in mind the constitutional commitments, socio-cultural contexts of the society, contemporary national and global issues, aspiration

and expectations from school teachers, and most importantly commensurate with the educational policies hitherto being followed in the nation for educational growth and development. By and large NCTE was able to develop a curriculum for teacher education that fulfilled the demands per se-schools, society, and nation. But it is the translation of curriculum into actions that has miserably failed in the last two and half decades. Due to the massification of elementary education in the last two and half decades, the country's demand for school teachers reached at the roof-top. Meeting the rising demands of teachers, and policy of privatisation resulted in proliferation of sub-standards of TEIs resulting in production of low-quality teachers. That's why several committees constituted by the HRD ministry, like Anand Swarup Committee (2000), Sathyam Committee (2004) & Sudip Banerjee Committee (2007) all have highlighted the miserable failure of NCTE as a teacher education body. If we look at the Curriculum framework for Quality Education (1998), there too curriculum as policy documents envisioned high-quality teacher preparation in the teacher education institutions but due to loose monitoring and poor implementation of curriculum resulted into preparation of low quality of teachers. The curriculum framework of 1998 may not be able to imprint its impact on the national level due to several reasons but it was the NCFTE (2009) coupled by NCF (2005), which has initiated a discussion in the nation to go for curricular reform in teacher education especially seeing the poor quality of teacher education in India. The NCFTE (2009) was prepared in the backdrop of two significant developments that have taken place at national level: One preparation of National Curriculum Framework (2005) for school education and second Right to Education Act, 2009. Based on these two policy-level documents, teacher education in the country needs revitalisation. Eminent educationists from across India sat together and prepared a curriculum whose vision was to **Prepare Professional and Humane Teachers**.

Major Recommendations of NCFTE (2009)

- The convergence between pre-service and in-service teacher education at all stages for the professional development of teachers.
- All teacher education programmes may be treated as unitary (D.El.Ed. and B.Ed.).
- Any teacher education curriculum be prepared through discussions with multiple stakeholders and by blending theory with practice and should focus on professionalisation of teacher education.
- In regard to elementary and ECCE teacher-educators, NCFTE (2009) highlighted that there is a dearth of programmes in university departments offering post-graduate degrees in ECCE and elementary education, so generic teacher-educators are preparing these teachers. Curriculum framework stated that both ECCE and EE have "*distinct areas of knowledge with their own distinct concerns, concepts and methodological perspective" (p.10),* hence generic teacher educators are unable to do justice with it. Therefore, NCFTE (2009) recommended that for preparation of teachers in EE and ECCE, educators specialised in disciplines of sciences,

mathematics, social sciences, child development, etc. not only be utilised but also be integrated so that praxis and content must be evolved through continuous discussions, research, reflections taken place at real settings.

- Present B.Ed. programme suffers from various ailments: insular environment, academic stagnation, intellectually impoverished environment, lack of educational theorisation and hardly any scope of disciplinary and inter-disciplinary enquiry. So, in due course of time, the Secondary teacher programme may be strengthened in terms of duration, intensity, and rigor; with *deeper and more protracted engagement with school-based experience and reflective and critical engagement with theory.* (p. 11)
- For current 1-year B.Ed. programme, enhance the engagement duration of schools with more focus on reflective practices based on curricular, pedagogy, content, contemporary issue, learner and perspectives of education.
- Curriculum highlighted the similar systemic concerns in teacher education as shown by NCF (2005) and thus based on it contemporary concerns and contexts of teacher education and its curriculum must address: inclusive education, equitable and sustainable development; community knowledge in teacher education, ICT in education; health and physical education.
- Teacher education is professional programme therefore, adequate importance has to be given in the preparation of teachers so that they become reflective practitioners having positive attitudes, values and with proficiency in the skills of teaching.
- Professionally trained teachers would be prepared only when teacher-educators are professionally trained. So, teacher education institutions should give adequate attention in the preparation of professionally trained teacher-educators.
- A discipline never grows until and unless the body of its knowledge expands. Teacher education as discipline became stagnated in knowledge generation over the years because hardly any research was carried out in teacher education wherein new knowledge emerged out. In most of the cases, researches done are re-inventing the wheels which hardly contributes in the knowledge field of teacher education. In fact, most of the teacher education institutions are stifled by the affiliating university and thus reduce them to a mere puppet in the hands of the university. Curriculum framework believes that research and innovations are the pillars and outcome must be documented so that it acts as a useful body of knowledge for the practice of others.
- Curriculum framework is of the view that open and distance learning can be potentially used for continuing professional development of teachers. But ODL system should be strengthened by following a modular approach in curriculum development with a focus on independent study, usage of online interactive learning platforms, comprehensive and individualised assessment methods, and extended personal contact programmes.
- Curriculum framework highlighted that in the past regional colleges of education have started vocational teacher preparation. But due to various constraints, it was stopped. Rising demand for skilled manpower in various vocations, there is dire need to prepare children with various vocational skills. For that, a vocational

teacher in large numbers in the school system is required. So, absence of vocational teachers in schools due to non-availability of vocational teacher programmes has compounded the matter. As rightly said by NCFTE (2009) "No *system can function in the absence of the availability of the right quality of teachers and it is natural that vocational teacher preparation programmes suffered a set-back in the past and, therefore, necessary course corrections in this regard must be worked out for its success in the future*" (p. 18). So, for quality vocational teacher education programme, various vocational institutes must be consulted so that in immediate future vocational teacher education programmes may be started.

- NCFTE proposed that teacher education curriculum would be based on the three broad curricular areas: *Foundation of Education consists of Learner Studies, Contemporary Studies and Educational Studies; Curriculum and Pedagogy consists of—Curriculum Studies and Pedagogic Studies; and third internship in schools and community includes development of perspective, professional capacities, teacher sensibilities and skills. (p. 24)*
- Curriculum proposed that all the curricular areas of teacher education programme would be a blend of the theory and practice so that whatever learnt in theory that would be easily connected or located in actual situations.
- NCFTE proposed that sustainable and prolonged engagement of trainee teachers with schools and community and stretched in both the years of teacher education programme.
- Re-designing initial teacher preparation of two and four years after graduation and + 2 class respectively.
- NCFTE (2009) proposed that till such time 4-year integrated teacher education programme consists of general and professional education may be launched existing teacher education programme may be re-design the courses and programme structure as per the new curriculum.
- The new teacher education programmes must be processed based rather than product based wherein focus will be on prospective teacher as adult learner, learner autonomy, learner experiences, engagement with the conceptual and theoretical frameworks; theory-practice dialectic, reflective practices, and meaningful internships will be the centre of teacher education programme.
- NCFTE (2009) proposed to establish/develop teaching-learning centres within teacher education institution which would serve multipurpose.
- NCFTE (2009) proposed a fresh look into the assessment system being followed in teacher education institutions. Evaluation protocol would be developed which would assess prospective teacher in more comprehensive and continuous manner using both manually and digitally platforms.
- NCFTE (2009) proposed new innovative teacher centric in-service training programme addressing both content and pedagogy.
- NCFTE (2009) also proposed that rather than depending on face-to-face mode in-service training programme, teachers can professionally grow themselves using various ICT-based teacher education platforms of short and long duration, study leave, distance education and through conferences/seminars, etc.

NCFTE (2009) has touched upon almost all areas of teacher education and gives a fresh lease of life to dying teacher education, especially sub-standard teacher education programmes. What is more important is that most of the recommendations/suggestions given by the NCFTE (2009) are almost similar to what past commissions and committees have said. But the newness can be seen in terms of focusing on the area of how teacher education preparation should take place in institutions. Moreover, the Justice Verma Committee (2012) has reiterated some of the aspects of teacher preparation as recommended by NCFTE (2009). New 2-year B.Ed. Curriculum that was introduced in the year 2014 has the reflections of NCTE (2009).

Justice Verma Committee (2012): India has seen the lowest ebb in teacher education when Hon'ble Supreme Court while hearing the Special Leave Petition (SLP) filed by 291 teacher education institutions in Maharashtra against the state government decision and Hon'ble Supreme Court has said that it is a matter of "**High Public Importance"**. The Justice Verma Committee was appointed by the Ministry of HRD on the direction of Hon'ble Supreme Court to look into the cases of 291 D.Ed private institutions which were granted recognition by NCTE-WRC on 7 January 2009 (via 104–109 meeting of WRC). This act of NCTE-WRC was in complete violation to the direction issued by the HRD Ministry in 2007. According to it, if there is a difference of opinion between the State government (which is there in this case wherein state government of Maharashtra was not at all interested to grant NOC to D.Ed. programme due to limited number of employment opportunities) and the regional committee, then must refer those cases to NCTE headquarter. Public Interest Litigation (PIL) was filed by private institutions in Hon'ble High Court of Maharashtra. Hon'ble high court upholding the decision of the State government and cancelled the recognition of all 291 D.Ed institutions. After that private institutions filed a Special Leave Petition (SLP) in Hon'ble Supreme Court in 2011. Former Chief Justice of India, Justice J.S. Verma was appointed to head the commission. Commission term of reference was not only to look at all the 291 cases individually on their merit but also directed to look into the entire *gamut of issues pertaining to improving the quality of teacher education as well as improving the regulatory functions of NCTE. (p. 2)*. The commission submitted its report in 2012 in three volumes. The first volume pertains to issues and concerns to quality of teacher education and improving the regulatory framework of NCTE in improving the quality of teacher education in the country. The key observations of the commission were as follows:

1. Teacher Education Institutions of India are working in an insulated environment wherein they have no connection with the educational institutions be it schools or university departments. They are working within a closed and structured framework wherein hardly any space of intellectual discourse with the outer world. Moreover, these teacher education institutions are highly mechanical and routinized in their teacher preparation. The extent of mechanisation and routinisation can be observed from the practices they carried out during their training period and even extended while they are in regular appointment in schools. According to the Commission school teachers haven't changed in almost half a century in terms of *institutionalised intellectual isolation* and their

obsession with p*edagogy more as a technique and it has become a character of the teacher preparation which fosters normative disposition (p. 12).*

2. Most of the secondary teacher education departments are secluded from the other university departments. Also, elementary teacher education has never been within the ambit of the university education system. This compartmentalisation or segregation of teacher education has led to its dubious position in the entire education system. Moreover, it has observed that institutionalisation of practices and culture of teacher education as "training organisation" rather than "knowledge creation organisation" has led to believe that it is a shibboleth which cannot be changed.
3. Most of the teacher education curriculum does not include subject knowledge or hardly provides any opportunities to trainee-teachers to engage with subject knowledge. As a result, trainee teachers never understood how layers of subject knowledge are formed when pedagogical encounters take place which influence the learning process.
4. At elementary level teachers with senior secondary qualification are sufficient enough to teach the classes whereas in case of secondary classes, graduation in science/commerce/humanities is sufficient. This very assumption that teaching school children does not require high academic qualification is absolutely faulty. In fact, earlier commissions have recommended that best brains of the country should come in teaching profession.
5. The quality of teacher training is dismal as indicated by the fact that many of the states and central bodies when conducting STET/CTET, a very high percentage of students did not even get qualifying marks. This reflects the poor content knowledge of subject matter as well as poor quality of general education being offered in the colleges/university departments, which becomes multifold when the curriculum of teacher education ignores the subject knowledge.
6. As already stated, the curriculum of teacher education includes core subjects like philosophy of education, psychology of education and sociology of education. Most of the teacher education institutions provide theoretical knowledge to teacher trainees without making them understand how to connect it with pedagogical knowledge and apply them in classroom settings. Moreover, knowledge provided is in a piecemeal approach without connecting to the broader aims of education and disciplinary knowledge.
7. Another common observation is that in teacher education programmes, trainee-teachers are taught different methods of teaching, hardly engaging them with which content to be taught by what method. In other words, one size fits all is the mantra given to teachers irrespective of subject and content.
8. The commission observed that sound pedagogy is evolved only when trainee teachers *have knowledge-about learners, about subjects and art of integrating with socio-cultural context and philosophical basis of education and learning* (p. 14). But unfortunately, the place wherein it is to be practiced (schools) is either not practiced at all or half-heartedly practiced or done in a very ritualistic and mechanised manner without any critical and reflective thinking. Such actions always yield no result.

9. The commission observed that due to massification of elementary education and having inadequate capacity of pre-service teacher programmes, offering teacher education through distance mode would bridge the demand of professionally trained teachers in schools. But the commission observed that offering teacher education programmes through distance mode has resulted in poor quality of initial teacher preparation in the country.
10. The commission also felt that the norm of having separate and independent campus has resulted into isolation of teacher education programmes within the larger framework of university or higher education.
11. In regard to elementary education, especially in context to RTE, it has assumed a great significance. The commission felt that it has been overlooked for quite a number of reasons: non-degree, located in low profile institutions, isolated even from mainstream teacher education, rural-based, low academic qualification requirement, etc. Commission is of the view that + 2 did not equip the students enough in terms of content and pedagogical knowledge to teach elementary children.
12. Present model of teaching practice of 6–8 weeks and delivering 40 lesson plans did not equip teachers enough that they would be able to integrate the content with pedagogical knowledge and reflect upon their practices. So, rather than practicing theory or discipline-oriented teaching, prepare them to teach problem-oriented teaching. In fact, the commission suggested that present practice teaching would focus on teaching through case studies, role play, and action research. Further, emphasise on accomplishment of tasks, development of competence, creating open-ended activities, develop their own theories of knowledge, learning and learner.
13. The commission felt that most of the prospective teachers read poor-quality literature during the teacher education programme which needs to be immediately replaced with authentic reading materials and made available to the students which will enrich and broaden the horizon of knowledge. NCFTE 2009 in the documents has highlighted the way of inculcating the ideas of doing it and the institution has to follow.
14. In regard to preparation of teacher-educators, the commission felt that there is a dearth of teacher-educators in this country especially with disciplinary specialisation and stage specific. Moreover, like teacher education programmes for school, master programmes are also general in nature. According to commission, M.Ed programme "*bereft the deep engagement with socio-cultural, political and economic contexts of school education*" (p. 17)
15. Other observations about teacher-educators programme are: insufficient duration, dearth of disciplinarity faculty; less broad-based qualification, no lateral entry.
16. Commission questions the *behaviouristic and positivist* approach being used in assessment of students along with little space in evaluating attitudes, values, dispositions, belief, ideas, habits, communication skills, etc. Even the pedagogical and content knowledge are being hardly tested through other means other than conventional means.

17. Commission was of the view that post-NCF and even in NCFTE, 2009, there has been a change in the concept of teacher, teaching, learner, learning and engagement of teacher and learner with knowledge. So, while addressing these concepts, one has to reframe the conceptual and operational profile of teacher.
18. The commission reiterated that till the documentation of the report, the teacher holds the centrality in the classroom which needs to be broken and gave that centrality position to the child and all the activities are centred around the child with his//her active participation. Apart from that whatever NCF (2005) and NCFTE (2009) reiterated in its document in terms of new ideas and concepts that has to be re-kindled among teachers and teacher-educators.
19. Commission taking serious note of the studies done by NCPCR on corporal punishment, corrective measures and biases among socially-economically disadvantaged children has highlighted that structural changes-institutional and curriculum design of teacher education programmes needs radical shift.
20. Due to high demand of teachers in schools, especially after RTE, RMSA, institutional capacity of teacher education programmes may be increased and state should play a significant role in it.
21. Commission found that most of the teacher education institutions are stand-alone and they suffer from severe limitations as already mentioned, so all stand-alone institutions must be a part of the large university fraternity.
22. The commission also felt that any new teacher education institutions may be located within multidisciplinary or interdisciplinary institutions. This will break isolation, increase knowledge sharing and augment the capacities of teachers.
23. The commission felt the need for complete redesigning of existing teacher education programmes in light of NCFTE (2009) recommendations.

Recommendations of JVC-2012

Some of the major recommendations of the JVC are as follows:

- As the majority of the TEIs are in the private sector, therefore, it is recommended by the commission that government participation in the teacher education field should be increased through opening teacher education institutions and enhancing the institutional capacity of the government institution. This recommendation is more relevant in states which have high deficit of trained teachers.
- Establishment of national level testing agency for entry of entrants in teacher education programme.
- Teacher education programmes must be within the ambit of university education along with increased duration for each programmes.
- TEI must be opened in multidisciplinary institutions as it will not only remove intellectual isolation but also help them to stay connected with other disciplines and thus help in sharing of knowledge.
- All teacher education programmes must be re-designed keeping in view the curriculum framework developed by NCTE in 2009 called NCFTE (2009).

- Each TEIs must have demonstration school wherein trainee teachers would learn all the science and arts of teaching, along with opportunities to hone their skills and test their new ideas.
- Establishment of national level academic body for teacher education to reflect and analyse the existing teacher education programmes, their norms and standards, curriculum.
- An important recommendation of commission is that first degree in teacher education should be in face-to-face mode.
- Commission further recommended that institutional capacity of M.Ed programme may be enhanced and specialisation may be offered in various areas like curriculum, foundation studies, policy and finance, etc.
- For appointment of teacher-educators, the essential qualification is post graduate degree in school subjects and professional degree in teacher education or M.Phil/Ph.D in education.
- School teachers who have relevant qualification must be given experience in TEIs and vice-versa, this would not only help to share their expertise but also help in professional development.
- Every teacher education institution must regularly organise faculty development programmes for professional growth of teacher-educators.
- Enhanced investment in research in education and teacher education in particular and for that purpose create the Inter-University Centre in Teacher education.
- National and state level government must frame a policy framework for in-service education of teachers along with State Action Plan and National Action Plan for implementation.
- Strengthening of local and state level teacher training organisations and institutions for in-service training like CRC/BRC/DIETs/SCERT.
- For strengthening of secondary teacher education and in-service training in the country, a comprehensive plan may be prepared by the government and entrust CTEs/IASEs to act as training centres. For that strengthening of CTEs/IASEs may be planned.

After the report submitted in 2012, an open discussion was initiated in the country among the educationist, practitioner, policymakers, etc. to revamp the existing secondary teacher education programme along with the master programme. In the year 2014, NCTE brought out new norms, standards, qualification, curriculum, infrastructural requirements for both the programmes as recommended by JVC (2012), NCFTE (2009), NCF (2005) and other earlier commissions. Today most of the teacher education institutions whether it is University education department, standalone CTEs, affiliated TEIs, all of them are following the new norms and standards of teacher education programmes including revised curriculum as suggested by NCFTE (2009).

Conclusion

All the commissions, committees, and policy documents related to teacher education have been critically evaluated and found that the existing teacher education programmes running in the country in their times have hardly changed since the 1950s. The observations made by most of the commissions and committees and policy documents on teacher education are universal. Though with the changing time, societal needs and aspirations have changed and so has the school education, what did not change is the practices of teacher education programmes. Obviously, resistance to change has been observed by the various policy documents in the teacher education programmes, resulting in professional stagnation into teacher education not only in terms of rigour, effectiveness, intensiveness but also in terms of teacher education as discipline. The changes that have been observed in the past 60 and 70 years are more confined institutional ones and they are one-off from the gamut of teacher education institutions running in the country. Most of the recommendations given by the various policy-level documents are confined to black-box and hardly being implemented. The common observation of these documents is that if teacher education needs to be changed then systemic change is the only way through which teacher education can be redesigned and redefined.

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Chapter 6
National Curriculum Framework for Teacher Education (NCFTE): A Historical Analysis

Jasim Ahmad and Prerna Sharma

Abstract The role of teachers has been a significant contributor to the qualitative improvement of our education system. In India, considerable efforts have been placed in the regulation of teacher education specifically targeting the quality of teacher training. The challenge that is hovering over teacher education in India since its inception to present times is the quality aspect of teacher education (NCFTE, 2009). The chapter describes the emergence of NCTE as an organisation, its role and objectives towards strengthening of the teacher education system. It aims to trace the process of curriculum development for teacher education through the study of various curriculum frameworks by the National Council of Teacher Education (NCTE). It discusses the National Curriculum Framework for Teacher Education in depth regarding their recommendations, shortcomings, and implementation. The study of the development of teacher education followed by subsequent curriculum development provides instrumental support for futuristic planning. The chapter discusses in detail about various documents such as Committee Report of Experts on Teacher Education Curriculum (NCERT (1978), Teacher education curriculum - a framework. New Delhi, NCERT.), Report of Integrated Committee for Secondary Teacher Education (1981), National Commission on Teachers (1983–1985), NCFTE (NCTE (1988): National curriculum framework for teacher education, New Delhi, NCERT.), Curriculum Framework for Quality Teacher Education (National Council for Teacher Education (1998): Curriculum framework for quality teacher education, New Delhi, NCTE.) and the Report of ECCE Teacher Education Curriculum Framework. An attempt has been made to describe the emerging trends through policies like NCF-2005, NCFTE-2009, NCTE regulations (2014), and their implications to Indian teacher education. Another aspect dealt in the chapter discusses the need and challenges for NCTE in light of the current National Policy on Education 2020. A brief critique and a comparative overview of the curriculum frameworks prescribed by

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NCTE has also been attempted to uncover the future perspectives for strategising and strengthening teacher education in India.

Introduction

As a nation, we strive to enhance the productivity of our country. To focus on the most productive citizens of the country, the youth, we need to establish a firm foundation of quality education. The expectations of society and the current needs of the nation determine the components of the education system. The teachers are the ones who are entrusted with imparting quality education to the youth. The teacher stands at the centre of the system and hence, the quality of initial teacher preparation plays a huge role in building the educational foundations of our nation. Since the inception of teacher education in our country, educational reforms in consonance with the changing times have been suggested. As per Unified District Information System for Education (UDISE), there are a total number of 248.3 million students enrolled in 1.55 million schools in India. A total of 9.43 million teachers are accountable for the education of such a large population of school-going students. The National Policy on Education 2020, has set an integrated 4-year B.Ed. degree as a qualification for teaching by the year 2030. To cater to this large school-going population and impart quality education, it is imperative to invest in teacher education programmes. As per the National Council for Teacher Education (NCTE), there are a total of 16,917 teacher education institutes in India preparing teachers for school education. Mushrooming of teacher education institutions is negatively affecting the quality of teacher education and the professional development of the teachers produced (Justice Verma Committee, 2012). Pandey (2016) states the European Commission report titled "Communication on Teacher Education", which discusses the positive correlation between teacher quality and pupil attainment. There is adequate research on the significant relationship between the professional preparation of teachers and students' achievement (Goldhaber & Brewer, 2000). The relationship between teacher education and school education is symbiotic in its nature. To improve the overall quality of education, upliftment and reforms are required in the field of teacher education as well as school education. They mutually reinforce each other to perform better (Pandey, 2016). The development of teacher competencies is a process that is continual and persistent, characterised by various stages like pre-service, in-service, and induction programmes. It results in the continuous professional development of teachers and making them more skilled and competent.

As India attained independence, subsequent attempts were made to improve the quality of teacher education. Continual efforts were made towards shifting the teacher education curriculum away from the colonial legacy, towards a modernised and egalitarian view. The planning of teacher education was in alignment with the vision of national development in socio-economic and political aspects. The 5-year plans further provided a firm grounding for the planned development of teacher education (Pandey, 2016; Siddiqui, 2019). Time and again, the concern for the poor quality

of teacher education was expressed and suggestions for the same were provided by various committees and commissions like the University Education Commission (1948), Secondary Education Commission (1953). The issue faced by the country was the backlog of untrained teachers and the creation of newly trained manpower of teachers for achieving universal elementary education. The University Education Commission discussed compulsory training of all teachers and continual professional development of teachers through refresher courses. The secondary education commission stressed the establishment of teacher training colleges to improve the number of trained teachers. The National Council of Educational Research and Training (NCERT) was established in 1961 as a step towards setting up an organisation with the aim of working exclusively in the domain of education; both school and teacher education. One of the aims of establishing NCERT was to "organise pre-service and in-service training of teachers; develop and disseminate innovative educational techniques and practices; collaborate and network with state education departments, universities, NGOs and other educational institutions" (NCERT, n.d). NCERT established four regional colleges of education that aimed at working towards improving the quality and reforms in teacher education and organising in-service teacher education programmes. The Kothari Commission (1964–66) expressed the neglect faced by teacher education in the post-independence period. The correspondence course for B.Ed came into existence to deal with the backlog of untrained teachers. It stated that the poor quality of teacher education is a "source of overall deterioration in educational standards" (para 4.13, p72). The commission also observed the lack of vitality, realism and overlooking of the needs and objectives of teacher education in its curriculum and transactional processes.

Establishment and Development of National Council for Teacher Education (NCTE)

Pondering over the recommendations of Kothari Commission and thereunder Plan of Action, National Council for Teacher Education was established under NCERT as a non-statutory body in 1971. NPE 1986 had also advocated the establishment of a government-authorised institution to regulate teacher education. NCTE served only as an advisory body for all matters concerning teacher education. Its secretariat was situated at the NCERT and NCTE worked at the departmental level. Before the establishment of NCTE as a statutory body many teacher education courses were run to clear the backlog of untrained teachers like part-time and correspondence courses. As the requirement for teachers increased, mass enrolment in these courses started happening during the 80s and 90s. The quality of teacher education courses was downgraded and to regulate the poor quality of these courses, NCTE was given the status of statutory body (Siddiqui, 2019) in August 1995 through the NCTE Act 1993. NCTE establishment was seen as an initial step towards the overhauling of the complete teacher education system of India. NCTE was made to ensure that the

development of teacher education in India is developed in a planned and coordinated manner. But in the last decade, the mushrooming of private teacher education institutions with substandard quality is evident. Since its establishment, NCTE has been facilitating reforms in the curriculum for teacher education. It subsequently makes efforts to revisit the curriculum of teacher education to ensure its alignment with the reforms occurring in school education.

In the following sections of the chapter, various National Curriculum Frameworks for Teacher Education are revisited. The aim is to build a historical perspective of the evolution of the teacher education curriculum in India. The first framework for teacher education curriculum was laid out in 1978, followed by a revision in 1988. It acted as a template for restructuring the teacher education system in the country. Over time, in alignment with the national goals and objectives of teacher education, curriculum frameworks were published in the years 1988, 1998, 2009, which is currently the latest one.

Teacher Education Curriculum—A Framework (1978)

Teacher education curriculum framework (1978) was developed on the backdrop of recommendations of the school education curriculum reform (1975). The main emphasis of this curriculum framework was the development of the three components, namely, pedagogical theory, community service and work experience, and content cum methodology of school subjects and practice teaching (Rajput & Walia, 2001). The framework assigned 20% weightage to pedagogical theory, 20% weightage to working with the community whereas 60% weightage was given to practice teaching and related practical work. It promoted the integration between theory and practical courses, and this understanding must be extrapolated to pedagogical knowledge of teaching subjects. Another significant point of the framework was its task-oriented approach for teacher trainees rather than their involvement in more theoretical courses. The framework explained teacher education as an exercise of trainee teachers for developing skills that are used inside and outside the classroom. For reforms in practice teaching, it was recommended that trainee teachers undergo a series of simulations and microteaching before going to the actual classrooms. The framework suggested maintenance of continuity between the pre-service and in-service education of the teachers. For this, it suggested recognising short-term courses and correspondence-cum-contact programmes for in-service education of teachers. It emphasised organising the curriculum for different levels to maintain flexibility for horizontal and vertical mobility of the trainee teacher.

The teacher education curriculum framework (1978) was one of the first comprehensive curricula for overhauling the teacher education system. A shift from a theoretical approach to a task-based approach was evident as weightage of practice teaching and related practical work was relatively higher than the theoretical courses. The task-oriented approach also encouraged the contextual approach to teaching where trainee teachers can engage with the complexity of including real-life experiences in their

classroom interactions. This was also evident in the suggestion for the inclusion of various courses in teacher education that dealt with context and stage-specific requirements of the learner. The conceptualisation of the paper "Teacher and education in emerging Indian society" as a replacement for philosophical and sociological foundations of education can be seen as an example of a step towards a more context-specific curriculum. The relevance of the teacher education framework to the social and personal needs of the learner was in alignment with its objective of finding a "meaningful and indispensable man-making process" (Rajput & Walia, 2001). This also allowed validation and reinforcement of theoretical learning in real-life experiences. This framework was a step towards specialising teacher education for different stages of education rather than visualising it as a single entity with common goals and objectives for the whole education system. The introduction of simulated teaching and microteaching as a pre-practice for the trainee teacher before entering the actual field was a realistic step, allowing preparing and developing skills required in the future. It is envisioned that such experiences in realistic situations would facilitate the process of socialisation of teachers and minimise the time, energy and efforts spent during on-the-job training. During the internship phase student-teacher can have first-hand experience of the actual conditions prevailing in schools. This recommendation breaks the hegemony of theories in the teacher-training institutions and invites the practical aspect into the curriculum. This would not have completely given them the experience of a real classroom but surely would have been a firm foundation to develop an understanding of the basic components of classroom interaction. The concept of microteaching and simulated teaching also reflects the transition from the theoretical to the task-oriented approach of the framework. The maintenance of continuity between the pre-service and in-service education, as well as the scope for horizontal and vertical mobility, reflected the futuristic and progressive outlook of the framework. Evaluation was also given space as a significant component of the teacher education curriculum along with teaching practice. Continuous evaluation (both external and internal) was recommended for the teacher trainee. The criteria for evaluation were skill-based like originality, creativity, goal orientedness, and this feature attributes to the aim of skill development in the teacher trainees which can be utilised for activities related to teaching. The teacher trainees were suggested to be involved in evaluation work post-teaching activities. The recommendations given here in this framework have nicely summed up the true objectives of evaluation namely—(1) guidance and (2) assessment. Reforms in the examination system were recommended by the Kothari Education Commission. It suggested the implementation of the process of "continuous and comprehensive evaluation", which included the component of internal assessment that holds a significant place in the final assessment of the teacher-trainee. However, what is missing here is evaluation of the teacher trainee's growth in terms of attitude and values which could be judged by the supervisor with the help of a reflection journal being maintained by the trainee. However, everything else seems to be in accordance with what we term as an effective evaluation scheme.

NCFTE, 1978 tries to portray education as a discipline on canvas. There has been a hesitation towards stating education as a discipline due to its interdisciplinary nature. The 1978 framework makes strong attempts to project Education as a discipline so that its essence is not reduced to understanding of pedagogy. Long duration of the teacher programme will provide enough time and opportunities for self-study, reflection and building theoretical base. One can thus envisage a student pursuing his study in education as a discipline right after class 10th to the postgraduate level. This recommendation though looks ideal but its implementation has been very limited today as we find very few schools providing education as a separate course at 10th level and exposure to this discipline only at collegiate level makes for it a tough way to find due recognition.

National Curriculum Framework for Teacher Education (1988)

National policy on education (1986) as its backdrop, NCFTE was framed in 1988 for strengthening and restructuring of every stage of the teacher education programme. It also took into account the feedback regarding the implementation of the previous curriculum framework of 1978. Despite recommendations of the previous policies, the admission to various teacher education programmes were done only after 10 years of schooling. It was NCFTE 1988 that brought about acceptance towards 12 years of initial schooling as the basic qualification for enrolling in an elementary education programme. Earlier, teachers were being trained after 10 years/11 years of schooling. After the $10 + 2 + 3$ pattern of education has come into existence, the need for necessary changes in teacher education consent has been actually felt, especially for the secondary and higher secondary stages. The framework was directed towards crucial changes that are feasible in the content and the process of teacher education both in the areas of pre-service and in-service teacher education, through agencies like state education departments and universities. It worked on reviewing the status of existing teacher education programmes for teachers at the higher secondary stage. There was more emphasis on the vocationalisation of courses at the senior secondary stage. It recommended designing special training programmes for teachers pertaining to both academic as well as vocational streams. Though recommendations were made, well-designed separate programmes for pre-service and in-service teachers for senior secondary stage were not concretised. It lacked well-defined schemes for the preparation of teachers at the vocational stream. The curriculum framework insisted on accommodating the developments in the areas of knowledge and technology in the teacher education system.

The framework suggested the organisation of the teacher education programmes under three major components; foundation courses, stage-relevant specialisation, and the practicum. The foundation courses mainly consisted of philosophical and sociological foundations of Education with special emphasis on the educational transition

from school to university. It also included Educational Psychology including guidance and counselling, psychology of learner with special emphasis on adolescents and their learning. The foundation courses also included Indian education with special reference to problems at the stage such as vocational education and Family Life Education. The stage-relevant specialisation stressed on the general competencies and skills of a teacher and included methodology of teaching subjects. Familiarity with recent trends in the subject, techniques of evaluation, vocational implications of the subject, use of electronic and conventional teaching aids, and use of appropriate software in the subject. A balance between the theory and practicum was maintained, and 50% weightage was given to both. Practicum included practice teaching and practical work. Practice teaching included teaching 30–40 lessons at secondary stage classes supervised by subject teacher educator, participation in school activities and observation of lessons taught by regular teachers and peers. Practical work included the field work at schools and with the community.

NCFTE 1988 provided the curricular design in which latest trends in education were incorporated and issues relevant to Indian context like vocationalisation, family life education were included. Since we were progressing towards a world that was technologically advanced hence equipping teachers with technology in education was the need of hour. Until the recent past, there was no compulsory/optional subject as Educational Technology (ET) or Information and Communication Technology (ICT) in teacher education courses. Although, NCFTE 1988, in the curricular design of B.Ed programme has mentioned about the use of appropriate software in the subject and use of electronic and conventional teaching aids etc. But these are just touched upon the surface and a comprehensive understanding is missing. The document initiated the transformation in the role of teachers and described them as competent professionals who are an "….effective communicator, designer and user of learning resources, a learning facilitator and an active participant in the community life" (NCFTE, 1988). The acceptance of 12 years of schooling can be described as an achievement (Rajput & Walia, 2001). Another departure that was evident in this framework was its shift towards learner-centred approach and raised the need to integrate theory with practice. The integration of work experience reflects the significance attributed to the role of community in any teacher preparation course. It also conceptualised teaching as an interactive process using technology and other learning resources. The framework like its precedents see pre-service and in-service education as a part of a continuum and this results in attributing professional status to the teacher education courses. Evaluation of teacher trainees was suggested to be a more continuous and comprehensive process in this framework for tracing the growth of the teacher trainee. As this framework broke apart the isolation between different stages and allowed vertical and horizontal mobility for the teachers (Pandey, 2016).

Curriculum Framework for Quality Teacher Education (1998)

The rationale for the development of the curriculum framework for quality teacher education (1998) was to ensure the creation of autonomy for institutions and organisations that hold responsibility for developing the curriculum in teacher education. The curriculum framework preceded the school curriculum framework (2000) by NCERT. It was a response to the changing realities of the world and the need for skills, competencies, and innovative pedagogical approaches. It stated that the 10 + 2 + 3 pattern of education demanded teachers be trained in new pedagogy and evaluation methods. This document by NCTE abides by commitment, competence, and performance as fundamental principles for the designing of teacher training curricula. The commission called teachers the leaders in building national integrity and social cohesion. The quality of teacher education influences the quality of education imparted to the learners who are the future of our nation. The framework intended to generate fresh thinking and action. It emphasises the significance of contextualisation in terms of regional needs of the community, building culture-inclusive pedagogy, and building teachers who are lifelong learners. It is stressed in the curriculum that at every educational stage "adequate attention must be given to reinforcing the strength of the Indian nation which is characterised by unity in diversity" (Rajput, 1996). The curriculum is rooted in Indian culture and the realities of India. Thus, it emphasises the teacher education system that has interaction between the training institution and the community.

At the early childhood stage, the framework suggests preparing teachers that are sensitised to perspectives of child development. The theory component focused on early childhood care, the issues and the problems related to it. To ensure that teachers are well versed with children's perspectives, child psychology and learning during early years were given space in the curricula. It suggested activities for the overall development of the child including aspects like habit formation, sensory motor training, health, hygiene, etc. It focused on building an understanding of the issues and concerns of early childhood care concerning Indian reality and perspectives. The practicum includes devising activities for the children to develop the psychic, cognitive, psychomotor and emotional aspects.

Keeping in mind the backdrop of universal primary education at the elementary stage, two separate teacher education programmes were suggested; one for the primary stage and the other for the elementary stage. This was emphasised for accommodating the understanding of gradual transition in the development of the thought process of a child. The theoretical component included the foundation courses of education but a new addition was made regarding the education of children with special needs (CWSN). The practical component included practice teaching with the observation of model lessons and practical work that included community-student interaction and action research. The framework stated practice teaching as a weak link of curriculum transaction and several pedagogical approaches like lecture, discussion, cooperative study and project method were suggested.

At the secondary stage, the framework suggested the addition of some optional courses along with the foundation courses. Practice teaching included pedagogical analysis of two school teaching subjects with practice teaching and observation of model lessons. The practical work should include school experiences, fieldwork, work experience, and action research. It suggests maintaining an interdisciplinary approach in teaching. It suggested an increase in the duration of B.Ed. programme to two years as it would provide a strong foundation for pursuing the M.Ed. course.

At the senior secondary level, the framework designed two separate courses, vocational and academic. In the academic stream, along with foundation courses as a part of theory, the framework included the provision of an optional course with topics related to the current issues of the society like environmental education, comparative education, language education, etc. Weightage was given to technological aspects even in the practical work by including components like designing instructional technology. Lesson planning was suggested to be less structured, to provide flexibility and autonomy to the pupil-teachers in the lesson delivery process. The evaluation was suggested to be continuous as well as annual, internal as well as external. In the vocational stream, the theory included the foundation courses as well as subjects of vocational relevance like entrepreneurship management, marketing, and advertising. On the parallel lines, the practical coursework included apprenticeship, financial management, and execution of projects.

The framework emphasised the importance of in-service education. It stated that in-service education becomes crucial due to the explosion of knowledge and changing educational and social realities. It gave three models for in-service education of teachers; face-to-face institutional model, cascade model, and media-based distance education model. This framework identified the need for training of teacher educators and the focus was on inculcating competencies and commitment towards their work. The in-service programmes were aimed to make the teachers competent in classroom interactions and field-related activities. This framework also introduced the idea of teacher preparation for alternative systems like non-formal education, adult education, and distance education. The education for the students with special needs was dealt in detail wherein it acknowledges the uniqueness of each learner. The curriculum was like the general teacher education programme but each component was seen from the lens of special education.

The framework for quality teacher education (1998) emphasised the importance of linking the curriculum with the needs of the curriculum and contextualising it to fit-in the requirements of the constantly evolving society. The framework spelt out separate courses for each educational stage. It gave importance to vocational education at the senior secondary level, which makes it a better choice for changing needs of the community. The framework stresses on a higher level of interaction between the community and institution. This will not only help in contextualisation but also in building the learners' relationship with society leading to social cohesion. This would also decrease the isolation of teacher training institutions within the society. The focus in this framework was also on the development of competencies and skills in our trainee teachers as well as the in-service teachers. The focus here was more on capacity building for efficiently playing the role of a teacher. For

in-service teachers, this provision develops traits of lifelong learning that make them better equipped in the future. One thing that sets this framework apart is the ample space given to transaction modalities. Emphasis is laid on aspects of teaching like "how to teach", "why to teach", and "what to teach". The suggestion of an interdisciplinary approach to teaching reflects the future-oriented approach of this framework. This framework endorses a 2-year time frame of teacher preparation programme for elementary and secondary school teachers. This was an important step as it gave more time for trainee teachers to engage with education as a discipline and develop the requisite competencies and pedagogical content knowledge (PCK). The introduction of the concept of pedagogical analysis and action research also seem very futuristic in its approach as trainee teachers are expected to introduce new concepts, pedagogical innovations and activities, and at the same time remove the redundant ones. This framework has thrown light on several issues of significance like the need of inculcation of constitutional values in our future teachers who have "high value of competence, commitment and a willingness to perform well" (Rajput & Walia, 2001). The education of learners of special needs and alternative systems like adult education and physical education was introduced in this framework which indeed was a very inclusive step. In alignment with the preceding frameworks of 1978 and 1998, this also reconceptualised the core papers that reflected its constantly evolving dynamic approach.

National Curriculum Framework (NCF-2005) and Teacher Education

NCF (2005) visioned teachers as professionals who function in a larger context and have to be responsive towards the changes in society, be sensitised towards the social perspective of education, and operate keeping in mind the global and national goals and concerns. A **position paper on teacher education** was published, which stressed the paradigm shift required in the area of teacher education. It recognised that during the last three decades very few concrete steps have been taken for the qualitative improvement of teacher education. It also condemned the dilution of the "identity of teacher" as a professional due to the large-scale recruitment of "para teachers" within the formal school system. It also established that the issue of linking the pre-service and in-service education has been left unaddressed due to which the real needs of teachers face neglect. This resulted in the intellectual isolation of elementary teachers from centres of higher learning. The position paper on NCF questions the previous assumptions that consider disciplinary knowledge as "given" that is acquired by trainees through general education and is deemed independent of professional pedagogical training.

The vision of NCF for teacher education was more towards sensitisation to the demands of the new age school system. It discussed preparing teachers to be a facilitator in teaching-learning situations. Teachers were viewed as ones who encourage and support learners to "discover their talent, to realise their physical and intellectual potential to the fullest, to develop character and desirable social and human values to function as a responsible citizen" (NCERT, 2005). Other than the teacher's role in the classroom, the position paper also aimed at building a community of teachers who make a conscious effort towards the renewal of school curriculum to make it relevant to the contemporary needs of the society in light of transforming goals of national development.

To fulfil all the expectations, it listed a few features for the new teacher education programmes. These are:

(a) To view learning as a self-learning participatory process occurring in the wider context, crossing the boundaries of a classroom.
(b) To view a teacher as a facilitator, creating and learning experiences rather than merely as a source of knowledge.
(c) To view knowledge as something that can be constructed through experiences, discussion, comparison, exploration, interaction, etc.
(d) To establish a meaningful linkage between pre-service and in-service teacher education.

NCF also challenges the assumption that repeated teaching of isolated lessons is a sufficient condition for professional training of a teacher and proposes designing courses that generate understanding of linkages between theoretical aspects of teaching and the practical world of a child's experiences. It brought attention to the required fundamental change in the approach to teacher education. It distinctly discusses a paradigm shift in the approach to teacher education. It emphasised bringing "learner and learning" to the central focus of teacher education, where a learner is viewed as a vibrant participant and along with the teacher, they are co-constructing knowledge through meaningful interaction with the content. Rather than being prescriptive, learning is seen as a facilitating activity for the teacher. On similar lines to the previous policies, NCF also recognised a teacher as a professional where necessary knowledge and values like attitude, enthusiasm, commitment are given importance. With the media explosion in the previous decades, this framework did not view teachers as the "source of knowledge". It stressed the shift from "theory to practice" to "practice to theorisation" by attempting to view from the perspective of education as a discipline and its implication to education in our context. To keep up with technological advancement, emphasis was also laid on ICT for the creation of learning resources, problem-solving situations, and virtually exposing our teachers to effective learning conditions. Overall, the position paper on teacher education by

NCF (2005) gave some key recommendations concerning the structural and operational mechanism for addressing issues of teacher education. The paper took into account the transformation required in the school curriculum while formulating the key recommendations for overhauling the teacher education programmes.

National Curriculum Framework for Teacher Education: Towards Preparing Professional and Humane Teacher (2009)

NCFTE 2009 was announced after the National Curriculum Framework (2005) and coincided with the legislation "Rights of Children for Free and Compulsory Education Act (2009)". NCFTE dealt with the context, concerns and vision of teacher education in India. The design of this framework has included the recent concerns of the school curriculum and the expected transactional modalities. The framework focused on issues ranging from inclusive education, sustainable development, gender perspective to ICT and e-learning in school. Due to the increase in school enrolment after the development of Indian primary education, the demand for teachers increased. This led to an unprecedented rise in the number of teacher training institutions in the country. NCTE joined hands with NAAC and the distance education council. NCFTE established that the pre-service and in-service training of teachers at the school level was insufficiently managed. The national advisory committee on learning without burden (1993) brought about the requirement for teachers' involvement in curriculum and textbook preparation. NCFTE (2009) took into cognisance of the recommendation of this advisory committee during the preparation of the curriculum framework.

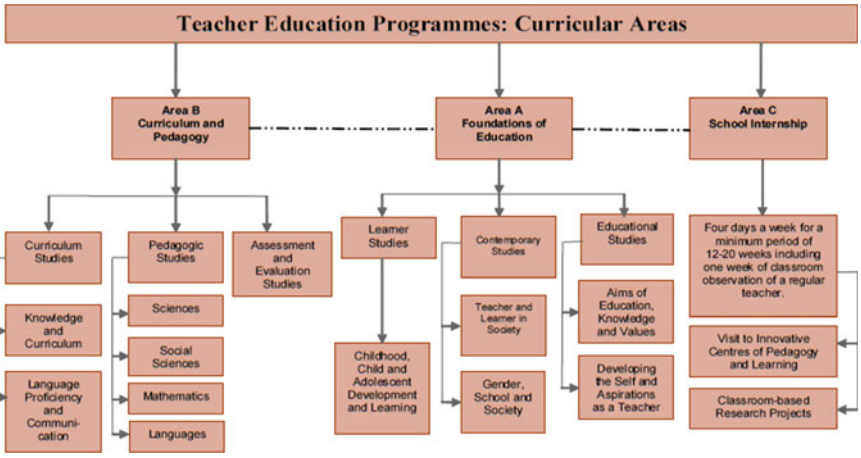
The framework identified the urgent need to enhance the entry qualification and duration of teacher training programmes. It stated that prospective teachers that come through + 2 entry are not well equipped with pedagogic and disciplinary knowledge. It recommended developing a longer duration programme and intensifying the existing programme. The framework also acknowledged that elementary education and early childhood education have been neglected. The framework discussed critically reviewing the secondary teacher education system especially during the times of commercialisation and privatisation. It recommended a 2-year B.Ed. programme with deeper engagement in school experience and giving weightage to components like reflection and critical engagement with theory. The framework identified some contemporary concerns like inclusive education for the disabled, socially and economically deprived children, and children of varied needs. Another concern stated was the development of sensitivity towards equitable and sustainable development. It emphasised the role of community knowledge in education that would help in contextualisation and developing teaching-learning resources appropriate to the context. It acknowledged the growing demand of ICT in education but it states that it must be critically useful for learning and professional development of teachers.

The framework envisioned teacher education as integrative and elective that is free from any psychological or philosophical ideology. Teacher education is visioned to be liberal and humanistic in its approach. The teaching is expected to be based on dialogical explorations. It discusses unfolding the potential of social context for refreshing and revitalisation of the teaching-learning process. The framework acknowledged the existence of diversity in learning style, context, and social condition. It brings reflective practice as the central focus of the teacher education programme. The framework aims at preparing teachers who are sensitive to learners and the society. The teachers must view the learner as the co-constructor of knowledge and organise learner-centred activities that are holistic and integrated. The framework does not limit the teacher to classroom activities and recommends them to engage critically with the curriculum, textbook and syllabi. Evaluation is seen as a significant component in this framework. It discusses the comprehensive evaluation of attitudes, values, dispositions along with conceptual and pedagogical aspects by implementing both qualitative and quantitative tools.

The framework conceived a 2-year common core curriculum across stages under three curricular areas;

(a) Foundations of education that included learner studies, contemporary studies and educational studies.
(b) Curriculum and pedagogic studies.
(c) School Internship.

A detailed flowchart from the NCFTE (2009) document is given below:



Source NCFTE (2009), NCTE, GOI.

Foundations of Education: A teacher needs to engage with children of all age groups from a plethora of contexts thus it becomes imperative for the teacher to engage with the study of adolescence in contemporary India. It recommends the observation and study of young children to acknowledge the continual process of development. To develop teachers who are learner sensitive, the beginning teachers need to enquire into the process of children's thinking and learning. With growing age, children must be made aware of concepts of healthy and hygienic living. The curriculum recommends in-built units of study in each of the theories in the form of projects or assignments related to the above-stated areas regarding learner, adolescence and related social constructs. The practicum coursework enables the back-and-forth movement between the practical (field) and the theoretical world. Groups and individual field-based assignments must enable the pupil teachers to engage with the children of different ages and contexts.

In the course of contemporary studies, the prospective teachers are suggested to engage with the issues of contemporary Indian society. This would develop the capability of prospective teachers to contextualise education. The inclusion of gender studies in teacher education programmes will equip the prospective teachers to develop an understanding of gender as a social construct and analyse their position with respect to gender in society.

Curriculum and Pedagogic studies: It dealt with developing comprehensive understanding of various aspects of curriculum and knowledge along with the concept of assessment and evaluation. The pedagogic studies included subject-specific specialisation.

School Internship: In the past, this area has faced severe backlash in terms of its isolation from the real field experience. NCFTE 2009 tried to cater to the issues, concerns and pedagogical shifts envisioned in National Curriculum Framework 2005 and Right of Children for free and Compulsory Education 2009. Also, concerning the previous isolated approach NCFTE tried to organise and re-establish the school internship component as an "organic and integrated whole" (Pandey, 2016). The framework identified that school internship has interconnection with theory and praxis along with various institutional experiences. It recommended the following components to be a part of school internship programme:

(a) Classroom-based research projects.
(b) Increased duration of school internship, 6–10 weeks for 2-year and 15–20 weeks for 4-year programme. A week of observation of a regular classroom with a regular teacher was also recommended.
(c) Creation of resources for teaching–learning process in the school for internship.
(d) Visit to innovative centres of pedagogy and learning.

The aim of these components was a back-and-forth movement between theory and praxis thereby giving scope to the interns to plan and reflect on their classroom practices according to the theoretical foundations. NCTE through NCFTE (2009) has helped the Indian teacher education institutions to revise and reform teacher education (Siddiqui, 2019), and it was through the recommendations of the Justice Verma Committee in 2012 that re-emphasised the implementation of NCFTE to uplift the standard of teacher education curriculum.

In 2014, NCTE revised regulations and norms for teacher education programmes. The integrated B.Sc. B.Ed. were brought to mainstream teacher education and the norms and standards for such programmes were laid for the very first time. The duration of the existing B.Ed. and M.Ed. programmes was raised to 2 years. A huge rise in the proportion of privately owned teacher education institutions was found by the NCTE review committee in 2016. National Curriculum Framework (2005) had also identified the mismatch between the attempts for reforms occurring in school education and the teacher education system.

Teacher Education Curriculum Framework in the Light of the National Education Policy (2020)

The National Education Policy (2020) has been implemented after a long gap of 34 years (after the last NEP-1986), and it identifies teachers as agents for shaping the future of the country. Based on the recommendations made by NEP 2020, a new curriculum framework for teacher education will be drafted for guiding various aspects of pre-service and in-service teacher education. NEP places teachers at the focus of the reforms in the teacher education system wherein it will work on the revival of the professional status of the teaching and the teachers. In keeping up with the dynamic knowledge of current times, teacher preparation requires multidisciplinary perspective and holistic understanding. NEP 2020 recommends that teacher education is gradually moved into multidisciplinary colleges and universities. This will break away the stringent isolation of the teacher education institutions. Such multidisciplinary higher education institutions will offer a 4-year integrated B.Ed programme that would become the minimum degree qualification for school teachers. Separate 2-year and 1-year B.Ed. programmes would be run for students who have already attained their undergraduate degree.

NEP 2020 also suggests building a network between the higher education institution and government and private schools that enhances the involvement of trainee teachers in community and vocational education along with school internship. This is a fresh step as teacher trainees tend to suffer due to lack of coordination between schools and the higher education institution.

The NEP 2020 also establishes provision for stringent action against dysfunctional and sub-standard teacher education institutions by 2030 but does not provide enough detailing on the regulatory system for the restoration of integrity and credibility, which will be seen when it is fully implemented and becomes operationalised.

At the ground level, NEP 2020 discusses providing freedom and autonomy to the teacher for the transaction of the curriculum. It is evident that it emphasises the transaction of curriculum as a significant contributor in the process of learning. But at the same time, exercising this autonomy by the teacher is questionable due to factors like large strength of students, non-academic work and limited resources in the classroom. Continual professional development is also an aspect catered by the NEP 2020. It recommends in-service training programmes through online portals like SWAYAM/ DIKSHA Platform.

The National Policy on Education intends to take us from a local to global platform, which creates a need to prepare teachers who are capable of dealing with the knowledge explosion of the 2030s to 2050s. The teacher education curriculum framework needs to cut across disciplines to cater this dimension. It needs to empower prospective teachers to be inclusive in their approach and have a multidisciplinary perspective for building citizens who are holistic in their approach.

Comparative Overview of Different Curriculum Frameworks for Teacher Education in India

Theme	TECF-1978	NCFTE-1988	CFQTE-1998	NCFTE-2009
Backdrop	School education curriculum reform (1975)	National Policy on Education (1986)	Address changes due to globalisation, privatisation and communication technology	National Curriculum Framework (2005) and Rights of children for compulsory education (2009)
Pedagogical shift	Theoretical to task-oriented approach, Contextual approach	Learner centred approach	Interdisciplinary approach reinforcing technological advances and indigenous identity	Holistic and integrated approach

(continued)

(continued)

Theme	TECF-1978	NCFTE-1988	CFQTE-1998	NCFTE-2009
Reforms in preservice teacher education (a) Curricular reforms (b) Practice-teaching (c) Duration (d) Evaluation	Semester-approach was advocated for the curricula (Pandey, 2011) Separate curriculum for each educational stage Development of three components: i. Pedagogical theory ii. Community service and work experience iii. Content cum methodology of school subjects and practice teaching 20% weightage to pedagogical theory, 20% to community service and 60% weightage to practice teaching Introduction of microteaching and simulated teaching Teaching through block-teaching method (Pandey, 2016) One year Continuous evaluation based on skill-based criteria like originality, creativity, goal orientedness Guidance and assessment as the main objectives of evaluation	Organised under 3 major components: i. Foundation courses ii. Stage-relevant specialisation iii. The practicum (including practice teaching and practical work) 50% weightage to both theory and practicum Included teaching 30–40 lessons under teacher educator's supervision and classroom observation of regular teachers 1-year Continuous and comprehensive focusing on the growth of the teacher trainee	At early childhood stage: (a) Theory focussed on child psychology and early childhood care (b) Practicum: Devising activities aiming at psychic, cognitive, psychomotor and emotional aspects of the child At elementary stage: (a) Theory included foundations of education and education of children with special needs (b) Practicum: Observation of model lessons, community student interaction and action research At secondary stage: i. Academic stream: Foundation courses and optional courses related to current issues. Weightage is given to technological aspects in practicum ii. Vocational stream: Foundation courses and subjects of vocational relevance. Practicum included courses like apprenticeship, financial management, etc Observation of model lessons and action research projects Suggested pedagogical approaches like lecture, discussion, cooperative study and project method Advocated 2-year Continuous as well as annual, and internal as well as external	Two-year common core curricula across stages under three curricular areas: i. Foundations of education that included learner studies, contemporary studies and educational studies ii. Curriculum studies, pedagogic studies and assessment and evaluation studies iii. School internship including classroom observations, visit of innovative centres of pedagogy and learning. It also included classroom-based research projects Increased duration of school internship and a week of classroom observation of regular teachers Creation of resources for teaching-learning process and visit to innovative centres of pedagogy and learning Two year Comprehensive evaluation of attitude, value, dispositions along with conceptual and pedagogical aspects

Conclusion

The comparative analysis of the various teacher education curriculum frameworks in India reflects that the backdrop has transformed over the years but the foci has

always been the school education system and its needs as per the evolving school curriculum across the globe. The efforts of curriculum planners to keep up with the changing times are evident through this analysis. A pedagogical shift has been seen from a theoretical and task-based approach towards a more holistic and integrated approach. There has been an emphasis on the inclusion of technology but at the same time efforts for maintaining the indigenous identity are there. There have been constant efforts to bridge the demarcation between the theory and praxis but, many years have elapsed since the last curriculum framework and the areas like curriculum, pedagogy and research are in dire need of overhauling. The evaluation structure in the teacher education system has seen a shift from skill-based assessment with guidance as an objective towards a more comprehensive evaluation aiming to build reflective practitioners.

Over time, the curriculum frameworks have attempted to put forward teacher education as a discipline. Pre-service teacher education has evolved from being a mere training exercise to preparing professional humane teachers who are agents of social change and contribute to nation building. Aiming to translate the vision of teacher education as stated in the most recent policy on education, NEP 2020, there is a need to instil professionalism at each stage of teacher preparation for achieving quality education.

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Part II
Quality Concerns

Chapter 7
Decline in Quality Schooling and Quality Teacher Education: Concerns and Way-Outs

Sajid Jamal

Abstract We are living in the knowledge society and information age of twenty-first century. In a knowledge-based society, a nation's capacity to increase its competitiveness in a globalised world depends heavily on the quality of its educational system. Further, it is supposed to enhance the quality of life by providing more employment opportunities for individuals in the society. Though the quality schooling in itself includes many components, the quality teachers are undoubtedly the most important because teachers are the heart of the education system. However, the quality teachers will not be produced unless and until we have a sound and quality system of teacher education. There are many surveys and reports that prove that there is a declining trend of quality schooling in India and that teacher education is trying hard to find the way out. The present chapter highlights these facts, discusses the reasons for concerns of quality teacher education and suggests the way out for this gloomy situation.

Keywords Quality concerns · Quality education · Teacher education

Introduction

Before proceeding further, the readers are requested to consider the following facts:

- India will be the most populous country of the world by 2050.
- Every fourth worker will be an Indian by 2025.
- Top 20 jobs of today did not exist 20 years ago.
- We have the most youthful population in the world and it is the most important resource.
- We are facing the fourth industrial revolution which is related to Artificial Intelligence (AI).

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- In the era of AI, learning does not stop with the school bell and it further necessitates quality schooling.

Moreover, while writing this article, the author went through the draft NEP (2020) and in that it was found that the word "quality" has appeared 84 times, which shows the quality consciousness of today's students, parents, and policymakers. Further, it is observed that in most of the webinars on NEP (2020), the speakers were found quite worried about the poor quality of schooling and they repeatedly focused on the importance of quality schooling. After listening to the opinions of those learned scholars, it was felt and our mind got engrossed in thinking about what makes quality schooling. The pondering over the issues of what quality schooling means, we concluded that it contains the following components:

- quality students,
- quality curriculum,
- quality teachers (in terms of qualifications, training, potential and competence),
- quality infrastructural facilities (building, library resources, provision of guidance and counselling, ICT facilities and internet connectivity) and
- quality research and development.

Declining Trends of Quality Schooling

There are a lot of hushed voices from many quarters of the society regarding the poor quality of schooling in India which are well supported by the surveys conducted in the country by the various organisations. Important among them are placed below for the quick perusal:

- The Annual Status of Education Report (Rural) 2012, released by NGO Pratham based on a survey conducted in rural schools across 567 districts and covering approximately 6 lakh children ages 3–16, indicates that the basic learning levels of children in rural India have declined; in 2012, only 5 of 10 students in Class V in rural India could solve a simple arithmetic problem (NDTV, 2013).
- The research goes on to note that there has been a significant drop in the reading ability of children, particularly in government schools, and that an increasing number of parents in rural India appear to be relying on private schools for their children's education. In 2011, students enrolled in Classes I through VIII made up 45% of the total student body at private institutions.
- Another survey conducted by KPMG (2017) across various states says that the percentage of schools having electricity was 60.8% whereas the percentage of schools having ICT facilities in the year 2017 was 14.1%.
- The survey further says that the percentage of school teachers professionally qualified was 81.2% whereas Teacher Pupil Ratio (TPR) in elementary and secondary schools having 30 or <30 was 70.4%.

- KPMG (2017) survey also tells a very interesting fact that in the year 2017 percentage of correct response on learning outcomes in languages, mathematics and EVS for class V students was 54.7%, whereas for class VIII, it was 44.6%. The dropout rate at secondary level in 2017 was 17.1%, GER for Higher Education was 25.8% and average unemployability rate per thousand persons (male and female) was 63.5%.
- KPMG (2017) further opines that the challenges in achieving SDG-4 by 2030 will be teacher quality, their professional development, and their thrusts on outcomes focus/accountability as well as insufficient funds for improving quality and enhancing the employability of the students passed out after class 12th.
- According to Kingdon (2017), enrolment in government schools across 20 Indian states declined by 13 million between 2010 and 2011 and 2015–16, while enrolment in private schools increased by 17.5 million. Over a 5-year period, public school enrolment fell from 122 to 108 on average, while private school enrolment grew from 202 to 208. (Hindustan Times, April 17, 2017).
- According to Kingdon (2017), when compared to public schools, many parents believe their children will have a better educational experience if they attend a private school. The "better environment for learning" is a major factor in why 58.7% of Indians send their children to private schools for primary education. Despite spending $17.7 billion on the Sarva Shiksha Abhiyan (SSA), educational quality declined between 2009 and 2014.

Quality Teachers

Out of all the above-mentioned factors related to quality schooling, the quality teachers are most important because they are the heart of the school system. The quality of teaching in schools is one key factor in determining whether a country can increase its competitiveness in the globalised world or not. It is crucial to the realisation of the aims of social cohesion and economic advancement since it has a direct impact on students' levels of accomplishment and their learning experiences. According to research (Rivkin et al., 2005), the quality of the school's teaching staff is the single most important explanation for student success. Student academic performance has been shown to improve after teachers have participated in in-service training programmes, confirming the positive impacts of such training (Angrist and Levy, 2001).

In this context, it would not be out of place to mention here that the report "India: Education for All—Towards Quality with Equity" (2014) prepared by NUEPA and released by MHRD, Government of India says that improving teachers' quality and performance is essential to developing high-quality education systems. In light of these realities, the report goes on to say that the XII FYP plans to implement a number of initiatives aimed at (i) addressing teacher shortages, particularly through new and rigorous approaches to imparting teaching certifications, (ii) improving the quality of pre-service teacher education, (iii) improving the quality of in-service teacher

professional development and options for their upward career mobility with special attention to para-teachers in many States, (iv) enhancing the status of teaching as a profession and improving teachers' motivation to teach well and their accountability for ensuring learning outcomes, and (v) improving the quality of teacher educators.

The XII FYP also included plans to initiate a National Mission on Teachers and Teaching. The major objectives of the said National Mission included: (i) enhancing the availability of teachers to meet the demands of the education systems; (ii) ensuring that all the existing corps of teachers are provided with continuing professional development opportunities and that teachers are supported with congenial working conditions to ensure high levels of teacher performance; (iii) development of guidelines/frameworks for the improvement of the existing institutional structures and processes involved in the continuing professional development of teachers; (iv) formulating strategies for attracting and retaining talented youth into the teaching profession and significantly raising the social and professional status of teachers; and (v) enhancing quality of teaching, teacher education and training programmes and promoting the use of technology for qualitative improvement of teacher education. The National Mission was about to focus on teacher-related issues in a holistic manner, dealing with the whole sector of education without fragmenting the programmes based on levels and sub-sectors such as school education, higher education, and technical education etc.

In the context of the quality of teachers, it may be understood that we have to prepare the youths of the twenty-first century. Life is heavily dominated by artificial intelligence, techno savvy youths, growing expectations of parents, cut throat competition in all fields and unbearable pressure…… It is all part of the twenty-first century. This vehemently requires a change in the approach of teachers. If we compare the anatomy of the classrooms, then we'll find that today's classrooms are much different from that of the twentieth century classroom.

Anatomy of 20th century classroom

- Time bound
- Teacher centred
- Fixed placed

Anatomy of twenty-first century classroom

- MASP Pro
- Digital Infrastructure
- ERP (Enterprise Resource Planning)
- Parent portal

Further, it is said that the following 4Cs are necessary for twenty-first century

- Critical thinking
- Communication
- Collaboration
- Creativity

And, in turn it requires the changed role of teachers in the twenty-first century. A twenty-first century teacher should be a:

- planner for twenty-first century career
- resource provider
- digital instructor for different ways of learning
- learning facilitator
- technology lover for learning
- digital learner for the lifetime and
- genuine predictor

This change in the role of the teachers demands that they should be professionally prepared and efficiently trained and this responsibility mainly lies on the shoulders of teacher education institutions.

Teacher Education

Having spent almost two decades as a teacher educator, the author would like to place the following reasons for the dissatisfactory role of teacher education in India:

1. **Lack of quality entrants**: Almost all the entrance tests conducted for giving admission in B.Ed. Courses are concerned with judging the IQ, teaching aptitude, GS and some type of mastery over the subject, but they are not concerned with the quality, creativity and commitment of the prospective teachers. Even in some states in India formal interviews are not conducted before giving the admission to the candidates to check the communication skills and confidence of the candidates. After the tests, the trainees who rush to the teacher education institutions usually have very poor knowledge about their subject matter. Even some of the trainees have never seen the laboratories and libraries of the colleges from which they have graduated. Even a few had not seen Vernier Callipers, Screw Gauge, Dissection Box, Microscope, and they do not know how to hold the holder of the test tube when it is heated up. Their motivation level is very low and they are not concerned about how to become a good and effective teacher rather to get a job anyhow. Most of them are not teachers by choice rather by chance. All these factors tend to lower the quality of pre-service teacher education programmes in India.
2. **Lack of quality teacher educators**: If we expect quality prospective teachers then it is necessary that we must have quality teacher educators as well. These teacher educators must be well equipped to shoulder the various responsibilities of the teacher education institutions/departments. Basically, the teacher educators must possess two major qualities—one related with the mastery of the original subject in which they have master's degree and second is associated with the master degree in education. They must update themselves by attending various seminars, symposia, workshops and conferences, deliver quality lectures, give

good demonstration lessons and should be able to organise simulated lessons and micro-teaching lessons.

But, in reality, though the government colleges and universities follow these norms, the situation is somersaulted in private colleges. What to talk of additional qualifications, even if they do not fulfil the main qualifications prescribed by NCTE. The management of the institution gives reason for the shortage of competent staff and on this ground, they are appointed. Even in universities and good colleges, teachers usually teach one paper for 10, 20 years and do not bring any change in their lectures with a course of time. In some cases, it has been observed that they are afraid of giving demonstration lessons and show no interest in organising simulated lessons and micro-teaching lessons. Besides the above-mentioned factors, the teacher educators do not have much chance to grow themselves academically. All these tend to lower the quality of teacher education in the country.

3. **Poor working environment and infrastructural facilities**: Most of the teacher education institutions managed or funded by the government are in poor conditions because of the resource crunch. Almost 85–87% of the budget goes for the salary of the teaching and non-teaching staff and a little is left for spending on creating infrastructural resources. The building, classrooms, lecture theatres, laboratories, libraries, canteen, toilets, etc. are in very poor conditions. Even in a few institutions black board and chalk are not available, what to talk of LCD Projector, OHP, and various other audio-visual systems. Even if few institutions have these instruments, its maintenance is not done in a proper way. Most of the instruments are there in the store room only because when they are needed to run, there is no electricity back-up. Further, the teacher education institutions are plagued by politics, internal conflicts, poor colleague relations, mismanagement etc. which hamper in creating a healthy organisational culture and proper learning environment. So far as the institutions managed by private bodies are concerned, only few have the requisite facilities and rest are in very poor conditions. All these tend to lower the quality of teacher education institutions because nowadays it is thought that unless and until we shall have good physical infrastructure, the proper working environment will not be created and we will not be able to produce quality.
4. **Poor curriculum design and implementation**: A sizable part of the curriculum of pre-service teachers training programme is dominated by theory and weightage to the practical is given less. Although NCTE 2014 regulations have issued certain guidelines in this regard, most of the institutions fulfil only formality in the name of practical. It is agreed that psychology practical, ICT skills, soft skills, managing stress, doing SWOTA, handling language lab, ET lab etc. are very important for the prospective teachers, but neither they are serious for them nor those who are imparting teacher education. Moreover, it is reported that the timetable of the teachers training institutions is hectic, boring, monotonous, and sedentary and in isolation with the curriculum prescribed and with the practising

schools. It does not take care of the individual differences. It is very much traditional and there is no creativity in it. All these factors tend to lower the quality of teacher education in India.

5. **Lack of training in teaching through interactive methods**: This is also one of the reasons for poor quality teacher education in India. Usually, the student teachers do not understand the monotonous lectures delivered by the teacher educators. It is very unfortunate that those prospective teachers who are going to teach through activities, play way, project, laboratory, heuristic, and problem-solving method get only theoretical and formal ideas about these methods and no practical knowledge or demonstration about these. Even in the practice teaching phase also they are required to teach through lecture or lecture demonstration method only.
6. **Lack of training in high moral values**: Teachers are supposed to be nation builders and custodians to the traditions of the society. In India, history has witnessed that teachers have sacrificed themselves for the common good of the country and people. They were a lot committed to their cause and showed honesty and integrity for the purpose. These qualities are essential for today's teachers also, though society has changed itself a lot, their preliminary roles have been the same. The professional and organisational commitment among the teachers is formed during their rigorous training and a lot of values and skills as well are inculcated among themselves because only then they will be able to inculcate values in their students. But unfortunately training in moral values is absent from the curriculum of teacher education institutions that is why it is reported that teachers do not want to teach, do not perform other duties diligently, search short cuts for success and show no commitment to the cause of teaching.
7. **Lack of proper guidance and counselling**: Guidance and counselling are supposed to be one of the important tasks of the prospective teachers in today's world. In some universities and teacher training institutions, it is taught as an optional paper. But usually most of the students do not prefer it and become unaware of how to perform one of the most important tasks of the teachers. Even in those institutions where it is taught, the curriculum is stereotyped and centred about the theoretical aspects and provides no chance for practical activities to the prospective teachers.
8. **Lack of quality research and development**: This is one of the important aspects missing from the teacher education institutions. In university departments, researches must be conducted about how to make the quality of teachers' training better, how the teachers must be made more committed to their jobs and institutes in which they are working, how to deliver quality in classrooms through teaching and how to meet the expectations, aspirations, and challenges of the country through education. But unfortunately, there is a dearth of research of this type in India. Though some university departments of teacher education are conducting few researches, they are not up to the mark and merely copy of those researches conducted in the west. We should realise that our conditions are different, our problems are different and our society is different, hence instead

of following west we should conduct our own research to meet the challenges of our people. This is one of the reasons for the poor quality of teacher education in our country.

9. **Lack of fair and transparent assessment and evaluation system**: In most of the teacher education institutions, it has been observed that summative assessment still prevails and if there is a little provision of formative assessment then it is not fair and it is plagued by a lot of subjectivity, i.e. a lot of inflated marks are awarded to the inferior candidates. Even the summative assessment suffers from low reliability, validity and objectivity. Furthermore, compulsory attendance is a very important component of quality teacher education because when prospective teachers will be given tough and rigorous practices only then seriousness for the purpose will be developed and a kind of commitment for the teaching profession will be formed. In this context, NCTE has made a provision of biometric attendance but still it has not been implemented and in most of the teacher education institutions compulsory attendance is only on the paper, even those students who hardly come to attend the classes or participate in practice teaching and internship, they are also allowed to appear in the exams, they get degrees, get the job as well and in long run do injustice with the teaching profession and the society.
10. **Isolation from the other departments of the university/college, schools and society**: Education and society are closely interrelated and they influence each other. Same is the case with teacher education. The needs, aspirations, expectations and demands of the society must be reflected in the various programmes of the teacher education institutions. It will be possible only when the community and society will come close to each other. Besides this, prospective teachers belong to various disciplines (for example, Physics, Chemistry, Zoology, English, History, Commerce, etc.), so it will be better if the teacher education departments develop a close relationship with other departments so that the prospective teachers may be aware about the latest developments in their original disciplines. But if we see the reality, we will find that these institutions are oblivious and engaged in their own activities. In fact, they are isolated with society and with various other departments of the university/colleges. Also, due to various reasons, there is a lack of coordination and cooperation of the teacher education institutions with the practicing schools. This is one of the reasons for lowering the quality of teacher education in our country.

The Way Out

Having discussed the problems and quality concerns of school education as well as teacher education, here are some of the probable ways out which may be adopted to tackle the problem and to bring quality in education at schools as well as in teacher education.

1. **Attracting quality entrants to teacher education programmes and training them in the best possible manner**: According to a report titled "India: Education for All—Towards Quality with Equity", compiled by the National Urban and Environmental Policy Analysis Council (NUEPA) and published by the Ministry of Human Resource Development (MHRD) (2014), the greatest obstacles to improving teacher quality are recruiting and retaining qualified individuals and providing them with sufficient resources to succeed in the classroom. Challenges in this area of education include: recruiting teachers who are socially closer to children and professionally prepared to meet the learning needs of diverse groups of learners; and implementing institutional mechanisms to overcome the shortage of professionally qualified teachers without jeopardising the long-term goals of a sustained cadre of professionally qualified teachers.

   In this context though, it is very humiliating but the author of this paper wants to report here very humbly that as a member of the interview board to give admission in class VI and IX of AMU Schools in various academic sessions, he asked to every student what they are aspiring for in the future and none preferred teaching as a career. It simply implies that today's youth are not interested in opting teaching as a career and they much prefer engineering, medical, finance, sells, marketing, mass communication and other attractive and glamorous professions. It also implies that the prospective teachers are not popped out easily and most of the teachers to whom we are preparing in teacher education institutions have come there as a chance and not by choice. To cope up with this situation, following points are being suggested:

   - The young students in schools should be motivated to choose teaching as a career by their school teachers themselves. The teachers should present themselves in the schools as the role models of their students. They should diligently select some bright students, groom them, train them and give the responsibility of teaching to their peers at a young age and this in turn will develop some interests among them to be a teacher in the future.
   - Further, a quality entrance test based on teaching aptitude, social and emotional intelligence, creative potentials and commitment to the teaching profession if conducted followed by personality tests and interviews in a fair, just and transparent manner, can bring some warmth even in the frostier environment. In this context, whatever methods are being adopted in the foreign countries to attract calibre pupils to the teaching profession, we may also try in our own country based on their suitability for our cause.

- At this juncture, it would not be out of place to mention here that after NCTE Regulations, 2014 the duration of B.Ed. and M.Ed. Courses in the country have been increased from 1 to 2 years and most of the teacher educators opine that it has further stopped the entry of calibre pupils in pre-service teacher education programmes. While it is clearly mentioned in NEP 2020 that from 2030 4-year integrated teacher education programmes will be enforced in the country and after passing class 12th only those will enter the teaching profession who really want to become teachers, it is a debatable issue. The integrated programmes already run in the country by various institutions do not give us hopeful results. But I think this system should be given a chance and after 5 years it should be reviewed and continued only if it is giving the desired results.
- The admitted teacher trainees must go through specific tests in the teacher education colleges/departments to check their mastery over the subject matter of their graduation/post-graduation. If it is found that they are poor in the subject matter, then they must be instructed to go through the books seriously before the practice teaching. Since nowadays we are offering a 2-year B.Ed. course, and the trainees are offered two teaching subjects, hence focusing on one teaching subject every year will be a nice idea. How much mastery they have developed over the content may be checked if we give some weightage of that in the assessment.
- Overall, all the prospective teachers must be motivated by the teacher educators, principals and head of the departments directly or indirectly to be committed to the teaching profession. They must be told that they are about to shape the destiny of India in the classrooms and it is not an ordinary job. Their morale must be kept high by citing good and inspiring examples of the great teachers from the pages of history who have changed the whole human race by their actions and teachings. The teacher educators who teach the compulsory papers of philosophical foundations of education, sociological foundations of education and educational psychology of B.Ed. might be of great importance in this connection. Besides, various scholarships must be started to help the needy as well as meritorious students. For this, the help of various industrialists, philanthropists and influential persons of the community may be taken.

2. **Attracting quality teacher educators and ensuring their proper professional growth**: Every educationist of experience is familiar with the reality that preparation of quality teachers depends on quality teacher educators. However, there are so many hurdles in attracting good people towards the teacher education institutions and those should be dealt with accordingly. We should consider the following points seriously:

   - At this stage in order to become a teacher educator one has to invest nine (five in obtaining Master's degree in some school subject and 4 years in obtaining Master's degree in Education) precious years of his/her career. In comparison to this in other disciplines one has to invest only five years which is one of the

important hurdles in attracting calibre teacher educators. Hence, in order to overcome this, some quick promotion schemes for newly appointed teacher educators should be started in consultation with NCTE and UGC.

- Visiting professor schemes and adjunct professor schemes to take the services of good scholars from other fields should be immediately implemented in teacher education institutions. The retired teachers who are in good health may also be invited to deliver the lectures and to share their experiences with the prospective teachers.
- After the new API rules set by UGC for the promotion, flunking in publications will be unthinkable to the teacher educators that is why many of them are busy in writing frivolous research papers and sub-standard quality articles to increase API scores. It has been observed by the author of this paper that some of the teacher educators even do not attend the seminars and conferences rather they manage the certificates with the help of their friends or through paying the high registration fee to the organisers. This should be strictly checked by the Principals/HODs/Deans, etc. The teacher educators should be relieved to attend the seminars/conferences only after a thorough scrutiny. Fixing the limit of the number of seminars per academic year will also be a good idea. They must be issued guidelines regarding the quality of research work and attending various seminars, symposia, workshops and conferences for seeking knowledge and not only for API scores.
- They must also be instructed to give good demonstration lessons and organise micro-teaching lessons and simulated lessons. The good researchers must be invited to deliver the extension lectures as it will boost up the teacher educators and students to conduct research. In addition to this, the regular and permanent teacher educators need to be given the instruction to increase their professional competence while staying connected to the latest advancements in the subject in which they specialise. The teacher educators are required to be proactive and should play the following role besides performing their regular duties:

  As a Catalyst—to provoke the prospective teachers to perform their duties diligently.
  As a Leader—having a vision to contribute towards the material and spiritual advancement of the country.
  As a Mentor—to groom the potential of the prospective teachers.
  As a Counsellor—to teach the prospective teachers how they themselves will provide counselling to their students in the classrooms.
  As a Creator—of various knowledge resources particularly Open Educational Resources (OERs).

3. **Creating good work environment by ensuring sufficient infrastructural facilities**: To deal with the insufficient infrastructural facilities and poor work environment in the teacher education institutions, the following points are suggested:

   - To meet the challenge of poor infrastructure the teacher education institutions should start the scheme of public-private partnership (PPP) after getting the nod of the state governments and UGC. Rashtriya Uchhtar Shiksha Abhiyan (RUSA) funds may also be utilised in this direction.
   - The meagre funds released by the UGC and state governments for development should be used judiciously and wisely.
   - The help of the community may also be taken by providing various consultancy services.
   - Alumni associations may be formed immediately and made active for fundraising.
   - Shramdaan weeks should be organised twice in an academic year and this should be utilised for cleanliness drives in the teacher education institutions.

   These efforts in turn lead to a good work culture and environment in the institutions.
4. **Reforming and enriching the curriculum of teacher education institutions**: In 2014, the Indian government's Ministry of Human Resource Development (MHRD) released a report with the title "India: Education for All—Towards Quality with Equity". The report focuses an emphasis on revising the curriculum for and the process of initial preparation of teachers in order to achieve the goal of preparing teachers for diverse surroundings (rural and distant areas), as well as addressing diversity inside the classroom. The report focuses a particular emphasis on the need to meet the educational requirements of children who originate from socially and economically disadvantaged communities. It is strongly suggested that the following steps be taken with reference to this matter:

   (i) Although the curriculum of teacher education courses is not designed at institutional level but implementation on that is done at institutional level. The principals and teachers must ensure that the practical works are conducted seriously and all the students are participating in it. Working with the community must be organised in such a way that it should benefit the community maximum. The prospective teachers must be instructed to participate in the literacy march, cleanliness drive, save the water and protect the environment programmes etc. Practice teaching and internship must be made most fruitful to the prospective teachers in which they get the maximum exposure to different types of teaching methodology, various problems related with students and teachers and how to run the institutions successfully. Besides that when the curriculum is designed at centre level it must be ensured that the prospective teachers are not given only theoretical knowledge rather they are practically exposed to

the various situations and theoretical knowledge must be oriented in such a way to equip the prospective teachers to face employment needs.

(ii) The timetable of the teacher education institutions should match with the curriculum prescribed and that of the practising schools. There should be efficiency so as time and energy is concerned and creativity as well in it. It should cater to the needs of individual differences and should have proper recess also. There must be one or two library periods, zero period and one or two periods for games, sports and yoga per week.

(iii) In the teacher education institution, the teacher educators must be encouraged to follow a two-way communication process. They are required to be creative thinkers who can come up with novel teaching strategies that can help the student-teachers have more fulfilling educational experiences. They should realise the purpose of their communication, the mental set up and educational qualifications of their students and accordingly communicate. They should come fully prepared and should encourage the students to ask relevant questions. Instead of relying on only one method of teaching, i.e. lecture method they should use interactive methods like discussion and debate and use the latest instruments of technology, if available in their institutions. And to make the teaching-learning process an active intellectual engagement that clearly transmits information and competence, they should make intense use of case studies and current projects.

(iv) In teacher education institutions, training in higher moral values must be given directly or indirectly to the prospective teachers so that they can perform the social responsibilities of a teacher by inspiring and motivating the students to become responsible and productive citizens of the country. The teacher educators must themselves talk about values and give good examples by their behaviour. Psychologists, sociologists, and people belonging to non-governmental organisations who are working in the field of value education must be invited to these institutions to share their experiences with the prospective teachers and talk about values.

(v) Guidance and counselling must be a compulsory paper in the curriculum of teacher education courses. Trained counsellors must be invited to deliver extension lectures to acquaint the prospective teachers with various problems associated with guidance and counselling. They must be provided a chance to work practically besides having theoretical knowledge.

(vi) Online teaching is of immense importance nowadays. The COVID-19 pandemic has taught us that sooner or later we have to shift from the traditional teaching methods to online mode. Hence, besides training the prospective teachers in traditional methods and approaches of teaching, they should be well trained in how to take online classes smoothly and demonstration lessons should be organised for them.

(vii) In all teacher education courses, the exams must be conducted fairly and transparently. Those students who use unfair means and approach the examiners for favour, their admission must be cancelled. Not only this,

the invigilators in the examination hall must be instructed to be strict and vigilant and do their duties honestly and in an unbiased manner. Technological support may also be taken in this context, if required. Compulsory attendance is very necessary to improve the quality of teacher education in our country. Though the NCTE has fixed the criteria of 80% attendance in theory paper and 90% attendance in practical but there are only very few institutions that follow this rule. NCTE must be strict in this direction and should derecognise those institutions that give relaxation to the students in attendance. Besides, in all types of internal evaluation the attendance should be given the proper weightage and in the annual functions etc. the regular students must be rewarded.

(viii) The isolation of teacher education institutions from the other departments and from the society needs to be checked. Collaboration with the other departments needs to be encouraged by inviting the teachers from various departments to deliver extension lectures on various relevant topics and inviting them in various discussions, exhibitions, poster presentations and debates etc. The institutions must get closer to the society by community work. The influential persons of the society and people belonging to the non-governmental organisations must be invited to the institutions for discussions to know exactly what the society expects from these institutions and accordingly the plans should be formulated. The prospective teachers must be encouraged to visit the nearby schools regularly and observe what exactly is happening in schools so that there may be no gap in theoretical knowledge and reality.

(ix) The report "India: Education for All—Towards Quality with Equity" (2014) by MHRD focuses on ensuring that in-service teachers have adequate access to subject-specific education through regular refresher courses, that periodic in-service education is complemented with sustained on-site academic support to teachers, and that in-service education programmes address the particular needs and classroom concerns of teachers. On the similar lines, NEP (2020) also emphasises at least 50 h training to in-service teachers every year for their professional growth and this provides a nice opportunity for teacher education institutions to do that. They may develop close rapport with DIETs, SCERTs etc. and should offer their services for in-service teachers' training.

5. **Conducting quality research on the issues related to teachers**: In teacher education institutions, the teacher educators should not be smug by teaching only, rather they must be encouraged to conduct quality research that can improve the teaching-learning situation and create new knowledge in the domain. The following points may be worth mentioning in this direction:

   (i) Research should be conducted on the topics related to teachers like how to minimise teacher stress, how to increase the job satisfaction level of the teachers, what measures should be taken to increase the professional and organisational commitment level of teachers and how to increase teacher

morale. Further, which portions of the ancient educational system are relevant to the modern educational system and how we can implement them, how the theory of constructivism may be used successfully to make the teaching-learning process more effective etc. should also be thoroughly researched.

(ii) Since quality schooling and attracting the calibre pupil to the teaching profession are broad areas, hence trans-disciplinary research should also be encouraged. The Scheme for Trans-disciplinary Research for India's Developing Economy (STRIDE) launched by UGC may be of immense importance in this connection and funds may be obtained from that scheme to conduct trans-disciplinary research.

(iii) The necessary infrastructure must be provided to the teacher educators for quality research and those teacher educators who are engaged in research must be given advantage in appointment, promotions etc. Some financial incentives must also be given to them in terms of salary increment. Research allowance must be given to them in the same way as transport allowance and house rent allowance etc.

Conclusion

NEP (2020) clearly says in its vision document, "The vision of the policy is to instil among the learners a deep-rooted pride in being Indian, not only in thought, but also in spirit, intellect, and deeds, as well as to develop knowledge, skills, values and dispositions that support responsible commitment to human rights, sustainable development and living, and global well-being, thereby reflecting a truly global citizen". In order to realise this dream of NEP (2020), quality schooling is the need of the hour and India can ill afford to neglect its importance for its growing economy and to get a respectable place among the important nations of the world. In a nutshell, all those factors which are responsible for quality schooling must be given due importance but attracting, training, grooming, recruiting, and retaining calibre people to the teaching profession and providing them a congenial environment in which they can perform well is most important. For this, an excellent teacher education programme in the country is the prerequisite.

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Chapter 8
Research in Teacher Education: Trends, Status, and Prospects

Jessy Abraham

Abstract This chapter gives an overview of the research in teacher education. There are many meta-analyses on the status of the teaching profession and how it has changed over time globally. There has been decline followed by marginal improvements in the status of teachers. The studies on teachers' perception on professionalism and accountability and the effect of the pandemic on the teaching profession are also reported at all levels. The number of studies in the area of teacher education has increased tremendously. There are exploratory studies, experimental studies, qualitative descriptive studies, case studies and studies on sociological and psychological dimensions of teacher education. But very few studies on philosophical areas. Action research in teacher education addressing classroom inquiry, data-based decision-making has also been conducted. Gamification is a very popular intervention strategy because of increased acceptance among the learners. The collaborative teaching environment, use of social media in teaching, use of video and other ICT tools such as virtual reality, augmented reality, and mixed reality in instruction are topics covered by many researchers.

Keywords Experimental research · Exploratory research · Qualitative research · Quantitative research · Case Study · Gamification

Introduction

The teacher education programmes at different levels of schooling such as preprimary education, primary education, secondary education, and also professional development programmes for school make use of research experiences to enhance the understanding of the field of education, to tackle various issues and concerns of the stakeholders and to develop or evolve the discipline of education further through innovative practices. The aim and objective of most of these research studies are for improving

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the quality of education, improving teacher effectiveness, optimising the learning, equipping teachers according to the changing needs, to provide support to special learners or other demands of the system or environment. There are many factors that contributed to increased number of researches in teacher education. There are policy documents that might lead to changed scenarios and also increased opportunities for research, which makes the field very vast. Recent developments in technology have also led to many innovations and research in that area.

The following research questions were taken up for guiding the writing of the chapter in a logical way so that it could lead to an insight about this field of research.

1. What is the general research trend of teacher education?
2. What are the most recent issues and challenges in teacher education?

These questions are answered below by studying a sample of resources.

There are research studies conducted for the award of the Ph.D., Master's degree, action research by practitioners, research projects funded by various agencies and independent research conducted by researchers in teacher education which could be many lakhs. A search in Google or Yahoo with keywords research in teacher education results in lakhs of articles. Databases like Jstor, research gate, shodhganga, or Umich Library yield thousands of researches in teacher education. This chapter is just touching some pertinent aspects to provide a glimpse of the research trends and prospects in the area.

1. **Research at the Ph.D. level**: The search for research in teacher education in India in the portal of *shodhganga* yielded the following results (Table 8.1), which may be visited on the site: data. https://shodhganga.inflibnet.ac.in/simple-search?query=teacher+education&go=.

The increased number of research at the Ph.D. level in the decade 2010–2019 is an indicator of increased Gross Enrolment Ratio (GER) at the higher education level and the motivation to do research in the learners of teacher education due to various reasons. The increased research stipend by higher education institutions and a more

Table 8.1 Number of Ph.D. research in teacher education (*Source* Shodhganga)

Year	Number of Ph.D. awarded	%
2020–2022	3759	6.51
2010–2019	36,212	62.75
2000–2009	11,274	19.54
1990–1999	3887	6.74
1980–1989	1769	3.07
1970–1979	594	1.03
1960–1969	170	0.29
1950–1959	34	0.06
1940–1949	7	0.01
1930–1939	1	0.00

conducive environment for research as a consequence of various policy initiatives are prominent reasons in this regard.

As it is evident from the table, the number of researches in teacher education has increased over the years. The method of conducting the research now is predominantly qualitative or mixed research. More interventions or experimental studies are also taken up by the researchers. There are many studies at the secondary and elementary level of teacher education as compared to the Early Childhood Care and Education (foundation stage).

Studies on Teacher Education Faculty

Benedict et al. (2011) conducted a study entitled "Faculty needs, doctoral preparation, and the future of teacher preparation programmes in the education of deaf and hard of hearing students at American institutions of higher education (IHEs)". The major findings indicated shortage due to faculty retirements and doctoral-level graduates. Most faculty listed literacy and language as a primary research interest as well as programme strength. The teaching ability was more desirable than the ability to generate new knowledge through research.

Meta-analysis in Teacher Education

There are many meta-analysis studies on teacher education that dealt with effect of teachers' gender, marital status and marital status, while some others studied the nature of research, topics covered in science education (Tsai & Lydia Wen, 2005; Cavas, 2015).

Çoğaltay (2015) in the *meta-analysis* of research studies in teacher education studied the influence of teacher's gender and marital status on their perception of organisational commitment in Turkey. The influence of gender on the perception of organisational commitment was studied in 30 independent studies with a sample group of 11,724 participants while another 17 independent research studies with a sample group of 5,467 explored the relation of marital status and organisational commitment. The results showed that teachers' organisational commitment is not affected by their gender or marital status.

In another *meta study from Turkey intended* to determine the effect of variables like gender, marital status, subject matter, school type, educational status, and seniority on teacher burnout. There were 100 studies for gender, 73 for marital status, 17 for subject matter, 15 for school type, 34 for educational status, and 54 for seniority variables. The main outcome of the study revealed that gender, marital status, subject matter and educational status had a very low effect on teacher burnout, and the effect was very low or low for seniority and school type. Besides, the variance among the

studies for study type, grade level, and region moderators did not differ significantly apart from gender variables (Yorulmaz & Altinkurt, 2018).

A total of 8023 (eight thousand twenty three) research articles published by International Journal of Science Education, Science Education, and Journal of Research in Science Teaching from 1998 to 2002 were analysed and it was found that researchers from the US, the UK, Australia, and Canada, contributed to a majority of the publications. It was also found that most of the articles were empirical studies (83.6–90.9%), while theoretical and review papers were rarely presented in the journals. In *Teacher Education*, research was predominantly on topics like Preservice and continuing professional development of teachers; teacher education programmes and policy forms of knowledge representation (e.g. metaphors, images, etc.). There was an emphasis on field experience and issues related to teacher education, research-backed strategies on pedagogical knowledge and pedagogical content knowledge; and a focus on leadership; induction; exemplary teachers; teacher thinking; teaching behaviours and strategies were emerging trends (Tsai & Lydia Wen, 2005).

Cavas (2015) found out from the analysis of 5 volumes and 20 issues of Science Education International (SEI) between 2011 and 2015 covering 281 authors from 43 different countries that Turkey was dominant, followed by the USA and Australia. The study found that topics of the research articles were more predominantly on teacher education, learning conception and learning context. In teacher education, 29 articles covered action research, pre-service and continuing professional development of teachers; field experience and issues related to teacher education reform.

Teacher Professionalisation

The status of teaching as a profession or a semi-profession and teacher professionalisation was subject of research in elementary and secondary teachers in United States (Ingersoll, 1997; Ingersoll & Collins, 2018).

According to Ingersoll and Collins (2018), when the focus was on the following five aspects such as (1) credentials—use of professional criteria for hiring candidates for teaching job, (2) induction—provision of mentoring programmes for beginning teachers, (3) professional development—the extent of participation and the provision of financial support for teachers' continuing education, (4) power—the extent of influence on school policymaking, the degree of individual autonomy given to teachers for planning and teaching in their classrooms, and (5) compensation—the salary structure. The four aspects that stood out for their association with commitment were the reported amounts of teacher classroom autonomy, faculty policymaking influence, the assistance for new teachers and teachers' maximum end-of-career salaries. The first aspect was left out. Another finding was that across the population of elementary and secondary schools, those with higher levels in each of these characteristics studied had higher levels of teacher commitment, when other variables were controlled.

Blevins, Salinas, and Blevins (2013) examined the intellectual biography of preservice teachers: Elements of "critical" teacher knowledge qualitatively and finding indicate that the preservice teachers should be given opportunity to reflect on the experiences they bring with them.

Teachers' Perception Regarding the Career

Teacher's perception regarding their career, different characteristics of practices, across contexts, cultures were studied in Australia, Europe, and Latin America. Linda et al. (2021) examined teachers' approaches to their professional definition and their agency to enact this, against a theoretically validated framework.

Elassy (2023) explored the effect of authentic leadership of 135 resident supervisors in enhancing 319 teachers' classroom management in a mixed method of research. The major findings indicated that a high extent of practising authentic leadership by resident supervisors helped to enhance their teachers' classroom management.

Sabatini et al. (2000) conducted a national survey to improve understanding of the current cadre of "professional" adult educators using 31-item questionnaire, called the Professional Development Kit Needs Assessment and obtained 423 usable responses (response rate, 18%). The findings revealed that the primary purpose of professional development activities should be to provide teachers with classroom techniques that they could use immediately and instructional skills, to knowledge of teaching adults, how people learn in content areas; learn to incorporate technology into instruction; learn how other teachers conduct their practice; and improve classroom.

Nilson, Gustafssen, and Blomeke (2016) examined five studies in which different aspects of relations between teacher quality, instructional quality and learning outcomes across countries, considering context characteristics such as school climate based on the 2007 and 2011 TIMSS (Trends in Mathematics and Science Study) cycles research data.

Nilsen et al. (2018) examined TIMSS 2015 data from the Nordic countries (grades 4 and 8) found that teachers' instructional quality had a positive and significant relation to student achievement and motivation in both grades. The teacher competences such as general pedagogical aspects (i.e. collaboration, self-efficacy in pedagogical content knowledge, and teacher motivation) had positive and significant relations to student outcomes in both grades, while teachers' formal qualifications were more important in grade 8 than in grade 4.

Blömeke, Nilsen, and Scherer (2021) examined large-scale data from the 48 countries participating in the Teaching and Learning International Survey (TALIS) 2018 ($N = 154{,}959$) in order to study perception of teachers regarding school innovativeness and the findings supported the hypothesis that innovative schools were perceived to be better in terms of teacher collaboration and exchange, job satisfaction and cognitive activation of students.

Duan et al. (2022) studied the "Effect of Best Possible Self Writing Activities on Preservice Teachers' Attitudes towards Technology Integration" in a quasi-experimental study and found no statistically significant difference between the control and treatment groups, though the treatment with intervention using many writing activities using technology had more positive trends (significant increase in positive attitudes) than the control group (no significant increase in positive attitudes) even under the negative influence of pandemic (Duan et al., 2022).

Chusni and Zakwandi (2018) conducted research on the Physics Education Study Program. The study found seven major dimensions with 406 research theses written by the prospective teachers within the 5 years period (2013–2017) shown in Table 8.2.

There are studies on teacher education concerned with recruitment and retention of educators (Allen et al., 2019; Gallant & Riley, 2017) as well as the well-being of teachers and school leaders (Beausaert et al., 2016; McCallum & Price, 2015). Though Governments have recognised the great importance of teaching as a profession and teaching is "fulfilling and rewarding for educators" (Wernet, 2019, p. 1), there are many reports of a looming teacher shortage, particularly for teachers in specialised areas and in rural and remote schools, and "alarming" rates of teacher attrition (Allen et al., 2019, p. 99).

There are six key findings of this research:

1. Teachers' job satisfaction (56%).
2. Teachers are not feeling appreciated.
3. Teacher workload.
4. Teachers are concerned about health, safety, and well-being.
5. Teaching as challenging job (Allen et al., 2019).

Table 8.2 Areas of research by prospective teachers of Physics

Serial number	Research areas	Number of studies	Percent
1	Learning evaluation	18	4.56
2	Learning media	36	9.11
3	Teaching method	18	4.56
4	Teaching model	276	69.87
5	Approach	15	3.80
6	Learning material	19	4.81
7	Strategy	13	3.29
Total		**406**	**100**

The table shows that most of the prospective teachers did research on teaching models, which may be due to the possibility of trying out something different in the classes

The journal of Voices of Teachers and Teacher Educators published by the NCERT as an initiative of the Ministry of Education in July 2022, the topics covered are:

Need for life skills education, "*Unpacking the Meaning of a Standards-based Education* System", the "*Vision of Science Education in National Education* Policy (2020)" emphasise that scientific temperament, possessing basic process skills and knowledge of scientific concepts in the light of the vision of NEP and its potential for making scientifically literate citizens and realisation of the SDGs of 2030 School Leadership—from Vision to Practice: Untying the knots for Integration of EWS Children, *Preservice teachers' perceptions on school internship programme,* a compulsory component of teacher education programmes "*Best Practices of Muktangan Education* Trust a school-based pre-service teacher education programme" of a Mumbai-based NGO highlights the challenges faced by teacher education institutions. "Private School Culture and Pedagogical Practices: Glance into EWS Children's Experiences" is discussing about children from disadvantaged backgrounds in the private schools that are due to the RTE 2009, "*Strengthening Teachers' Knowledge of Students'* Conceptions in Physics" studied the teachers' knowledge of learners' conceptions regarding thermodynamics and kinetic theory of gasses and found that even very experienced teachers lack understanding of learners' alternative conceptions and the need for promoting more responsive teaching practices.

Voices of Student Teachers on Teacher Education During Covid-19 Pandemic: A Case Study of D.El.Ed. Students' (Khalil and Gupta) shared their experiences and reflections on all aspects up to assessment in their teacher education programme they underwent during COVID-19 pandemic.

"The Influence of Gender and Parents Education Level on Mathematics Achievement of Madhyamik Passed Students, "Making History Relevant In 21St Century: An Indian Perspective" questions the general perception that History is a non-utility subject, and irrelevant for career opportunities, and "Emergent Investigations in Design Practice: Lessons from Engaging the Social Sciences Undergraduates in Design-based Concept Learning".

The Effect of the Pandemic

Due to the pandemic and closure of schools, there was an increase in use of distance and online teaching using virtual pedagogy. The use live streaming using various platforms such Google Meet, Microsoft Teams, Zoom meetings, WhatsApp group calls, FaceBook Live was reported.

Different types of blended learning with both online and face to face learning platforms were used.

There were station rotation blended learning, lab rotation blended learning, remote blended learning, flex blended learning, individual rotation blended learning, inside out blended learning and many such models are now available.

Prestridge et al. (2021) explored the pedagogical elements in virtual pedagogy in a study where six preservice teachers and two researchers spent 20 h exploring a

three-dimensional virtual platform for its pedagogical appropriateness. Zascerinska et al. (2021) in their study employed theoretical methods such as the analysis of scientific literature, theoretical modelling, systematisation, synthesis, comparison, and generalisation and empirical of two scenarios of mixed class teaching, namely, HOT (Here or There) and COIL (Collaborative Online International Learning In the HOT (Here or There)) using (1) Remote Classroom, (2) Hybrid Virtual Classroom. In COIL (Collaborative Online International Learning), students and professors in different countries are connected for collaborative projects and discussions as part of their coursework.

Teacher Education and Technology

Five volumes of Indian Journal of Educational Technology were analysed (from 2019 onwards). The topics covered are MOOCs adaptation, Effectiveness of MOODLE, augmented reality, perception towards online classes, attitude toward E-learning, E-classroom, online examinations, Parents perspectives and involvement on Online learning, Happiness curriculum, digital smart Board, virtual internship, effectiveness of instructional strategy, technological pedagogical content, digital pedagogy, social media, social networking. There were studies which explored the acceptance of online education, readiness to do Blended learning, E-learning readiness, effectiveness of Text to Speech software, TIL (Teacher, Institution, Learner) paradigm, Fishbowl strategy in synchronous and asynchronous online learning. The effect of Edu Sat Lectures, SLM through blogging, CALF tool (Complexity, Accuracy and Fluency) of Spoken Language, Community radio, Television and use of FOSS. There were exploratory studies, experimental studies and case studies. The concerns like cyber stalking, cyber bullying, cyber security and digital inclusion were also reported.

Growing use of the internet in educational contexts has been prominent in recent years. The use of digital technologies generates new ways of thinking about mathematics and the settings in which it is learnt (Engelbrecht et al., 2020).

Teacher Emotion

The emotional well-being of the teacher and students are given emphasis in recent studies. The new emphasis of Happiness curriculum and its impact on the children is the subject of many studies, Emotional Intelligence of teachers is explored by researches.

Chen (2019) reviewed 154 studies on teacher emotions in terms of research topics, types, and methods and how they have evolved over time in Asia between 1989 and 2018 using a descriptive quantitative analysis approach. These studies used more of qualitative and mixed methods of research in the past 10 years. However, as the majority of articles were exploratory-oriented, intervention and experimental studies were largely lacking. The conclusion with a functionalist perspective suggests that

knowledge production in teacher emotion research in Asia is either at the late first stage or the emerging second stage.

Action Research in Teacher Education

Action research is part of the curriculum of teacher education in the United States University of Notre Dame, Indiana, and University of Notre Dame Australia (Fremantle) to orient concept of research to educators (Hine 2013).

Hine and Lavery (2014) explored Action Research project conducted a research project designed to investigate how to improve a Peer Observation Programme to improve the profile of the existing Professional Development programme and to investigate ways to reduce the number of playground incidents regarding not adhering to playground policy rules.

Teacher Education for ECCE, Elementary and Secondary Level

Kelly and Gregory (2016) studied the impact of early childhood education policy on classroom quality and the teacher's educational qualifications by conducting a meta-analysis of 32 studies on the topic.

Gong and Wang (2017) did a comparative analysis of the pre-service education system for preschool educators in China and the United States, using literature, policy documents, and statistical data of pre-service training in the formal system and in the informal system.

Perception of Teachers and Teaching

There are many research that focus on the Perceptions of Teachers and Teaching about online teaching-learning environments (originally named Teacher Status Stage) (Kane & Mallon 2006; Chia & Goh Christine, 2023).

Challenges

The deaf education profession faces a critical juncture (Andrews & Covell, 2006): there are (1) leadership crisis, (2) personnel shortages (Benedict et al., 2011), (3) challenges in (a) understanding the changing demographic composition of the student,

teacher, and leadership populations; (b) developing an evolving curriculum founded on research-based practices; (c) continuing to enlarge the knowledge base through applied research in the social sciences (Andrews & Covell, 2006).

School-to-work (STW) has become an umbrella term for activities, with comprehensive range of experiences and opportunities that prepare students for the world of work, and not limited teacher education such as youth apprenticeships, mentoring, internships, job shadowing, career exploration, and integration of academic and vocational curriculum.

Sutcher, Darling-Hammond, and Carver-Thomas (2016) report Indicators of Shortages by teaching field, demand and supply of teachers, predicting the trends ahead, working conditions, attrition rates, policies to meet demand with a high-quality supply of teachers, creating competitive, equitable compensation packages.

In Philippines, the trend of performance in the teacher licensure examination of teacher (LET) in 110 education institutions (TEIs) was explored from 2009 to with descriptive-correlational research design which indicated that only 54% of the first timers and 19% of the repeaters passed the LET, with an overall passing of 33%, which was higher than the national passing of 29% in 2016 (Nool and Ladia 2017). In India, the Teacher Eligibility Test is conducted annually from 2013 and the pass percentage was 1–7% in 2017 (Gaikward, 2020). Nearly 20% passed TET exam in 2021 (the Hindu, 13th September 2021). Attracting capable teachers to take up the profession is a challenge.

Conclusion

The review of the research in the teacher education reveals that there are more studies in the present decade than previous decades. The mixed methodology of research and the experimental studies are more preferred studies when compared to survey and correlational studies which were more quantitative in nature. The availability of internet, cheaper digital devices and increased digital literacy due the Mobile applications and also the pandemic condition due to COVID lead to increase in studies using online forms and studying about e-learning applications, platforms, and innovations.

There are many studies that emphasise on evidence-based practices for improving learning outcomes using many innovative methods such as collaborative learning strategies with increased student engagements. Though there are many studies addressing diversity and inclusion, there are very few studies in the area of teacher education pertaining to special education, administration, and social sciences.

The use of technology in education such as applications of augmented reality, virtual reality, artificial intelligence, and the social media, community radio and SWAYAM Prabha or SWAYAM MOOCs. Reasons for studying or dropping or online programmes need to be taken up. Studies reviewing different digital initiatives of the Government should be encouraged.

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Chapter 9
Quality Assurance in Teacher Education: Ensuring Quality in School Education

Savita Kaushal

Abstract Teacher education is an enabling factor that promotes efficiency in the schools. In context of the current emphasis on "creating a knowledge economy", it is essential that the teachers in general must be well equipped in practicing learner-centred teaching. Teacher education has to reframe the practices in the light of universally accepted new principles over a period of time. Considering the changing principles of school and teacher education, efforts are being undertaken to bring about desirable changes in school and concurrently in the teacher education system in the country. The teacher education curriculum in India has been reviewed in almost every decade in almost every past 10 years, i.e. it was done in 1978, 1988, 1998, and 2009. Basically, the intent of these revisions was to reflect upon and integrate the diversities of the country in terms of aspects such as cultural, linguistic, and geographical diversities. This initiative also aimed at keeping the teacher education curriculum at pace with the varying knowledge structure of the world which have come up as a result of socio-political movements, economic turmoil, and technological and communication advancements. National Curriculum Framework for Teacher Education (NCFTE, NCTE. (2009). National Curriculum Framework for Teacher Education. Towards Preparing Professional and Humane Teacher, New Delhi) followed the pedagogical shift emphasised in NCF (2005). In the nation, education of teachers has been seen as crucial for enabling progress and efficiency in the classrooms as well as for ensuring increased teacher proficiency. In this paper, the various commissions, committees, policy discourses, and initiatives in curriculum reforms in India for developing a quality school education system in the country have been discussed.

Keywords Teacher education · Teaching quality · School education · Curriculum framework · Curriculum framework for teacher education

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Backdrop

The meaning of the term "teaching quality" remains very much challenged, but there is an agreement that one of the consequences of good teaching is better learning outcomes of the learners. For instance, the learner-centred functions/roles of the teachers like—preparation and planning for the teaching, classroom management, teacher's characteristics, and interpersonal relationships lead to quality teaching learning. The quality of education depends upon the initiatives in terms of curricular reforms in teacher education.

To achieve "quality teaching learning", it is essential that the teacher training curriculum is designed to make available opportunities to the trainee teacher to indulge in self-study, reflect upon, and interact with their peer teachers and with students, so that they develop as lifelong learners. As per the National Curriculum Framework (2005) the extent of learner achievement and its quality is determined predominantly by competence as well as sensitivity of teachers and their motivation. The curriculum framework for the pre-service preparation of teachers basically intends at developing the competencies in various categories of teachers. There are well-defined standards for various types of teachers at different levels and these have to be taken into account while developing curriculum for the courses of study of the teacher preparation programmes.

The course content of pre-service and also in-service professional development programmes needs to be reexamined from time to time in order to make sure that teachers are developing the necessary traits related to understanding pedagogical content with a focus on hands-on learning and teamwork amongst their peer group teachers. Every teacher education curriculum should aspire instil the following outcomes amongst the novice teachers: a teacher with in-depth subject knowledge, the ability to use that knowledge in the class, the capacity to connect with learners, engross them, and inspire them, as well as the ability to know as the best learning methods for them. In the case of India till the recent past, the development of teacher education curriculum framework was an academic exercise as not much inputs were available in terms of notified *standards for school teachers.*

Initiatives to Strengthen Teacher Education

There have been significant efforts right from the post-independence period to remodel and bring out reforms in teacher education and school curriculum. In this context, the initiatives are reflected in the form of the different committees, commissions, seminars, and study groups that were set up and held from time to time to deliberate on the approaches for bringing up quality enhancement in teacher education. Various commissions and committees appointed by the Government of India have expressed concerns for improvement of quality of teacher education. They have also pointed out that there was a need to develop a connection with the ground reality

that existed in classrooms. In this context, flexible approach and local specificity could play a significant role as per the opinion expressed in their reports. During the various deliberations, it was expressed that in order to bring about a poise in theory and practice as well as assessment of learners the whole teacher education curriculum was to be revolutionised.

Further to this, it is worthwhile to mention that the Kothari Commission (1964–66) gave landmark recommendations on teacher education in particular and qualitative improvement in education in general. Its findings were comprehensive and dealt with different levels of education from pre-primary, through higher education, covering technical as well as vocational subjects too. The Commission stated, "The cornerstone of the teacher education programme was quality. Poor quality in teacher preparation will lead to financial waste and as a result of it the educational standards will get deteriorated" (Para. 4.13; p. 72). It furthermore acknowledged that education was dissociated from the actual situation of what was happening in school. It endorsed that there was a dire need to reorient the subject knowledge. The professional studies were to be fortified and there was a need to develop special courses and programmes. There was a need to conduct revision in the curriculum and relate the entire curriculum to Indian conditions. The Commission pointed out "that there was a need to build up an appropriate outlook towards life, ethnic heritage among the teachers. They need to be made aware of the challenges and desires of the country and also those of the civilization and human culture" (Para. 4.29; p. 75). A vital requisite was that the teacher education engaged with the mainstream academic life (Para 4.04; p. 68) of the universities. The responsibilities of the teachers need to be incorporated in the curriculum and it should be as per the Indian conditions (Para. 4. 31; p. 75). Despite these recommendations, teacher education institutions continued to operate in isolation from the academic life of the universities.

In the year 1985, an important document "The Challenges of Education" was brought out by the Government of India and this came up prior to the NPE (1986). In this document, it was stated that: "We are on the verge of the expansion of new technologies as a result of that we are expected to transform the teaching learning process in a classroom. But regrettably, the progression in updating the teacher education curriculum is at a very slow pace. Currently the teacher education is considerably inappropriate even in terms of present-day requirements leave alone those of the future. As a result, at present, we face an irony of having better books, and research but increasingly more uninterested teachers" (Summarized from p. 54).

Another landmark was the appointment of the Yashpal Committee (1993). One of the objectives with which this Committee was appointed was to examine the academic burden on learners and the disappointing quality of learning among them. The Committee voiced its distress at the unsatisfactory quality of teacher preparation programmes which led to substandard learning in schools. It recommended that the teacher education programme course content was to be restructured so that it is able to meet the changing requirements of the school education. It suggested more practical-oriented teacher training programmes, lengthier training duration, due to emphasis on self-learning and independent thinking (pp. 26–27). It was pointed out with grave concern that "Vigour and reality was found to be missing in the curriculum

and programme of work that stay to be mostly customary with indifference to the needs and objectives pertaining to the present day" (Para. 4 02; p. 68).

A major dilemma that confronted the teacher education programme was that it was not having any relevance to the realities of the actual classroom situations in the schools. The World Bank Report (1997) also reflected upon this issue and pointed out that in India the teachers did not receive training that equipped them for teaching in a multi-grade classroom. As per this report, nearly two third of the teachers had to teach a multigrade class in which a number of learners were first generation learners. Raina (1999) also pointed out worries of a similar kind that the "teacher training programmes were providing the carte du jour to all without keeping in view the variations that existed in cultural and physical backgrounds. They continued to be impassive to immense ethnic, linguistic, regional, and geographical multiplicity". The learners require across-the-board independence to ascertain, probe, and explore.

As in case of any other professional training programmes, teacher education curricula should be able to provide adequate space to student teachers to develop rational reasoning, sensible in other words logical and critical thinking, and problem solving and also using the same in making out meaning. Conversely, the prominence that is provided in foundation courses is normally too theoretical. There is a need to develop an understanding among the trainee teachers about the learners in terms of their learning styles, socio-cultural environment, variations in them, their stages of development, physical, and psychological changes undergone by them. Great variety is anticipated as an important requirement in both the content as well as pedagogy to develop reflectiveness in teachers. The existing curriculum, nose-dives in bringing about this realistic aspect pertaining to philosophical, sociological, and psychological bases of education. Consequently, the teacher education programme as a whole becomes purely academic in nature and detached from the actual grass root realisms of the classrooms. It, in a way, nose-dives in making an initiative in developing an understanding among the learners of the present socio-cultural milieu of the country. It is a prerequisite for the teachers to be broad-minded besides being logical and reflective so as to take care of increasing ethnic, ethical, cultural and linguistic multiplicities in the schools.

As is evident from deliberations in this section, different commissions, committees, and study groups articulated apprehensions over the inappropriateness of the programmes of teacher education. There is a lot of empirical evidence to suggest that teacher's personal opinions as well as what they believe play the most important role in terms of their response to the diversity in their classroom environments. Curriculum of a teacher education programme as a result requires to be planned and organised in order to develop the spirit of analysis, scientific temper, initiative and drive, conceptual lucidity as well as linguistic skills through elaborate teaching practice and other practicum which has so far continued to remain as an Achilles heel in the area of teacher preparation.

Contours from the Interventions

In the year 1978, the National Council for Teacher Education which was a non-statutory body came up with a publication entitled "Teacher Education Curriculum: A Framework" (TECF 1978). The following were major recommendations of the Framework:

- There should be relevance in the curriculum in view of the personal and social of the children and school Curriculum. It should also stand by the desires of the people and national ideology.
- It should have flexibility that should be bound by the framework of national objectives and ethics that have been acknowledged. Flexibility is straightaway required amongst varied disciplines. It was stressed upon to have flexibility for relevance, mobility and continuing education.
- In designing the curriculum of teacher education programmes, there was a need to adopt an interdisciplinary and integrated approach. This would enable the integration among the theory courses. The integrated pedagogical understanding so developed will also flow into the skill dominated areas of teaching methodology of different subjects and also in the areas that were relevant to attitude building such as health, work experience, social service, physical, and recreational education.
- Teacher education has to have a task orientation. Teacher education has to be conducted in such a manner that it provides the teacher an "exercise of training" in which he is able to handle a diversity of tasks that could be conducted both inside and outside the classroom.
- There was a need to bring out reforms in practice teaching. The framework submitted that trainee teachers should undergo a series of simulations, situations involving microteaching in advance before they were being used in actual classrooms.
- It was suggested to replace the year-wise course with the semester system.
- To make the evaluation system more trustworthy and truer in terms of reliability and validity.
- To encourage inquiry and experimentation in institutions that provide teacher education (pp. 4–12).

In a way, this curricular framework was a game changer in some ways from the prevailing models based on two major reasons. First one was that the curriculum structure for different stages of education was being advocated by the TECF (1978) separately, and second was that it advocated the introduction of a semester system. It endorsed an open task-oriented approach by divulging teacher trainees in the intricate socio-economic problems through real-life situations that were relevant to society so that the learning of theoretical perspectives was relevant and strengthened by the actual life experiences. The framework further included not only the different stages of child development but also the variations in terms of rural/urban contexts. It endorsed different core and special courses that were context-specific or stage-specific throughout the teacher education programmes. Some of the core skills such

as ascertaining behaviour patterns, verbal communication, preparation of teaching learning materials, blackboard writing, modus operandi of using audio visual aids etc. for instruction of different subjects for different age groups were suggested as obligatory for all categories of teachers.

According to the National Education Policy (1986), teachers should be given the liberty to innovate and formulate suitable effective communication strategies and accomplishments that are in line with the needs and capabilities of the society. (NPE 1986, p. 25). The policy added that "…teacher education is a process that does not cease at time, and its pre-service and in-service components cannot be separated. As a first stride, the teacher education system will be refurbished." In order to achieve this the culture of teacher education as well as the goals, content, methodology, and processes have to undergo a paradigm shift.

In the year 1988, substantial effort to professionalise teacher education and bring about a qualitative improvement took place. The National Policy on Education (1986) and alongside that the National Curriculum Framework (1988) was developed.

This curriculum framework had huge ramifications for fortifying and rebuilding the teacher education programmes of all the stages. It bore substantial consequences. for the improvement and restructuring of curricula at all levels of teacher preparation. This framework brought together the development from earlier years. It also emphasised the need for the teacher education curriculum to consider knowledge and technological advancements.

This framework gave high importance to the role of teacher as it emphasised that "the future teacher would be a professional who will be a skilled and competent teacher. It furthermore also highlighted that an essential prerequisite for a teacher was that he should be able to communicate in an effective manner. The teacher should be able to design and use learning resources. Further to this, a teacher will play the role of a learning facilitator, and also as an active participant in the community life". Mobility at both levels, i.e. horizontal as well as vertical was emphasised to assimilate different stages of teacher education programmes. This framework puts emphasis on learner-centric approach and reorganisation of the process of education by interactive method of teaching. In the year 1988, the NCERT published the National Curriculum Framework for Elementary and Secondary School Education, and this also laid due importance on non-scholastic areas.

The necessity to bring about a poise amongst theory and practice was exhibited in this framework as in that it was affirmed that the curriculum should emphasise integration of understanding of theory along with its practical applications in such a manner that nothing was overdone in respect of each of them (p IV.2). It also placed an important role for practicum or field work with due weightage. Therefore, the course content included three areas, namely: (a) foundation courses that focus primarily on the philosophical, social, and psychological underpinnings of education at the relevant stage; (b) stage-specific relevance to the skills and competencies in teaching-related school subjects; (c) practicum and field work emphasising the use of theory applicable in classroom teaching and pertaining to the practical activities that comprised learners, their parents and community. In the year 1993, the National Council for Teacher Education (NCTE) was created as a statutory body by an Act of

Parliament. The NCTE came up with another "Curriculum Framework for Quality Teacher Education". So, this one also came out after another decade, i.e. in 1998.

The school education curriculum reform (1975) formed the backdrop against which the 1978 curriculum framework for teacher education was formulated. Similarly, the NPE (1986) paved the way for the 1988 teacher education curriculum framework. Unlike its predecessor frameworks, the 1998 curriculum framework for teacher education came up prior to the curriculum for school education that was developed by the NCERT (2000). The 1998 framework tried to implement the effects of changing international scenarios brought about by globalisation, privatisation, information technology, etc. This framework made an attempt to develop a poise among actualities of national life and international demands. A major deviance that was seen from previous frameworks was that it acknowledged the commitment, competence, and performance as the principles for guiding the development of curriculum and also programmes preparation of teachers.

The teacher education curriculum framework (1978) had laid clear-cut emphasis on an approach that was task-based which involved the lessening of the theoretical components. The teacher education curriculum framework (1988) laid stress on the necessity of incorporating the knowledge and progression in technology. It thereby also specified the revised role of the teacher as an effective communicator, creator and user of learning resources, facilitator of learning, and an engaged member of the community.

National Curriculum Framework for Quality Teacher education curriculum framework (1998) moved a step ahead as it was drafted as per the regional aspirations of the community. It also emphasised that the pedagogy had to be culture-specific and the teacher should be a life-long learner. Under this framework, discrete course structures pertaining to primary and elementary levels and in addition to this academic and vocational stream of senior secondary teacher education were made. Furthermore, it designed the curriculum that was meant to prepare teachers for the alternative systems and also for students with special needs as well as physical education.

It is important to note that this framework was in harmony with the frameworks of the year 1978 as far as the reconceptualisation of core papers. So, the initiatives by the curriculum planners basically met the contemporary needs of the Indian education system as can be seen from the analysis of trend change in the curriculum of teacher education with respect to course content, period, transactional strategies, and evaluation methods that were suggested by these frameworks. But a detailed analysis also indicates that despite the various measures in the past years to amend the curriculum for teacher education merely shallow changes were made in reality. Most of the teacher education programmes were contented by giving merely basic facts about many of the concepts to the future teachers that included concepts like human rights perspective in education for the sustainable development, culture-specific teaching learning etc.

Though one could see the impact of the curriculum framework that came up in 1978 on the curriculum of teacher education at field level. But contrary to this, no attempt of this kind was ever made after coming up with the curriculum framework in the year. A visible transformation that could be seen as an outcome of the 1998

teacher education curriculum framework was the opening up of a secondary teacher education programme that was of 2-year duration at Gujarat Vidyapeeth and also the Regional Institutes of Education of the NCERT.

Further than this there was no noteworthy modification made in the teacher education curricula? It's worth mentioning that even context-specific content was laden with psychological, philosophical and sociological theoretical bases and models for instance behaviourist perspectives such as Pavlov, Skinner while the curriculum in the west had shifted towards the constructivist method decades ago.

The University Grants Commission's (UGC) Model Curriculum (2001) had very little to offer because it was based primarily on the four main old-fashioned schools of philosophy that unrelentingly dominated and prevailed on the teacher education curricula perpetually since the 1978 framework. These were idealism, naturalism, pragmatism, and realism. There was a silver lining that a positive intervention with more concerted efforts than before were made to bring about an indigenous transformation of the teacher education curricula by bringing about a focus on Indian philosophers and educationists. It was anticipated that the teacher education curriculum will be able to develop such a point of view and attitude among teachers to discharge their duties effectively.

One more recent intervention is the Right of Children to Free and Compulsory Education Act (RTE) (2009). The RTE aims to put into practice Article 21A of the Indian Constitution, which declares that all children between 6 and 14 years have a basic right to receive an elementary education. Meeting the norms is a huge challenge in the context of India. Both pre-service teacher preparation and the training of numerous teachers who are currently employed by the educational system are necessary. The research also indicates that teacher beliefs and practices are also very important. Therefore, the preparation of teachers is to be given complete primacy.

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Way Forward to the Pedagogical Transformation of Teacher Education

The most recent resolve to reform, contextualise, and professionalise school education and teacher education was made in the year 2005 by means of the National Curriculum Framework for School Education (2005) and National Curriculum Framework for Teacher Education (2009). In the present day, we witness a shift in epistemology of learning, i.e. with the development of the views that the learning involves construction of the reality rather than the learner making a discovery of it. So, the main point is that the learning does not imply meagre absorption of concepts

and thoughts, but it involves the structuring of ideas that have been developed on one's individual understandings. Learning is also supposed to be a primary part of a student's physical, social, and cultural circumstances. This idea that came up is known as "positioned intellect". This is based on the regulatory principle of the National Curriculum Framework for School Education (2005) prepared by the NCERT.

As envisaged by NCF (2005), the role of a teacher is to facilitate learning among students in such a way that helps them to construct knowledge and draw out meaning by indulging and using their own experiences. The entire approach in terms of pedagogical strategies in teacher education programmes, therefore, need to be revised and there has to be a transition from the customary behaviourist to constructivist discourses.

In this framework basically three broad curricular areas were identified, which were: "(A) Foundations of Education under which there were three heads, i.e. Learner Studies, Contemporary Studies and Educational Studies; (B) Curriculum and Pedagogy which included Curriculum Studies and Pedagogic Studies; and (C) School Internship, that would help in developing a wide array of perspective, professional capabilities, teacher skills and sensibilities" (NCFTE, 2009, p. 24). This curriculum framework not only deliberated on the glitches, worries and pedagogic modifications that were proposed in the NCF (2005) but also shaped the curriculum for teacher education as an integrated combined whole. This framework anticipated a teacher preparation programme that was of 2 years and along with that also envisioned the integrated teacher education courses of 4-year duration. It was envisioned that the teacher preparation programmes of longer duration will provide suitable time and opportunity to reflect upon, and also for self-studies as well as engagement with teachers, students, classrooms. In addition to this, it will also facilitate pedagogic activities, which are regarded as essential for nurturing expertise among teachers.

The NCTE took the initiative to realign the teacher education programmes in order to bring them in line with the epistemological change that was envisioned in the NCF (2005) through the National Curriculum Framework for Teacher Education (2009) developed by it. NCFTE explained its aims as "heading towards transformation in teacher education in terms of structural aspects at elementary, secondary and post-graduate levels" (NCFTE 2009, p. iv). It aimed at developing teachers so that they played the role of facilitators in learning process. It embraced the perspectives, apprehensions, and 10 visions of teacher education which made a plea for empowering the teachers in terms of learning to learn, prepared them for a learning society and made the teacher education liberal, humane and respond to the prerequisites of inclusion. The reforms that were put into context by NCFTE in the issues with "traditional" teacher education, which is thought to have poor curricular quality (2009, p. 52).

The following were the main tenets of the proposed curriculum reforms: (i) a comprehensive approach to curriculum; (ii) an emphasis on engagement with theory and fundamental perspectives on education; (iii) preparation for future teachers to be reflective, kind, and professional practitioners; (iv) a relatively long and more intensive internship/school experience; (v) getting prepared prospective teachers

to organise teaching-learning in a child-centred manner; and (vii) stage specificity (2009, pp. 23–24 and 52–55).

The NCFTE paved the way for possibility of the pre-service teacher education programmes of two types, i.e. (i) 2-year at the elementary and secondary school levels; and (ii) 4-year (or longer) integrated model for both the levels. Further to this, the JVC also pointed out that there was a need for 2-year M. Ed. programmes and NCFTE endorsed sandwiched postgraduate courses that were of duration of 3 years that would develop well-trained senior secondary school teachers and teacher educators. Subsequently in 2014, the duration of these two pre-service programmes was increased to 2 years. This was based on the conjecture that programmes of longer duration will offer adequate interval and chance for arduous commitment of the prospective teacher.

It took into account the changes in classroom conditions and needs, considering the implementation of the Right to Education Act (RTE 2009). Additionally, it addressed concerns related to the academic burden on learners and the universalization of secondary education, which further impacted teacher education in terms of both quality and quantity.

Major thrust areas in the curriculum of teacher education in this framework were in harmony with the aspects that were emphasised in NCF (2005) and also as per the emerging necessities of contemporary Indian society. Some of the key thrust areas were inclusion, equitable and sustainable development, use of the community knowledge, assimilation of ICT and e-learning. As a result, the customary methodology of teacher preparation which was founded on philosophical, sociological, and psychological orientation of the courses made a way to a thoughtfully created curriculum that was designed in such a way that it drew "from student teachers' experiential knowledge as well as from theoretical and empirical knowledge" (NCFTE, 2009, p. 24).

So, in a way, NCF (2005) drew the roadmap as it outlined the elements that make up the "quality" of the academic/curricular experience that primary schools should offer. Together, NCF and NCFTE aimed to create elementary school settings that were child-centred. In this regard, the NCFTE and JVC Report mapped out the country's renovation of teacher education to change teaching and learning in schools. Both these frameworks demonstrated how the nation's long-overdue reform of teacher education has been sparked by concerns about the quality of schooling.

The NCFTE and JVC Report envisaged the professionalisation of teacher education. There were quite many commonalities in the recommendations in these two reports, specifically with reference to the curriculum of teacher education programmes. The JVC Report endorsed that NCFTE should be taken as a framework for guiding the curriculum reforms.

Although constructivism has been accepted as the correct approach for school education as well as teacher education institutions, the efforts and accomplishments of students are still assessed in teacher education schools using behaviourist methods and quantitative grading schemes. Besides this the teacher preparation system has to respond to the challenges of "development of understanding through teaching"

and also use "innovative methods" instead of the traditional methods such as rote memorisation.

NCF (2005) emphasised a pedagogic and curricular approach that entailed a great deal of answerability including ownership on behalf of the teachers as they are required to use culture-specific context while teaching for instance the use of folklores, folk stories, experiences of the diverse learners in their classroom. This necessitates a more undoubted model for preparation of teachers that is empirically established. This will enable the teachers to accomplish the essential skills, abilities and also the necessary attitudes. Besides this, bringing about modifications in the teacher education curriculum has to be accompanied by its successful implementation. It also necessitates reorientation of teacher educators in the curriculum, pedagogy, and assessment processes. This problem is further intensified due to the dearth of experience in the case of most of the teacher educators in conducting teaching-learning in schools. Substantial modifications in teacher preparation can only take place if the preparation of teachers can happen through the conforming amendments envisaged in preparing the teacher educators. To be effective learning facilitators, teachers must acquire the traditional ways and adopt the emerging ones.

The B.Ed. (2016) and M.Ed. (2013) curriculum that was developed by NCERT too echoed the need of key changes that were required to be made in the content as well as themes to be incorporated in various courses of studies with a view to substantial prospects of developing reflective teachers. It was asserted that these teachers will be able to understand the practical nature of education, and employ the knowledge gained by them through teacher preparation courses in the real classroom. Thus, this would bridge the gap because of the lack of similarity in real classroom situations and theoretical addresses divulged at a training institution. The gap between the lack of similarity between the actual classroom realities and theoretical discourses happening in training institutes. There have been a lot of concerns regarding the duration of the teacher preparation programme. Although unanimous agreement for the duration of the B.Ed. programme was that it would be of two years duration even then there is one major concern that neither the policy official papers nor the frameworks for teacher education curriculum delved into specifics over the necessity of teacher education programmes of longer duration.

As per the NEP 2020 teacher training should involve (i) self-learning, (ii) classroom learning, (iii) class observation & practice teaching, and (iv) internship. The self-learning component's learning objectives are clearly stated, and learning results are assessed. The remaining three components will be taught in semesters or modules. As part of a comprehensive training programme, a 1-year internship with mentor teachers at an actual school will be necessary. The assessment will include the mentors' report as well the teacher. Mentors report will also form part of the assessment.

So, a teacher will fully be conversant with the ecosystem of a school before joining his job. Meanwhile, the curriculum in teacher education programmes is set for another round of modifications in view of the implications of the new National Education Policy (2020). In the light of the recommendation, the curriculum will be revisited and reforms in teacher education programmes will be conducted.

Conclusion

Numerous research studies and documents on the practices have shown that there are many issues with our schools, including the number of instructional days and the amount of time students actually spend learning in class as well as the attainment of the learning outcomes. The unfortunate truth is that our students are really not learning up to the extent that they are able to learn.

The reality that millions of children have failed to develop basic skills of learning after spending many years in a school point towards the "learning crisis." Whereas the majority of stakeholders may feel that students are really not learning, there is not much comprehension or consensus about why learning levels are still poor nationwide in both in private and the government schools. It's a well-known fact that teachers and effective teaching help in achieving the desired learning outcomes. Major part of the quality in school education is contributed by teacher effectiveness. So, knowing how to teach is a very important capability which a teacher should be endowed with. It is an accepted fact that in order to have quality in school education experience the teacher education curriculum has to be of such a type that it is able to translate the philosophy of education into practical learning experiences.

At present the curricular reforms in teacher preparation programmes are making an initiative of developing the capacity of teachers to act as self-directed insightful groups of professionals who understand the needs of heterogeneous groups of learners, to the needs of heterogeneous groups of learners and also to the professional ethics. The role of a teacher adopting a constructivist approach is much more challenging than that of the teacher who is adopting traditional approaches. So, in order to have an effective teacher education curriculum we need to include relevant content and also methodical task analysis of teachers at various levels. These two aspects alone will be able to develop self-confidence amongst the future teachers to transact the school curriculum in the class.

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Chapter 10
Monitoring and Supervising Teacher Education and School Education

Indrani Bhaduri

Abstract For planned development in all walks of life, be it science and technology or economy or education or any other sub-system of a larger society, it is essential to keep a tab and constantly watch whether we are moving as per the plan or not. If it is going on properly and moving towards achieving the set goals, it is always satisfying and motivating and energises us to perform much better. But if it is not so, and instead of going ahead, it is going in a reverse direction or in an awkward direction, we need to correct them at the right time so that the wheel of progress and development may be put on the right track. Monitoring, supervising, and inspecting are the key concepts and actions which help us do the above tasks thereby assisting in the attainment of set goals and objectives. All these three terms, i.e. monitoring, supervising, and inspecting have the same purpose but are done with little varied approaches and act as the heart and soul of a healthy system of functioning of an organisation. This chapter deals with these processes in depth with regard to teacher education and school education. It explores the definitions of these terms and discusses the nuances of monitoring, supervision, and inspection. While discussing, the chapter focuses on these aspects and assessment in teacher education and school education separately highlighting all aspects and stakeholders in the field of school education and teacher education. The chapter also puts light on the data management system and emphasises that the present-day education enterprise must have an efficient system of collecting, storing, retrieving, analysing, and interpreting data. This contributes to validating the realisation of objectives of the institution and helps understand what has been achieved, to what extent achieved, lacunae if any, and possible steps to be taken to potentiate the system.

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Introduction

Let us reflect on our formative years and be reminded of those teachers who made an impact in our lives and contributed to a large extent in shaping us into what we are today. Most of them were positive figures who were able not only to deliver the subject information, but also motivated us to be interested in the subject and ensure success. This is true for every generation. Good teachers explain the concepts to the students in return for receipt of emoluments. Better teachers demonstrate and work along with the students and are admired. The best teachers inspire the child to self-learning, and it is they who are revered. These great teachers are not congenitally born with extraordinariness but shaped themselves into entities through rigours of discipline, training, and development to leave an impact that is expressed through their pupils. Successful communities have good citizens and good citizens are essentially products of a superior education motivated by excellent teachers. Imperative it is, therefore, that education in general and specifically teacher education be made exemplary so that quality teachers are produced, who in turn will ensure quality education in schools. Any such superior educational structure requires careful nurturance of the system per se with real-time *monitoring*, continual *supervision*, and periodic *inspection*. Teacher education and school education are no exception, for education is the best investment that any community, society, or nation can make that will give the best dividends to the generation next.

Definition of Terms

Monitoring is a continuous systematic assessment of a process, made to ensure qualitative superiority and temporal punctuality as envisaged during planning. It is a process of surveillance and is necessarily continuous with inbuilt loopbacks to change or modify the process with a view to improve. According to the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD), "Monitoring" is "*the ongoing, systematic collection of information to assess progress towards the achievement of objectives, outcomes and impacts*". Another term frequently used is "Evaluation" which is described as "*the systematic and objective assessment of an ongoing or completed project, programme or policy, its design, implementation and results, with the aim to determine the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability*."

Supervision is necessarily an oversight mechanism where a supervisor keeps a close eye on the supervisee (person or process) to critically observe and if need be, guide the course of action to achieve the aim of the process/project.

Inspection is a periodic activity to carefully scrutinise or examine/study the subject (person or process) to evaluate if the intended levels or standards are being achieved/maintained.

All these three terms are primary activities related to ensuring quality assessment/control/preservation/improvement. Monitoring is always on a real-time basis, while supervision is frequent. The former is a part and parcel or in close association with the process, while the latter is from a relatively higher platform. Inspection, on the other hand, is a periodic activity usually done by somebody from outside the organisation or at least a person with higher responsibility or position/authority within the organisation.

Nuances of Monitoring, Supervision, and Inspection

Education is an extremely complex endeavour despite its simplistic exterior. The factors affecting education are many starting from the physical facilities of the educational institution, the familial background of the students and their domestic support (physical, financial, or emotional), the quality of teachers (including their training), and the wherewithal provided to the teachers or the students, teacher's levels of motivation/dedication, community support, administrative structuring, higher level visions on education, etc. Being multi-factorial, the maintenance of superiority requires managerial care through *Monitoring and Evaluation* (M&E). However, this managerial care is not a third-party exercise but needs the involvement of all stakeholders, who must share the responsibilities of ensuring ascendancy.

M&E in all spheres of development including the domain of education has evolved over years. In the early days, it was broad input–output checking which then morphoses into project-based monitoring systems to satisfy the requirements of funding authorities, and currently onto the present-day emphasis of providing valid and reliable data on real-time basis leading to evidence-based pointers of progress at the diverse levels of implementation, including at the local school (including Teacher Training Colleges) and administrative/community levels. It merits no separate mention that M&E quantifies not only outputs, but also outcome measures of education through high-performance dynamic and robust data-generated analysis and feedback. The scope is obviously not constant, with varying perceptions and requirements of the sector depending upon changing times, places, priorities, and resources. The progression of M&E procedures is not a linear process but more of a progression in flux that has many variants, subject to its appropriate responses to altering demands in different contexts. Also, it is prudent to appreciate that the issues of governance accountability, sustainability, and transparency, especially for the effectiveness and efficiency of funding for education have led to the emergence of the involvement of all stakeholders, including civil society and the local community. After all the educational enterprise is answerable not only to the present administrative/political disposition, but also to the future generations of citizenry.

Having established the subtle nuances of the terms "monitoring, supervising, inspecting," etc., and their roles in the field of education, it may be realised that all these various entities are aimed at establishing/ensuring quality in the business of imparting school/teacher education. Though distinct in themselves, these terms

are complementary to one another. These do not exist in water-tight compartments but seamlessly ingress onto one another's territories. These are initially continuous as input–output studies but ultimately affect the impact or the outcomes of the programmes.

As is clear from above, there are a multitude of terms that are individually distinct but complementary. To avoid further misperception and for the sake of uniformity, let us use an over-encompassing term for these, called "assessment" in this discussion.

Why do we need to "Assess"? We need to:

- Measure results of the training programme on the target group,
- Ascertain cost-effectiveness,
- Ensure efficiency in maximising the outcome with optimal resource allocation,
- Achieve goals, objectives, and targets as per plan.

When to assess:

- Monitoring must be continuous,
- Supervision should be frequent,
- Inspection may be periodic, Semi-annual/annual.

Assessment is a planned activity with clear-cut phases, i.e. before (planning), during (real-time), and after (post-event). Planning is of paramount import and comprises of:

- Identifying target group,
- Decide the purpose of the exercise,
- Evaluate resources available,
- Time frame of/for the activity,
- Periodicity,
- Budgeting, cost projections,
- Methods of data collection, analysis, and feedback.

The during and after-event activities are offshoots of the planning template. Lessons learnt are to be ploughed back for reportage and usage during the planning of a subsequent similar activity.

What are the levels of assessments? Essentially these are:

- Self,
- Peer,
- Seniors,
- Heads of Departments,
- Director of the Institution,
- School Management,
- District School Authorities,
- Educational Boards/ Universities,
- State Education Departments,
- Central Education Ministry,
- International bodies,

- Independent Evaluators.

In **which** manner does the assessor perform her/his role?

- Planning,
- Organising,
- Leading,
- Helping,
- Evaluating,
- Motivating,
- Communicating,
- Linking with decision makers/higher authorities.

Types of assessments/Attributes of assessor: (Supervisor–Supervisee Equation)

- Friendly mentor, offering support, guidance even a shoulder to lean on, or
- Strict on accountability and generating a sense of responsibility.
- Combination of the above two, through verbal advice, written counselling, general suggestions, specific advisory, etc.

What must be the characteristics of the "Assessment"? Essentially, assessment must be effective and efficient for that it must be:

- High performing, dynamic, and sustainable.
- Ability to modify in accordance to need or changing circumstances, perceptions of the environment, and times.
- Suited to the requirement of the community, organisation, state, or the nation,
- Must be able to assist governance,
- Information transparent,
- Accountable,
- Data-driven and statistically decipherable,
- Significant to all stakeholders, i.e. Government, Administration, financers, donors/ funding agencies, civil society, parent bodies, and academia.

How does this affect the School Education (or Teacher Education)?

As described earlier, "education" being vibrant demands real-time input to stay relevant and contemporary. Thus, assessments must:

- Facilitate the teachers through feedback about classroom interaction to make teaching–learning effective.
- Data-driven,
- Obtained through student/parent/teacher/school questionnaires, as well as through observations by authorities and feedback from the community.
- Never to be used for policing the teachers/ students/ schools or for fault finding/ blame-sharing.
- Offer guidance/assistance/wherewithal to the system to improve the quality of education.

Assessment must contribute to improve all aspects that may affect the teaching–learning process:

- Improve physical facilities, classrooms, common area, toilets, playground, cafeteria, etc.,
- Appropriateness of the teaching–learning material,
- Assessing staff–student ratio,
- Climate of the premises, i.e. safety, security, and dignity,
- Quality of support available to the teachers/faculties,
- Contribute to time management,
- Gauge institutional problems and their suitable solution,
- Robustness of data collection, analysis, and feedback loop,
- Policy scrutinising,
- Teachers' welfare, pay and allowances, and motivation/morale,
- Effectiveness of PTAs,
- Community participation,
- Quality assurance, Quality control, and Quality enhancement,
- Comparison with other institutions,
- Result analysis (Board/University Examination).

Data Management

It needs no emphasis that the present-day education enterprise must have an efficient system of collecting, storing, retrieving, analysing, and interpreting data. This contributes to validating the realisation of the objectives of the institution and it also tells us the levels of achievements that have occurred, to what extent, lacunae if any, and possible steps to be taken to potentiate the system. The following steps are felt essential for the same:

- Formatting of information sheets,
- Organised gathering,
- Processing and storing,
- Analysis and interpretation,
- Managerial Action,
- Feedback mechanism,
- Research, data mining, and Publication.

Assessments of School Education

As elucidated earlier, the complexities of the management of education are enormous irrespective of the levels of the educational institution. The difference is only of the magnitude. Consequently, the assessments must be equally robust and continuous. The findings must not only assist in solving the present challenges, but the

lessons learnt necessarily be ploughed back to the institute for positive changes in the subsequent sessions/years.

The levels of assessment can be, for the sake of convenience, divided into two:

- Intrinsic (within the institute)
- Extrinsic (by outside agencies)

Intrinsic is done by:

- **Students**, through self-learning and contribution to the school authorities with physical and intellectual efforts. Japan is a prime example where the students contribute to the upkeep and cleanliness of the school, through good habits of not littering and weekly cleaning of the classrooms, common area, and even toilets. Teaching and mentoring younger students or even low-achiever peers are done as a routine. All these need monitoring daily.
- **Non-teaching Staff** are equally important members of the school education system and can contribute as well as benefit from the assessment system.
- **Teachers**, through the implementation of curriculum as per schedule and plan in terms of quality and punctuality. Manage group learning activities as well as individual learners' progress, difficulties, or problems, which may be scholastic or extra-scholastic, including Psycho-social. Class teachers keep student inventories in terms of achievements as well as physical and social growth. Managing learning resources optimally, maintaining data including storage, analysis, interpretation, and dissemination with other teachers, school authorities, and parents. All these are monitoring and supervisory activities.
- **Headmaster/Principal**, through marshalling resources through equitable distribution for optimal utilisation, Supervise instructions by the teachers, result analysis, financial management, Liaison with school management and other educational authorities, with facts and figures, data and interpretations, suggestions, advice, etc. These are essentially supervisory and inspective activities.

Extrinsic agencies are:

- **Parents**, through active and daily interaction with their respective wards regarding their progress, monitoring the activities of their wards in non-schooling hours, and close interaction with teachers, other parents, and community leaders. Realisation that enrolment of the child to a school is not the end of parental responsibilities to their wards' scholastic/extra-scholastic growth and development.
- **School Management**, monitoring the schools' performance on a regular basis, seeking inputs from headmasters regarding teaching–learning activities, financial management, resource utilisation, etc. Supervision of staff performances and appraisal.
- **Community leaders**, through close interaction with the school authorities regarding the progress of the children of the community, any difficulties faced by the school authorities and their time-bound resolution.

- **District Education offices, State Education Departments/Central or State Secondary Education Boards, and Ministry of Education**, all have their respective roles well delineated that are in large measures, supervisory, and inspective in nature. Further discussion on this subject is beyond the mandate/scope of the present discussion.

The modern management techniques of **Kaizen, Quality Circle**, etc. have a role in a modern education system. This can give an insight into the functioning of the educational system and is a form of "preventive monitoring", which may be instituted within the institution. Short-term priorities (Crisis management), Medium-term objectives (School Improvement Plans) and Long-term visions (Expansions, etc.) are also the result of Monitoring/Supervision and Inspection.

The Indian school system is a massive structure with approximately 1.5 million schools, 8.5 million teachers, and 250 million children from varied backgrounds and socioeconomic status. It is a herculean task to ensure uniformity and standards, especially given the challenges posed by the diversity of geography, culture, heritage and tradition, and languages. The **Right of Children to Free and Compulsory Education** (Amendment) **Act**, **2019** which was passed by the Parliament on January 3, **2019**, received the assent of the President of India on January 10, **2019**, is being implemented by the states and being guided and monitored by the Department of School Education and Literacy (DoSEL), Ministry of Education (MoE). As a part of this exercise, a "Performance Grading Index" (PGI) has been devised to assist the States and Union Territories to identify existing gaps and plans, priorities, and institute interventional strategies. PGI ensures efficiency, inclusiveness, and equitability in School Education (SE) of the country through constant monitoring of data and plotting a matrix of Inputs, Outputs, and Outcomes as well as confirming course correction by a Quick Response System. The PGI is dependent on the data/information obtained through UDISE (Unified District Information System for Education), NAS (National Achievement Survey), Mid-Day Meal, Public Finance Management System (PFMS), and also through information obtained from States and UTs. There are 70 indicators measuring a total of 1000 points (each indicator being assigned 10/20 points), with benchmarked/optimal acceptable levels, divided into two broad categories namely:

- Outcomes
- Governance and Management

The states are graded according to their performance, which is obviously dynamic and changes annually depending upon their performance.

Assessments in Teacher Education

Educating teachers is a specialised activity as it produces "Skilled Professionals". Like any other professional training activity, it has two primary aspects, namely:

- Knowledge base, which is theoretical and academic in nature.
- Skill development, which is practical training and hands-on.

Some points which need to be included in the Teacher's supervision and support are:

- **Assessment literacy of the teacher**

  This would include points such as, what are the multitudes of tools and techniques that are being used by the teacher to assess the learning levels of the child. It will reflect the *standard of teacher competence in the assessment of learning levels of students*. The paper–pencil forms of assessment tools being used may also be asked amongst others.
- **Level of Understanding which the teacher has of his/her students**

  Knowledge of physical, social, and intellectual development and characteristics of students and how these may affect learning.

  Understanding students from diverse linguistic, cultural, religious, and socioeconomic backgrounds

  Strategies for teaching tribal students.

  Differentiate teaching to meet the specific learning needs of students across the full range of abilities.

  Strategies to support the participation of students with differential abilities.
- **Content knowledge and its organisation for transaction**

  Use curriculum, assessment, and reporting to design learning sequences and lesson plans.
- **Facilitating and supporting the creation of a safe learning environment**

  Demonstrate an understanding of the relevant issues and the strategies available to support safe and responsible learning situations.
- **Engagement in professional development**

  Understand the relevant and appropriate sources of professional learning for teachers.
- **Collaboration with colleagues**

  Understand the role of professional bodies in broadening teachers' professional knowledge and practice.
- **Values and Ethics**

  Moral agency is a dual state that encompasses the teacher as a moral person engaged in ethical teaching through professional conduct and, as a moral educator who teaches students with the same core values and principles that he or she strives to uphold in practice.

There is a considerable body of literature available to indicate the role of large-scale assessments as a valuable resource for studying national and global trends

and contributing to evolving systems in education. In India, the large-scale assessment study, the National Achievement Survey (NAS), conducted under the aegis of the Department of School Education and Literacy, Ministry of Education (MoE), provides an effective basis for informed policy-making in the field of school education for the country. NAS is a school-based assessment and reports a fair and accurate statement of the educational health at the district level of the States and Union Territories in India. It is a technically robust learning assessment survey that plays a vital role in measuring the learning levels of students in Classes 3, 5, 8, and 10. Along with the competency-based assessment items, NAS also assesses the contextual variables through the pupil questionnaire (PQ), teacher questionnaire (TQ), and school questionnaire (SQ). The TQ helps to identify the existing patterns in the in-service teachers in terms of:

- appraisal of teachers' work in schools, the form and nature of the feedback teachers receive, and how the information gained from these processes is used;
- the amount and type of professional development available to teachers and barriers to this development;
- teachers' pedagogical and professional practices;
- school leadership, that shapes the learning environment in schools and the work of teachers;
- teachers' reported feelings of self-efficacy and job satisfaction and their perceptions of the climate in the schools and classrooms in which they work.

In India, NAS thus presents a system-level reflection on the effectiveness of school education in the country. NAS is embedded in a rich system of background variables and is a repository of valuable data for understanding school education in the country.

Conclusion

Assessment including monitoring, supervision, and inspection of Teacher Education and School education at a macro level is similar to that described earlier in this discussion, with certain peculiar nuances intrinsic to training teachers which demands a wider deliberation.

At a micro level, i.e. training of individual trainee teachers needs remarkably close quarter monitoring, through real-time accounting of all activities and progress. Regular supervision of the skill development endeavours and periodic inspections to see that the aims and objectives of the training programmes are realised.

Like any other professional training programme, an internship with dedicated mentorship is a must, if quality teachers are to be produced. Translation of all the theoretical knowledge into classroom activity must be supervised by senior professionals. Record of the progress, shortfalls, corrective interventions, and results of such remedial measures must be documented.

Education at any level is a complex exercise needing careful planning, deft execution with military speed, and surgical precision. All these need close-quarter monitoring, real-time supervision, and robust and efficient inspection. Teacher education being a specialised training must be allocated due diligence in terms of systemic attention and individual nurturance through mentoring and handholding in an institutional manner.

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Chapter 11
In-service Teacher Education in India: Enhancing Professionalism Among Working Teachers

Mary Vineetha Thomas

Abstract In-service teacher education plays a pivotal role in contributing assiduous and committed teachers to society. The NCFTE (National curriculum framework for teacher education: towards preparing professional and humane teacher. NCTE, 2009) has very well defined the aims and objectives of in-service teacher education to be followed while designing and implementing these programmes in India. Broadly, in-service teacher training can be categorised into three types of approaches, namely: Standardised approach, Site-based approach, and Self-directed approach. Teachers can enhance their professionalism through participation in various types of academic activities and in-service programmes like seminars, conferences, workshops, refresher courses, orientation programmes, and induction programmes. Professionalism among working teachers in our country can be enhanced by improving the quality of in-service teacher education programmes, promoting awareness of the professional code of ethics, and making them oblige to it, providing professional development programmes through online mode, improving their work conditions and environment, promoting, and supporting the use of ICT and providing life skills education. There are also various State and National level agencies working for strengthening teacher education in the country like NCTE, NCERT, SCERT, DIET, NIEPA, and UGC-HRDCs which are working towards promoting and inculcating professionalism among working teachers. Thus, through the continual efforts of all stakeholders, the quality of in-service teacher training can definitely be improved and we can build diligent and professional teachers for our educational institutions.

Keywords In-service teacher education · Professionalism · Induction · Standardised approach · Site-based approach · Self-directed approach · Code of professional ethics

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Introduction

The progress of any nation depends on its educational sector because it is through education that we shape the youth into productive and fruitful citizens of a country. Quality education forms the base for moulding the future of citizens who in turn shape the future of their country. There are many factors that determine or influence the quality of education but one major factor that plays a pivotal role for the same is the quality of teachers. Teachers form the bridge between the learners and the curriculum to be transacted. They form the channel through which knowledge is shared from one platform to another. Therefore, the quality of education being imparted largely depends on the quality of teachers. Unless teachers are enriched with quality information, they cannot transact it to their learners in the most meaningful, desired, and appropriate way and this is where the teacher education programmes gain utmost significance. Teacher education programmes through their comprehensive approach help build a teaching community who are competent, skilled, and dedicated to the teaching profession. But as we all know; learning is a lifelong process and it does not just end with the procurement of a job or profession. Therefore, teacher education does not end with just training or educating student teachers to become competent teachers and thereby helping them secure teaching jobs. It goes much beyond that. Once they undergo a pre-service teacher education programme and enter into service, that is when they need to be more professionally trained and educated and this is where in-service teacher education comes into the big picture.

Concept of Teacher Education

Teacher education refers to the policies and procedures designed to equip prospective teachers with the knowledge, attitudes, behaviours, and skills they require to perform their tasks effectively in the classroom, school, and wider community. It can be defined as a programme of education, research and training for moulding individuals into effective teachers or educators who excel in teaching profession.

Though teacher education as a process has to be perceived as a "whole", it is often divided into these stages:

- **Pre-service**—this refers to the initial course of training that has to be undergone by student teachers before entering into the field of teaching and taking up the role of fully responsible teachers.
- **Induction**—this is the process whereby newly recruited teachers are given training and support related to their responsibilities and duties during their initial years in a particular school.
- **In-service**—teacher development or continuing professional development (CPD) is the process where working teachers are given training and opportunities for updating their knowledge and skills and developing professionally.

Teacher education, therefore, is a programme designed not only for inculcating subject knowledge, but also for developing the proficiency, competency, and skills of teachers that would enable and empower them to meet the requirements of the profession and face the challenges and difficulties that come up in their way. Teacher education includes teaching skills, sound pedagogical theory, and professional skills.

In-service Teacher Education in India

Definition: In-service teacher education or teacher professional development refers to the training and education received by a teacher who has entered into the teaching profession after undergoing pre-service teacher education. All that a teacher learns and gains both formally and informally after entering into service comes under in-service teacher education.

In-service teacher education is very important and needs to be addressed with utmost priority because a teacher needs to be well updated and adapt to the latest advancements and changing trends in the field of education. Pre-service teacher education is about equipping student teachers with the fundamentals of the teaching profession like the essential teaching competencies, theoretical foundations, subject competency, teaching skills, different teaching strategies for effective curriculum transaction, assessment methods and techniques, classroom management, philosophical, psychological and sociological bases of education, and so on. Once the student teacher gets this basic training and education programme in the form of a diploma or degree in teacher education (D.El.Ed./B.Ed./B.El.Ed. etc.), they become eligible and qualified to enter into the teaching profession. But their real challenge begins then only. They step out of their theoretical frames and enter into the practical field and come face to face with the ground realities of the profession. They put into practice what they have learnt and that is when they start facing challenges and issues. At this point, they begin searching for solutions for their problems and this marks the beginning of in-service teacher education. With the passage of time the theories and knowledge gained from pre-service education programmes get updated and the teacher has to keep abreast with those changes along with the technological advancements and innovative teaching and assessment methods. In-service teacher education includes Orientation/Induction Programmes, Refresher/ courses, Short Term Courses, Faculty Development Programmes, Workshops, and Courses through online platforms like MOOCS (Massive Open Online Courses), SWAYAM (Study Webs of Active Learning for Young Aspiring Minds), etc. In-service teacher education also includes any activity or work undertaken by the teacher for enhancing their professionalism such as writing research papers and articles, doing minor or major projects, publishing books, reading and reflecting on journals, forming and engaging in study groups, creating collaborative platforms for sharing of information with teachers from different institutions or from other parts of the world.

Aims and Objectives of In-service Teacher Education in India (NCFTE-2009)

The major aims and objectives of in-service teacher education in India as given by the National Curriculum Framework for Teacher Education-2009 are as follows:

- Explore, reflect on, and develop one's own practice
  For one's growth, the first step to put forth is to explore, reflect, and develop one's own practice. To grow into a professional teacher, one has to make an exploration and do an analysis of one's own growth with respect to where one stands and where one needs to reach. For this, they have to reflect on their current practices, find out the areas of weaknesses, barriers, and challenges, and develop them so as to improvise themselves and become competent and efficient.
- Develop and extend his/her knowledge and also update oneself on academic discipline and other areas of school curriculum
  Teaching involves the transaction of knowledge, and for this, the teacher needs to be well versed in his discipline. Only if teachers have deep knowledge and understanding of their subjects can they explain and transact it effectively to students. So, they need to deepen their subject knowledge and other areas of the curriculum they are dealing with. And also, since the pool of knowledge keeps expanding day by day, it is very essential that teachers also keep themselves updated about these recent developments in their disciplines.
- Research and reflect on learners and their education
  To grow professionally, it is equally important for teachers to know their learners. Only if they know the learning styles, learners' background, abilities, aptitude, interest, psycho-social factors affecting learning and the learners, etc. can they prepare accordingly for effective curriculum transaction. For this, teachers have to do a lot of research as well as reflect on their learners and their education.
- Comprehend and apprise on educational and social issues
  A teacher needs to have a thorough understanding and also be updated with the educational and social issues around him because teaching is ultimately about building a linkage between education and society. In order to address the educational and social issues, we need to first become aware of them and understand them, and then only can we start working for solving those issues.
- Prepare for various duties/roles professionally associated with education/teaching, such as teacher education, curriculum development, guidance and counselling, etc.
  As we all know, unlike other professions where employees need to be working on only the specific duties and roles they are entitled to, the teaching profession stands apart from that. The teacher has to take on multifarious roles like that of a guide, counsellor, philosopher, curriculum developer, mentor, leader, organiser, administrator, and so on. The role of a teacher can never be confined to mere teaching and sharing of knowledge, and therefore, it is very essential for a teacher to develop all those competencies and characteristics needed for meeting the demands of the multifarious roles they take on.

- Breaking out intellectual isolation and sharing experiences and insights with others in the field.
  In order to develop professionally, one has to come out of his shell and explore and interact with people in the immediate and wider society. Through interaction with other teachers or experts in specific disciplines, teachers get an opportunity to share as well as learn from others' experiences. It gives an opportunity and platform to discuss the challenges and issues faced by them and thus come out with appropriate solutions for the same.

Models/Approaches of In-service Teacher Education

1. Induction Programme

Induction programme is the support and guidance provided to new teachers and school administrators in the early stages of their careers. Induction includes orientation to the workplace, socialization, mentoring by experienced teachers, and guidance through beginning teacher practice. Induction programmes include professional development and training in classroom management, administration, effective parent-teacher communication skills, skills for addressing the needs of special students, literacy and numeracy strategies, etc. It trains them on the expected standards, norms, policies, and work culture of the institution and inculcates in them the desired social behaviours, academic and administrative skills pertaining to their job.

2. The Standardised Approach

There are different models under this approach being discussed underneath:

- **Cascade Model**
  This is a centralised approach that is used when we have to disseminate knowledge and skills to a large population. In this model, mainly, new concepts are examined and the skills are demonstrated and modelled. A small group of teachers are selected and given intensive training. Each one of the groups then goes and gives training to other small groups in their areas and this chain continues until it reaches every member in the teaching fraternity. This approach saves a lot of time, energy, and cost as we needn't make arrangements for all members at a central place. But the disadvantage is that it follows the one size fits all approach and since knowledge and skills are being transacted through levels of less experienced trainers, there is every possibility of important information being lost in the process. This is mainly because the ability of each individual to comprehend and transact knowledge differs. The success of such a model depends on the intellectual capacity, comprehension power, and communication skills of the trainer. Therefore, this model can be used whenever there is an urgency to transfer huge volumes of information and skills in a short span of time and when we have to disseminate new knowledge, skills, and strategies or build awareness of best practices. Otherwise, it is better to go with other models and approaches.

- **Reflective Teaching Model**
  This model focuses on the process of reflection. In this model, a pair of teachers work together on developing lesson plans and designing effective teaching strategies. They are involved in joint planning, teaching, and reflecting. After jointly planning for the class, they either co-teach or teach individually by taking turns and then finally reflect on their own practices. Reflecting on one's own practices requires a lot of refined and critical thinking and the ability to critically question, analyse, and find solutions. The reflective model calls for consistent and continuous sessions.
- **Split Model**
  In this model, training is given to teachers for a few days or maybe a week at the district or block level. After the training, the teachers implement whatever they have learnt from the training sessions into real classroom situations for a few months. So, it includes the integration of theory and practice and the implementation of context-specific teaching strategies and methods in classrooms. After the trial for a few months, the teachers are called for a follow-up training session, wherein they reflect upon and discuss their experiences and challenges faced while implementing the theoretical inputs they had received.
- **One-Shot Training Programmes**
  As the name suggests, this type of programme is given for a short time as a single course or workshop. There is no follow-up and the entire programme is condensed to a few classes. These programmes are beneficial when there is a lack of time and when the training needs to be completed within a stipulated period of time. However, the disadvantage is that since the classes are condensed and the content to be delivered is packed tightly, classes might seem hectic to teachers. Also, since there is no follow-up after training, it is difficult to evaluate the quality of the programme in terms of achieving the expected outcomes.

3. Site-Based Approach

The site-based approach deals with the training and professional development of teachers within their schools or institutions or resource centres. It is locally based and focuses on local needs and issues and extends over a period of time. This is used when teachers of a school or institution work together on their common problems, they come across with using technology or teaching new concepts or implementing new teaching techniques or implementing modern assessment techniques. It is a gradual process and needs ample time. The limitation of this approach is that this approach needs local facilitators or master teachers who can help teachers with learning new concepts, pedagogy, and technological skills and it is difficult to get such local facilitators everywhere, especially in remote and rural areas. It is also time and labour intensive. This approach takes the following different forms:

- **Observation/Assessment Model**
  Here the local facilitator or master teacher or expert observes the teaching strategies and classroom practices of the teachers and provides them with concrete and organised feedback on the same. Based on that, the teachers can reflect on their strengths and weaknesses and improvise. This model can be used after teachers undergo some training or workshops in order to assess the impact of such training or workshops and observe the extent to which teachers are actually implementing what they have learnt through training programmes or workshops and further provide assistance if needed.
- **Open Lessons**
  Here priority is given to teacher behaviour like the way of teaching, depth of content, methods used, explanation, meeting individual differences, approach to students' arousal of interest, curiosity and creativity, usage of technology, assessment of students, and so on. Teachers prepare lesson plans and take classes in the presence of their colleagues. Colleagues observe the classes and later on give feedback on the same.
- **Lesson Study**
  Here student actions form the focus. Teachers work together in groups and plan and develop lesson plans. They discuss the plan in length, share views, and plot ways to further improve the lesson plans after which they implement it in their classrooms as a field test. They then observe these classes and collect data so as to see the effect of these lessons on student learning. They observe how students are involved in the learning process, how they are comprehending it, whether it is meeting the needs of all learners, the extent to which it is arousing curiosity, creativity, questioning skills, critical and reflective thinking, the level of interest, and so on. Based on the observation and data that is collected after the field test, the lesson plans are further improved or modified as needed.
- **Study Groups**
  This is a collaborative approach where teachers work in small groups or as a single large group in order to solve common school-based problems faced by them. They interact, discuss, and reflect on their experiences, difficulties, and challenges faced and come out with solutions for the same. They share their views with each other and chart out an action plan to attain a common goal.
- **Inquiry/Action Research**
  This approach is quite familiar to all and it involves teachers selecting any issue of their interest, exploring it, researching it, and finally coming out with possible solutions or remedies. After charting out possible solutions, it is implemented to see if it actually addresses the issue and solves the problem and the outcomes are reflected upon. If not, alternative solutions are planned and tested again and this continues till the problem gets an actual solution. The entire process is documented step by step as done in scientific research.
- **Mentoring**
  This includes the assistance and guidance given to the newly recruited teachers in schools or institutions by the experienced and elderly teachers of those workplaces. The newly appointed teachers are given guidance and support in all

academic and administrative responsibilities they are entrusted with in the school or workplace.

4. Self-directed Teacher Professional Development Approach

Here teachers determine their own professional development goals and accordingly decide on activities and works that will help them achieve their goals and this may be in the formal or informal mode. It depends on each individual as different people have different priorities and interests. What one teacher might find useful and essential for his professional development need not be the same for another one. This is because each one has different abilities, interests, strengths, and weaknesses. As the name indicates, this professional development is initiated within the self and it includes activities like writing and publishing research papers or articles, doing action research, attending online courses, seminars, conferences, or workshops on areas of interest, observing classes of other colleagues or experts, reading journals and books, taking up minor or major research projects, attending faculty development programmes or short-term courses, and so on. In this kind of approach, the responsibility for professional development lies completely on the teachers. Teachers themselves work on their areas of interest and come out with plans and actions for meeting their goals. This would, therefore, be a little difficult for novice teachers and for those who are not much skilled or who have not attained mastery yet. Initiating professional development from within calls for a lot of motivation and will-power from oneself and hence this approach goes well with only those teachers who have motivation and passion.

Types of In-service Programmes in India for Enhancing Professionalism Among Teachers

There are different types of in-service programmes through which teachers enhance and update their teaching–learning skills and professionalism.

- **Refresher Courses**
  Refresher courses are educational courses for specific subjects. These courses are for teachers of a specific subject to help them gain deeper insight into their subjects, gain subject mastery, and get updated with the latest trends like the latest technological software and applications that can be used for effective teaching and learning of their subjects. It exclusively deals with the specific subjects of teachers that they have specialised in. It helps them refresh the concepts and theories that they have studied, update them and gain deeper insight into the pedagogy of teaching their subjects. It also keeps them abreast of the progress in the theories, teaching methods, and assessment methods. It gives them a platform to meet teachers from other institutions, interact and share experiences and learn collaboratively.

- **Orientation Programmes**
  Orientation programmes are mainly intended for teachers who are newly recruited. The programme intends to brief teachers on the profession of teaching, the outcomes to be achieved, the ethics to be followed, overall personality development, and their major roles apart from that of a teacher like a curriculum developer, administrator, counsellor, leader, psychologist, philosopher, sociologist, environmentalist, guide, etc. It is about developing the basic competencies and skills essential for a teacher in enhancing professionalism. Such courses give teachers an opportunity to mingle with teachers from various disciplines and other parts of the state and country and share experiences with them. They get to listen to talks from experts from various fields like psychology, philosophy, sociology, physical education, special education, environmental education, life skills, communication skills, and so on.
- **Workshops**
  Workshops are interactive training sessions where teachers are able to practice what they have learnt. It gives hands-on training and practice to teachers. Practical problems faced by teachers in their classrooms and institutions are taken up in workshops and deliberated upon. It can be related to classroom management, teaching methods, assessment methods, teaching resources, ICT integration, and so on. Solutions are discussed and tried out along with it. Rather than listening to lectures or presentations, a workshop gives an opportunity for practical activities. Teachers are completely involved in those activities and get hands-on experience for the same. Some training sessions and activities are carried out in groups and some are done individually. Since workshops deal with practical work and hands-on experience, the number of participants is limited, unlike seminars and conferences. Involving in training and activities gives teachers direct experience in learning and thus helps enhance their professionalism.
- **Seminars/Conferences**
  Here a group of educationists and academicians come together for sharing ideas, discussions, and reflections on selected themes. They provide platforms for teachers for interacting with experts and colleagues from other places working in the same area. Each person gets a chance to express his views and that is followed by discussion. It gives an opportunity to listen to diverse views and innovative and creative ideas and thereby enhance their critical and reflective thinking skills. While attending seminars and conferences, teachers get an opportunity to put forth the issues or challenges they face with respect to the selected theme and get appropriate solutions for the same. It helps them gain deeper knowledge and subject mastery and also get updated with the latest trends and practices in their fields thereby enhancing their professionalism.

Points to Consider While Designing In-service Teacher Education Programmes

For enhancing professionalism among teachers, we need to focus on the quality of in-service teacher education programmes being offered to our teachers. It is not about the quantity or number of programmes they attend but it is about the richness and worth of such programmes that should matter the most. Therefore, in-service teacher education programmes need to be designed with utmost care and concern.

Following are a few major points to be taken care of while designing in-service teacher education programmes for enhancing professionalism among teachers:

- **Involvement of all Stakeholders**
  In-service programmes should be designed with the partnership of government, national, state, and district-level institutions, agencies, and organisations involved in teacher education programmes. In fact, it should involve all stakeholders in the process starting from the topmost level to the grass root level in the field. The views, ideas, and recommendations of all these people need to be taken into consideration if we need to enhance the quality of in-service programmes.
- **Based on Existing Policies/Programmes and Successful Models**
  It should be developed based on the existing policies and programmes of teacher education in the country. It should be monitored and revised accordingly as per the changing trends, reforms, and policies of teacher education. Also, while planning such programmes, it would be advisable to go through such successful models and programmes of other countries and draw ideas from the same. It may be contextualised as per the needs of the local environment, state, and country.
- **Needs Assessment**
  The programmes should be developed after conducting needs assessment and finding out the priorities of teachers. Instead of a group of higher officials determining the aims and objectives of the programme and designing the programme or course, it is always best to reach out to the target group and conduct a survey and find out what they want. The needs and requirements of the teachers and students should be found out, and accordingly, the programmes may be designed. This will serve the very purpose of in-service training and help enhance professionalism among teachers.
- **Scope for Sharing and Interaction**
  In-service training programmes must provide ample scope for sharing the experiences of communities of teachers among themselves to build a stronger shared professional basis of individual experiences and ideas. There must be ample scope for interaction between teachers because it is only through collaboration that one can get to know about others' views and experiences and learn from each other. Specific sessions should be allotted for the same under the supervision of experts who will act as moderators for the interactive sessions. This will help teachers

reflect on their strengths as well as weaknesses and help build or transform them in a better way.

- **Well Defined Aims**
  Programmes must have well-defined aims and a clear picture of how the strategies of the programme are going to achieve these aims. The entire team involved in designing the programme should sit together and plan accordingly. The involvement of all stakeholders is necessary because it is essential to have each stakeholder's views and suggestions for charting out plans to achieve the expected outcomes. The say of every individual connected with the teacher education programme starting from the top to the grass root level is very well required for achieving the aims of such programmes. All resource persons need to be involved and they should be given an opportunity for collaboration among themselves apart from interacting with other stakeholders. Programmes should also include a plan for post-programme support and include training/orientation of support staff in the same.
- **Relevance**
  The aims and outcomes of the programmes must be relevant to the group of teachers concerned. It should give a sound explanation to the teachers regarding the need for such a programme and why they should attend it and it should not be taken up by a teacher just for the sake of promotion or career advancement. The teachers should be given opportunities to select the programmes as per their own choice depending on their needs, especially for those programmes that are of long duration and which seek to impact practices. One programme cannot fit all. Hence, teachers should be given opportunities to select the programmes that seem relevant to them. It should help teachers apply what they learn to their classroom teaching and make the best out of it.
- **Promote Reflective Thinking**
  The teachers should be able to relate to the content of the programmes from their own experience. They must also get opportunities to reflect on these experiences. So the programmes must have ample scope for promoting reflective thinking among teachers. Activities and training sessions can be developed based on this so as to make teachers reflect on their thoughts and experiences and find out where and what they lack and what and how it can be improved.
- **Follow Adult-Oriented Models**
  Adult-oriented models of active learning, which combine theoretical and practical knowledge acquisition, skill demonstration, and hands-on, learning-by-doing, are most effective in facilitating professional learning for adult teachers.
- **Emphasise Pedagogical Content Knowledge (PCK) in Designing Programme Content**
  In-service training programmes should give due importance to the content being taught. It should focus in-depth on the subject content and help teachers gain a deeper understanding of their specific content. Only if teachers understand their subjects thoroughly and comprehend them properly will they be able to teach and assess students effectively. Planning, preparing lesson plans, and choosing the appropriate instructional strategies and assessment methods depend on teachers'

mastery of their subjects. Pedagogical content knowledge is very crucial for facilitating learning. In-service programmes should, therefore, provide teachers with platforms wherein they can strengthen their knowledge in the subject matters of their curriculum. It should also make teachers well versed in the language of instruction so as to make teachers proficient in the language they use while teaching. The programmes should also make teachers adept at preparing teaching materials using low-cost materials or using local resources that are available in their schools, home, and community.

- **Evaluation and Follow-Up**
  To maintain the quality of a programme, it is essential to evaluate the effectiveness of the in-service education programme and do a proper follow-up. The effectiveness of the programme needs to be evaluated in terms of whether the participants achieved the expected outcomes. This can be through formal and informal assessments during the programme. Apart from that, feedback from participants should be taken and this would help in knowing about the positive points as well as drawbacks of the programme. Based on these, a proper follow-up should be done. The training institutions should keep a database of each training programme based on the following questions:
  - Did participants acquire the expected knowledge and skills?
  - Were the speakers resourceful and effective?
  - Were the learning materials and content useful, relevant and practically applicable?
  - Could teachers relate the taught matters to their actual classroom teaching?
  - Was the environment conducive to learning?
  - Was collegiality, collaboration, and exchange of ideas fostered?
  - Did the programme pave the way for developing intrinsic motivation in teachers for carrying out continuous professional development?
  - To what extent follow-up has been carried out based on the evaluation and feedback obtained?
  - Whether the teachers who attended the training have been assessed in terms of their improvement in practices at their workplace/school? If yes, what are the empirical observations?

Code of Professional Ethics for Teachers

Increased awareness and the observance of professional ethics governing the teaching profession is very essential to ensure professionalism among teachers. Therefore, all educational institutions should evolve a suitable mechanism for ensuring that teachers follow these ethics. The Code of Professional Ethics for teachers gives a framework of principles that will help teachers discharge their obligations towards students, parents, colleagues, and the community, which is discussed below:

(a) Obligation towards students
The teacher should be impartial and should not discriminate against them based on caste, creed, gender, religion, language, economic status, disability or place of birth. They should treat all students with love and affection and respect the child and facilitate their physical, social, intellectual, emotional, and moral development. Teachers should help students reach their actual potential or talent. Transaction of curriculum should be in conformity with the values enshrined in the Constitution of India and teaching should cater to individual needs of students. Teachers should maintain confidentiality regarding information concerning students and should not subject any child to fear, stress, anxiety, physical punishment, sexual abuse, and emotional and mental harassment. They should maintain dignity in their behaviour and profession and be role models to the students.

(b) Obligation towards Parents, Community, and Society
Teachers should establish a relationship of trust with the parents/ guardians and not do anything derogatory to the respect of the child or his parents or guardians. They should develop students' respect for the composite culture of India and give their country top priority in mind and avoid activities that spread feelings of hatred or enmity among different communities, religions, or linguistic groups.

(c) Obligation towards Profession and Colleagues
Teachers should work for their continuous professional development and create a work culture that promotes purposeful collaboration and dialogue among their colleagues as well as stakeholders. They should not take private tuitions and not accept gifts or favours that might influence their professional decisions or actions. Teachers should not make false allegations against their colleagues or higher authorities and also not indulge in making derogatory comments about their colleagues in the presence of students, parents, other teachers or authorities. They should respect the views and opinions of their colleagues and maintain confidentiality of information concerning colleagues unless specifically authorised and necessary to disclose. Finally, a teacher should take pride in his/her profession and treat all members of the teaching profession with respect and dignity.

Other Important Factors Affecting Teacher Professional Development

Online Professional Development Opportunities

The National Education Policy (NEP 2020) has stressed the use of technology platforms like SWAYAM/DIKSHA for online training of teachers. Massive Open Online Courses (MOOCs) will help in providing cost-effective high-quality standardised training programmes to large numbers of teachers within a short span of time. In November 2018, the Ministry of Education launched the Annual Refresher

Programme In Teaching (ARPIT), a key and exclusive initiative towards the online professional development of higher education faculty using the MOOCs platform SWAYAM. SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) is a Government of India initiative that has been designed to accomplish the three cardinal principles of Education Policy which are access, equity, and quality. The institutions should encourage and pave the way for teachers to take up such online modes of professional development programmes because it saves a lot of time and energy. It is very flexible and teachers can attend it during their free time, thereby not having to compromise much with their teaching schedules and family responsibilities. They can attend it at their own workplaces or homes and this is a great advantage for everyone, especially the women faculty.

Working Conditions and Environment

Only when teachers have good working conditions and a democratic environment will they be happy and satisfied and in turn be able to give their best and get motivated to develop professionally. Job satisfaction is very much associated with one's performance and professional development. Rigid working environments with stringent rules will have a negative impact on their self-esteem and confidence and never allow them to develop professionally. Teachers should therefore be given freedom of work and the freedom to carry out professional development activities and attend in-service training programmes. The academic and non-academic work assigned to teachers should be balanced. Overloading them with these works will also hinder their professional development because of the lack of sufficient time to carry out their professional development activities. They should also be given rewards, recognition, and monetary benefits and allowances for undergoing professional development activities which will motivate them further.

Promoting Use of ICT

Technology plays a very important role in enhancing professionalism among teachers. ICT provides teachers with a lot of opportunities and scope for updating and sharing knowledge. It helps them explore quality teaching materials, teaching strategies, assessment methods, projects, research works, and educational articles from across the globe. It also helps them in effective curriculum transactions and assessments.

Life Skills Education Programme

Teachers should be made to undergo life skills education programmes so that they can balance their emotions, develop social skills, and maintain good mental health. Professionalism as discussed above depends on one's personal qualities and characteristics. Thus, for enhancing professionalism, teachers need to be mentally strong and emotionally balanced social beings. This is because a person who has all teaching competencies and excellent subject knowledge can never become a professional unless he is mentally strong, happy, and satisfied, and this can be achieved through inculcating life skills in teachers. Life skills education programme helps develop empathy which is very much needed in teachers while dealing with students. It will help develop in them the ability to solve problems and make apt decisions which again is very important in the teaching field. Imparting life skills will also develop the ability of teachers to cope with the stresses they face both at the personal and professional levels. Life skills education will also enhance communication skills and improve interpersonal relationships. Creative and critical thinking will also be developed through life skills education. It can, therefore, be seen that life skills education helps in the overall development (mental, emotional, and social development) of teachers.

Agencies Engaged in Strengthening In-service Teacher Education in India

- **National Council for Teacher Education (NCTE)**

The National Council for Teacher Education is a statutory body that came into existence in pursuance of the National Council for Teacher Education Act, 1993 (No. 73 of 1993) on 17th August 1995. The main objective of the NCTE is to achieve planned and coordinated development of the teacher education system throughout the country, the regulation and proper maintenance of Norms and Standards in the teacher education system, and for matters connected therewith. The mandate given to the NCTE is very broad and covers the whole gamut of teacher education programmes including research and training of persons for equipping them to teach at pre-primary, primary, secondary, and senior secondary stages in schools, and non-formal education, part-time education, adult education, and distance (correspondence) education courses.

The major functions of NCTE include:

– Conducting surveys and studies on various areas and subjects in the field of teacher education and publishing the findings and results.
– Giving suggestions to the Central and State Governments, Universities, University Grants Commission, and recognised institutions on various plans and programmes to be carried out in the field of teacher education.

- Co-ordinate and systematically review the process of teacher education and its development in our country.
- Stating the guidelines to be followed while recruiting teachers in schools or recognised institutions which includes laying down the minimum qualifications and other criteria needed for a person to be employed as a teacher.
- Stating the standard norms needed for specific categories of courses or training in teacher education. The minimum eligibility criteria for admission to these courses, the procedure through which candidates have to be selected along with the duration of the course, contents of the course, and the mode of the curriculum are given by NCTE.
- Giving guidelines to recognised institutions for starting new courses or training programmes in teacher education including guidelines on the physical infrastructure, instructional facilities, staffing pattern, and qualification of staff;
- Lay down standards in respect of examinations leading to teacher education qualifications, criteria for admission to such examinations, and schemes of courses or training;
- Giving guidelines to the institutions with regard to the tuition fees and other fees to be charged to students.
- Endorse and carry out innovations and creative and fruitful research in different areas of teacher education and disseminate the results.
- Examine and review periodically the implementation of the norms, guidelines, and standards laid down by the Council, and suitably advise the recognised institution;
- Develop appropriate performance appraisal system, standard norms, and methods for administering accountability on recognised institutions;
- Frame schemes for various levels of teacher education and identify recognised institutions and set up new institutions for teacher development programmes;
- Take stringent steps to stop and control commercialisation of teacher education; and
- To execute such other functions as may be assigned by the Central Government.

- **National Council of Educational Research and Training (NCERT)**

In 1961, the Government of India established the National Council of Educational Research and Training (NCERT) as an autonomous organisation to assist and advise the governments at the Centre and in States in the implementation of their policies for education, especially to bring about qualitative changes in school education and teacher preparation. Over the years, the Council has evolved into a unique organisation, with its increasing range of activities that have influenced school education in India. The Department of Teacher Education of NCERT works towards the betterment of teacher education in India in various ways. The department publishes reading materials, books, and journals in this area. One of the biggest contributions of the department towards teacher education in the present times is the development of Performance Indicators (PINDICS) for Teachers' Self-Assessment, which is being used in all states and UTs of India. It not only helps teachers in his or her self-assessment relating to teaching behaviours and skills, but it may also be used as the

reference point by the teachers to understand and follow them to bring improvement in their teaching career and hone their required professional skills.

- **State Council of Educational Research and Training (SCERT)**

Under the centrally sponsored scheme, the SCERTs are to provide more focused leadership and support to educational endeavours in states, as state partner institutions with NCERT. The SCERTs are expected to organise in-service education and extension programmes for all categories of educational personnel. Their other functions include the development of curriculum, instructional material, textbooks, and supplementary materials as well as undertaking research programme, guidance, support, and assistance to the state department of education functioning as state resource institution to provide academic support at all stages of education; coordination of all academic matters relating to school education and to maintain appropriate linkages with other educational organisations; supervision and support to the district and sub-district level institutions.

- **National Institute of Educational Planning and Administration (NIEPA)**

The National Institute of Educational Planning and Administration (NIEPA), established by the Ministry of Human Resource Development, Government of India, is a premier organisation dealing with capacity building and research in planning and management of education not only in India, but also in South Asia. The major objectives of NIEPA are:

– organising pre-service and in-service training programmes specifically in the field of educational planning and administration and associated disciplines.
– To take on, support, endorse, and organise research in different aspects of educational planning and administration including comparative studies in planning techniques and administrative procedures in different States of India and across the world.
– To offer academic and professional guidance to the various institutions, organisations, and people involved in educational planning and administration;
– To prepare, print, and publish papers, periodicals, and books, especially to bring out a Journal on Educational Planning and Administration;
– To organise training, conferences, workshops, meetings, seminars, and briefing sessions for educational personnel of the Central and State Governments and Union Territories;
– To offer, on request, consultancy service to Governments, including State Governments, educational institutions, and institutions/organisations in India and abroad.
– To organise orientation and training programmes and refresher courses for teacher-educators and for University and College Administrators engaged in educational planning and administration;
– To organise orientation programmes, seminars, and discussion groups for persons including legislators in the field of educational planning and administration at the level of policy making in Central and State Governments;

- **University Grants Commission-HRDC**

The University Grants Commission was formally established in November 1956 as a statutory body of the Government of India through an Act of the Indian Parliament. It was set up with the major intention of coordinating, setting up, and maintenance of the standards of university education in India. The University Grants Commission has been making vigorous efforts to promote the competency and proficiency of faculties in higher education institutions. It has been providing many programmes for faculties in order to upgrade their knowledge and skills and thereby develop them professionally. For this purpose, the UGC has established a network of Human Resource Development Centre (HRDCs) across the country. UGC funds these HRDCs for organising Orientation/Induction Programmes, Refresher Courses, Workshops, and FDPs (Faculty Development Programmes) for in-service training of faculty members. The major objectives of HRDCs are:

– Conduct orientation programmes and refresher courses.
– Identify suitable experts and resource persons from different fields of specialisation for taking sessions/classes in the orientation programmes and refresher courses.
– Develop repositories with relevant documents, quality reference materials, and resources essential for the faculty attending the courses.
– Produce specially designed material required for the effective execution of the programmes.
– Organise, monitor, and evaluate the programmes.
– Promote and develop the desire among faculty to develop professionally and improve themselves in their respective disciplines.
– Conducting orientation programmes for senior administrators, deans, heads of departments, principals, and other stakeholders to make them aware of the significance of appropriate modification of the management systems at various levels to bring reform in the higher education sector.
– Provide opportunities to faculty for interacting with other colleagues from various institutions and share their experiences and engage in mutual learning.
– Provide a platform for working faculty to keep themselves abreast of the latest advancements in different disciplines and in the field of education.
– Provide opportunities to widen their knowledge and take up research studies and projects in their respective disciplines and thus contribute to the pool of knowledge in the society.
– Introduction to innovative teaching–learning methods and strategies in higher education so as to help the faculty come up with their own creative and innovative methods for teaching in higher education.
– Bring out publications that are relevant for enhancing the teaching and research competencies of faculty.
– Conduct capability enhancement programmes for non-academic staff so as to strengthen the teaching–learning environment.

- **District Institute of Education and Training (DIET)**

The objective of establishing a DIET in each district under the centrally sponsored scheme was to improve the quality of elementary teacher education through innovative pre-service and in-service education. The vision of a DIET as planned under the scheme is to restructure and reorganise elementary teacher education to make it more responsive, and to realise the universalisation of elementary education. Major objectives include training and orientation of elementary school teachers (pre-service and in-service), Headmasters, Heads of School Complexes and officers of the Education Department up to Block level, Instructors and supervisors of non-formal and adult education, members of the Village Education Committee, Community leaders, and people who want to act as volunteers in educational activities. It also provides training and orientation to resource persons who conduct programmes for the target groups mentioned above. It assists the teachers through the Block Resource Centers and Cluster Resource Centers in taking up action research and finding out alternative solutions to the classroom issues and challenges faced by them. It also serves as a centre for disseminating educational research and innovations at the district level. There is a need to strengthen DIETs all over the country so that these may fulfil the objectives with more vigorous pre-service and in-service training for which these were established.

Summary

The teaching profession is a very noble profession but it also has a great responsibility on its shoulders because it plays a crucial role in building productive and responsible citizens for the country. Quality of teaching is dependent on the quality of teachers involved, and therefore, it is essential to give comprehensive and quality training to teachers. Pre-service teacher training prepares and equips student teachers with the essential subject knowledge and teaching skills that are needed to enter into the profession of teaching. It acts as the essential qualification for them to mark their first step in the field of teaching. However, once they get into service, it becomes more important to keep updating oneself about the changes and advancements taking place in their relevant disciplines as well as in the teaching strategies and assessment methods. Teachers have to keep moving along with the fast changing and growing knowledge society; only then will they be able to do justice to the students and society.

In-service teacher training plays a pivotal role in developing diligent and dedicated teachers. The professional needs of the in-service teachers require to be addressed with utmost care and seriousness. The programmes offered for this purpose should be designed and developed for making teachers true professionals in the field of teaching and research and should provide them with the scope for self-improvement. Only through continuous professional development can teachers improve their quality which in turn will be reflected in the quality of teaching. Therefore, it is high time

that in-service teacher training be given the utmost importance. More research and projects should be promoted in the field of teacher education in order to find out the issues and challenges faced in the field of in-service teacher training so as to find appropriate solutions for the same. The Government can set up separate research centres for the same and thereby keep a database of the findings for future reference. The central government, the state government, and other national agencies working for strengthening teacher education in the country can help in the process by designing and implementing quality in-service teacher training programmes, continuous monitoring of the same in terms of the outcomes being achieved, and collecting frequent feedback from teachers. Rigorous and strenuous efforts from all stakeholders in the field of teacher education will definitely help in improving its quality thereby leading to professional enhancement among working teachers.

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Chapter 12
Physical Education in India: A Critical Review and Reflection

Arif Mohammad

Abstract This chapter deals with the review and reflection on what is happening in the teacher education institutions as far as in-service training of physical education teachers is concerned. Before that, it is important to know the concept of physical education as a subject. For clarity this chapter will attempt to define physical education; and what is expected from it, before providing a corresponding elaboration from expectation to actuality. Globally it is accepted that the "activity" or "movement" is the essence of physical education; which is the "sign of life". Plato said, from conception to the coffin life is an uninterrupted continuum of movement. When and where movement ceases, life ceases to exist. Play, sports, exercise, recreation, dance, gymnastics, swimming, etc. are various forms of activity and essential components of physical education. Here it is very much clear that physical education is a lifelong process and in the words of Charles A. Bucher "physical education is an integral part of the total education process and has its aim in the development of physically, mentally, emotionally, and socially fit citizen through the medium of physical activities which have been selected with a view to realising these outcomes". Now, we have a clear picture of what physical education is, and what is expected from it. This chapter will cover all the above-mentioned points in detail.

Keywords Physical education · Movement · Activity · Sports · Play · Exercise · Recreation · Dance · Gymnastics · Swimming

Introduction

All organisms are naturally active; they move in order to live, and they live because they move. Movement or activity reflects life. All functions of the organism are a function of movement. Activity is the cosmic principle of matter, mind, and plasma. The inherent energy in the matter generates movement and movement, in turn, creates,

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propagates, and sustains life. Like each atom, each cell of the body over-brims with vital energy which causes it to remain in a state of constant motion.

The horizons of physical education have changed much over recent decades. Several new trends have emerged. Focus has been steadily shifting from traditional pay and recreational activity to overall fitness (for a complete living) and optimum sports performance. Greater emphasis has come to be now placed on research in sport sciences (sports philosophy, biomechanics, exercise physiology, sport and exercise psychology, nutrition, etc.), exercise, fitness, and well-being. Teaching and training methodologies and management are especially of human material than ever before. All these and many more innovative approaches have contributed quite a lot to enriching the content and raising the stature of physical education as well as improving the quality of teacher education across the globe.

As one of the students of physical education, I realised that whatever happed in United States and Europe in Physical Education and sports as academic subject the shores of Indian Ocean by just floating rather than by cruising. By the time physical educators in India come to know, and try to understand, absorb and assimilate what is new, the whole thing gets outdated and outmoded where it originated. Take, for instance, quality literature. At the moment, the best possible publications on physical education and sports come from the United States. For Indian, they are awfully expensive. Most institutions in our country can ill-afford to procure them for their library. That way, they are just beyond an individual reader's reach. Besides, these books illustrate points and exemplify American or European lifestyles and environs which are ordinarily difficult for most Indians to digest.

In a world getting infected with exploding information, fast proliferating technology, and increasing use, misuse, and abuse of both by all sections of society, taking problems of this nature may not pose much difficulty if a little intelligence were used and a well-planned effort made. Procurement of foreign books at exorbitant prices may be like a Himalayan climb for the resources are strictly restricted and problems of procedure abound. As the best alternative, it is possible to combat the situation by borrowing novel and useful ideas, chiselling and reshaping them to suit our own objectives and environs. This would neither hurt anyone nor trespass any norms of ethics. This can be understood by a simple example—if two of us exchanged a one-rupee coin each, we shall be left with one coin each, but if we exchanged a new idea with each of us, both of us shall have two ideas each at the end. Book exchange leads to no book multiplication, but idea exchange inevitably results in idea multiplication and proliferation. If physical educators in India adopt this strategy, a new bright dawn of good literature might not be far away. However, this is easily said than done because for all this, people need to keep their knowledge updated (being prompt in their response to what is going on in the world where and from moment to moment), acquire the art of studying, evaluating, and transforming ideas (being rightly critical and systematic), and improving communication skills—both verbal and non-verbal. All this and much more are needed to discuss to be incorporated into teacher education programme, which could serve as a text for many a university teaching departments and training colleges in the country. So, to meet the demand

of this chapter, we have to have a clear understanding of where and how physical education emanated to India.

A Very Brief History About the Start of Physical Education Courses in India

Physical education is nowadays termed as movement (activity) education, and it is believed by almost all physical educators in and around the world that the origin of physical education is as old as human existence. In a few senses, it is true but as we perceive what physical education is today, in this and similar form, it is being originated during the first decade of the twentieth century in India. Physical education based on Swedish gymnastics, games, and sports was incorporated into the United Kingdom's (Britain's) curriculum at the time. The British educational authorities in India implemented a similar policy in the European institutions as well as the elite schools for the sons of Nawabs, Rajahs, and Indian nobility (Kamlesh, 2018; Khan, 1964).

The missionary schools opened in India, too, were always ahead in everything. In 1903, one of the missionary schools in India at Bellary, U.P., the St. Joseph's High School, was equipped with parallel bars, Roman rings, vaulting horses, Indian clubs, dumbbells, and climbing ropes. After school hours, all students assembled for P.T. exercises which were conducted by a specialist instructor. In addition, football, hockey, and cricket were popular. Most of the missionary schools in the country had a similar set-up and facilities. Affluent people preferred sending their children to these schools because the curriculum was adopted for the training of the mind as well as the body.

In 1912, the Education Department of the then-Government of India allotted a non-recurring grant of Rs. 25 Lakhs for distribution in all the provinces (States) for school hygiene and for the purchase of playing fields, as the then-Government of India was aware of its responsibility to assist in establishing a sound system of education throughout the country. As a result, organized games were encouraged in the country as part of the educational curriculum, which had a desirable and healthy effect.

The Y.M.C.A. received a substantial subsidy from the allocated grant to cover the salary of a Physical Director, whose services were also organize by the Education Department of the Government of India. In Poona (now Pune), a class was conducted to train teachers to teach simple P.T. exercises and games in their respective schools. During this period, a manual for the guidance of these educators was also published.

This grant made it possible for all European schools in Madras (now Chennai) to establish the position of Physical Director (Physical Education Director). As games were already rganized in these institutions, this grant gave rganized games additional impetus.

By the end of the 1920s, the well-organised public institutions had a suitable physical education layout. Football, hockey, and cricket were among the most popular outdoor sports, which received a great deal of support. At significant centres, private football, hockey, cricket, and tennis clubs were formed.

At this point, the significance of physical education as a component of the curriculum was acknowledged by the higher education authorities. Retired army personnel and good gymnasts were employed as physical instructors in the schools, and at that time, they were known as drill masters. They conducted all practical activities and worked with enthusiasm and showed devotion to their duties. Due to the absence of systematic/organised training, the educational background of those drill masters was different from other members of the school staff, and this tended to set them apart. This kind of tendency is still visible among school teachers.

As much of the present sporting set-up in India was begun during the British period, it is more convenient to deal with this aspect of the British contribution to physical education, games, and sports under the separate sections that follow.

Training/Education of Physical Education Teachers

After the conclusion of the first world war, all segments of Indian society began to awaken. Education was examined from a national and geographical perspective. A structured programme of physical activities based on the interests and physiological requirements of children was deemed essential for quality education. There was a high demand for trained physical education teachers. To meet this demand, the Young Men's Christian Association (YMCA) in Madras (now Chennai) established the country's first College of Physical Education.

The Origin of Y.M.C.A. College of Physical Education, Madras (Now Chennai)

The School of Physical Education is the first college of Physical Education in India. It was established in the year 1920 at Madras (now Chennai) by the National Council of Y.M.C.A.'s of India, Burma (now Myanmar), and Ceylon (now Sri Lanka). Its founder Principal, the late Mr. H.C. Buck, worked with selfless devotion from the founding of the institution till his last breath in 1943. The institution since 1932 is known as Y.M.C.A. College of Physical Education and has gained national and international reputation. Since 1940, the institution is open for co-education and from that time offers three types of courses, namely—Diploma, Government Certificate Higher Grade, and Government Certificate Lower Grade. At present, this institution offers almost all courses related to physical education which are recognised by NCTE and other diploma courses.

Government College of Physical Education, Hyderabad, Deccan (Now Telangana)

The Government College of Physical Education was founded in Hyderabad in 1931, with Mr. Fred Weber serving as its first principal. Mr. Weber was a member of the Y.M.C.A., and prior to his arrival in Hyderabad, he had done excellent work for Physical Education in Bihar and Bombay (now Mumbai). Physical education was made mandatory in all elementary, middle, and high schools in the former state of Hyderabad largely due to his endeavours. Mr. Weber served as Principal there till 1945 and handed over the charge of Principal to Mr. S.M. Hadi, M.A. (Cantab), a well-known Tennis and Cricket player, and went over to Osmania University as Head of the Student Welfare Department. From there, he retired in 1946 (Khan, 1964).

After, Mr. Hadi's retirement in 1952 (he later in 1954 become deputy advisor, physical education, Union Ministry of Education) the college went in the hands of private management for 5 years, and it was known as the academy of physical education. It then riveted to Government control and has since shifted to its new buildings at Gagan Mahal with Mr. Meer Asad Ali as Principal.

At that time, this college offered courses that lasted for one academic year; at the end of which, graduates are awarded diplomas and non-graduates' certificates.

Government College of Physical Education, Calcutta (Now Kolkata)

Also, among the first of India's physical education colleges was established in 1932 at Calcutta (now Kolkata) by the Government of Bengal. Mr. James Buchanan (M.A.), trained at Dunfermline (Scotland), was appointed as the Principal. His conscientious training of teachers was so highly regarded that, in the 1940s and 50s, some private institutions in Bengal advertise for a "Buchanan-Trained" teacher of physical education. In 1942, Mr. Buchanan left the College since his services were required by the Government of Bengal for Home Guards and A.P.P. training. Mr. M.K. Roy took over. In 1956, the college was shifted to Banipur, about 30 miles from Calcutta (now Kolkata).

Christian College of Physical Education, Lucknow

Lucknow's Christian College of Physical Education was founded in 1932 under private missionary management. The college is a division of Lucknow Christian College and is governed by its Board of Trustees. Initially, recognition of these trained teachers of physical education was given by the then Uttar Pradesh Department of Public Instruction. One development happened with this college as the

Lucknow Christian College created a separate Department of Physical Education and the college is affiliated with the University of Lucknow, Lucknow. This department is having all the courses in physical education, i.e. Ph.D. in Physical Education, B.P.Ed., and M.P.Ed. A two-year D.P.Ed. programme (after graduation) is offered by the other unit which was initially established.

Training Institute for Physical Education Kandivali (Bombay)

The Bombay (now Mumbai) administration was also eager to develop physical education. In 1927, a committee was established to report on physical education, but its recommendations were shelved. In September 1937, another committee was appointed which submitted its report within three months. The committee suggested, among other things, the creation of a Physical Training Institute modelled after the Y.M.C.A. College of Physical Education in Madras. As a result of this report, the government of Bombay established a Training Institute of Physical Education at Kandivali near Bombay (Mumbai), in June 1938, and Prof. P.M. Joseph (Padmashree) was appointed as a principal. Prof. Joseph worked as Principal for nearly twenty years and gave the college a sound foundation that has survived. His administrative capacities attracted the attention of the Education Ministry, Government of India. In 1957, he was appointed Principal of Lakshmibai College of Physical Education, Gwalior, established by the Union Ministry of Education.

Shree Hunuman Vyayam Prasarak Mandal, Amravati

The Hunuman Vyayam Prasarak Mandal was founded in 1914 at Amravati by Vaidya brothers, Pandit Ambadas Pant Vaidya and Anant K. Vaidya. Since its foundation, the Mandal has played an important role in promoting the cause of physical education in India.

The Mandal gained popularity because of its policy to revive traditional Maharashtrian exercises. The daily programme consisted of regular practice in the use of sword and spear, lathi (stick) and banethi (stick rotating technique), patha and lezim (folk dance form of Maharashtra), and other combative exercises. The practice of yoga asanas was also cultivated.

In 1924, a five-week summer course was introduced with the object of training young men and women in indigenous forms of physical training exercises. Since then, the summer training course has become an annual feature of the Vyayamshala (Gymnasium). Thousands of men and women from various parts of the country have attended this course, on completion of which they are known as Vyayam Visharad (Exercise Master).

Under the auspices of the Mandal, the first All-India Physical Education Conference was held at Amravati in 1946. Its success was due to the untiring efforts of Shri H.V. Deshpande. It was at this conference that the National Association of Physical Education and Recreation, India, was formed.

In 1947, the Mandal introduce a Diploma course in physical education. It was a regular course of one year's duration and has lately received recognition from the Ministry of Education, Government of India.

During that period, Mandal's team has given demonstrations in various parts of the country and also in Europe and the Middle East. In 1936, the team gave a display of the Indian system of physical culture at the Olympic Games in Berlin. In 1949, it took part in the demonstrations at the second LINGIAD in Stockholm. On its return journey, it gave a number of displays in various European countries.

Post-independence Establishment in the Field of Physical Education: Lakshmibai National Institute of Physical Education (LNIPE), Gwalior

In independent India, the second five-year plan is important as far as the history of physical education is concerned. Under this five-year plan, in 1957, the Lakshmibai College of Physical Education (LCPE) was established at Gwalior by the Ministry of Education and Culture, Government of India, and Padmashri Prof. P.M. Joseph was appointed as the Principal. Since the year 1957 marked the hundredth anniversary of the national uprising of 1857, the new College bears the name of Lakshmibai as a mark of tribute to the great Rani of Jhansi who died valiantly in the national revolt at Gwalior in 1857. The college offers a three-year degree programme and is affiliated with Vikram University, Ujjain, which was the first university in India to recognise physical education as equivalent to any other subject for the award of a degree before joining Jiwaji University, Gwalior, in 1964. In 1973, the Institute's name was changed to Lakshmibai National College of Physical Education (LNCPE) to reflect its elevated status. In 1982, the college was designated an "Autonomous College" by Jiwaji University, Gwalior, in recognition of its distinctive services and character, and to facilitate its continued development. In September 1995, in recognition of the Institute's exceptional educational services in the fields of Physical Education, Sports, and Research, the Government of India, Ministry of Human Resource Development, granted the Institute "Deemed to be University" status under Section 3 of the U.G.C. Act, 1956. Consequently, the Institute was once more renamed Lakshmibai National Institute of Physical Education (LNIPE). The Institute is the sole "Deemed to be University" in the field of Physical Education in South East Asia.

The primary objective of establishing this institute was to elevate the standing of Physical Education by producing instructors and leaders of high calibre through graduate and postgraduate programmes. In 1957, the Bachelor of Physical Education (BPE) with a duration of three years, and the Master of Physical Education (MPE)

with a duration of two years were introduced for the first time in the country. In 1980, the then-college was the first institution in India to offer a one-year Master of Philosophy (M.Phil.) in Physical Education. Additionally, the Institute accepts Ph.D. candidates on a regular basis. Students are also admitted to numerous Certificate/Diploma/Postgraduate Diploma programmes in various Physical Education and Sports disciplines.

Initially, the Bachelor of Physical Education (B.P.E.) programme lasted three years. The course was extended to four years and renamed Bachelor of Physical Education (B.P.Ed. 4-year Integrated) in order to make it comparable to other professional degree programmes and to conform to international standards. The National Council for Teacher Education (NCTE) has recognised this programme. The 4-semester M.P.Ed. Degree Programme is also accredited by the NCTE.

With the sanction of the Government of India, the Institute has established the North East Regional Centre in Guwahati (Assam) beginning with the 2009–2010 academic year. The Centre offers B.P.Ed., M.P.Ed., and Ph.D. programmes in physical education.

Possibly the first Institute to be certified to the Integrated Management System (IMS) parameters of ISO 9001 (Quality Management System), ISO 14001 (Environmental Management System), and OHSAS 18001 (Occupational Health and Safety Management System).

In India, numerous colleges and departments of physical education eventually emerge.

Perception of General People About Physical Education

If you conduct a survey and ask people what they think of when they hear the term Physical Education, they may respond, "It's sports activity…, sports education…, sports coaching…, health education…, yoga education…, or anything related to the fitness of individuals…"

Is this Physical Education only related? No, Physical Education is substantially more than the aforementioned elements. Even though these activities are associated with Physical Education, they are not the only focus of Physical Education. Physical Education employs physical activity or movement to improve an individual's physical, mental, and emotional qualities. In reality, physical education is a broad discipline of education that examines the relationship between body movement and other areas of education.

What Actually Does Physical Education Means?

Physical Education—An Education with a Difference

Rightly called "an old and fundamental education" (Williams, 2000) physical education is the mother of all education for even the first yell of the newly born signifies the primary need for movement. It needs no proof that activity or movement is the very basis of our existence; through activity alone does the child receive the first lessons of life involving physical interaction with the environment. During the great span of biological evolution, the survival of organisms including man solely depended on physical activity besides the need for air, water, and food, for the simple reason that only running, jumping, throwing, climbing, leaping, hitting, kicking, striking, pulling, pushing, etc. could enable man to accomplish two major objectives of life: (1) searching food to satisfy hunger and (2) ensuring his/her safety against dangers from predating animals as well as natural calamities. This necessitated individual to be strong, powerful, & agile; and it is only possible through intense physical activity and movement. Consequently, training the body to meet the exigencies of time and place using experience and experiment became a dire spontaneous necessity. Thus, was laid the foundation for physical education in its rudimentary form. "The first physical educator," opines Williams (2000), "was the parent who taught his son to throw a spear, to climb a tree, to leap a brook, to do all those things that were important for a youth to learn in the tribal life or uncivilised man". The March of Civilization in no way has struck down these highly valuable skills but rather has stimulated the "intelligent man" to refine them and use them for a far greater variety of purposes than just survival.

Since the Survival Activity Era through the fabulous Pan-Hellenic Contests Age (about 2,500 years ago) of the Greek dominance coming to the resurrection of the Olympic Games in 1896 A.D., physical education in diverse forms and frames such as play, exercise, recreation, sport, games, yoga, martial art, etc. has continued to play a decisive role in keeping man in a state of ever readiness both for war and calamity management without digressing from cherished objectives of health, fitness, well-being, and recreation.

Interestingly, at no point of time in history has physical education received so much attention from society in our times. The reason for this dramatic change lies in the recent "fast-paced industrialization", urbanisation, revolutionary growth of science, and exploding information and communication technology considered very much responsible for an irretrievably degraded life's physical activity scenario. The unchecked blind pursuit of materialistic philosophy, the steeply rising consumerism, and the depressing "push button" lifestyle are badly eroding man's "physical activity base" and replacing it with a culture, overly dominated by mental gymnastics and bodily inactivity (Kamlesh, 2013). According to a WHO estimate, 60% of the world's population is not physically active enough to ensure excellent health. The majority of urbanites have allowed themselves to be enslaved by pervasive automation. As a result, our bodies had become accustomed to enjoying themselves above all else,

perched on swivelling office chairs and remaining in air-conditioned homes, offices, and vehicles. It is a sad fact, however, that a person who moves from an air-conditioned car to an air-conditioned office and back to an air-conditioned house without engaging in any strenuous activities may reach the air-conditioned grave faster than his/her active peers.

Under this current murky scenario of degraded physical activity, the onus lies on the entire mankind to take time by the forelock and recall the piece of advice the great Chinese revolutionary leader Mao Ze Dong gave to his people almost a century ago in 1917:

> Physical education (activity) helps to maintain life…. It complements virtue and knowledge education. Furthermore, both virtue and knowledge reside in the physical body. Without the body, neither virtue nor knowledge would exist. The only tragedy that can befall a man is to lack a physical body. What else is there to be concerned with? If one endeavours to improve one's body, other improvements will occur naturally. Physical education is the most effective activity for the development of the body. Physical education is truly the most important aspect of our lives. When one's body is healthy, one can rapidly advance in knowledge and morality and enjoy numerous benefits.

In the present scenario, "Physical education is the study, practice, and appreciation of the art and science of human movement" (Harrison et al., 2001). It is a subject the framework of which proudly but firmly stands on the sound foundations of fundamental facts and generalisations from various sciences and philosophic thoughts.

What Constitutes Foundations of Physical Education?

Physical education is a unique field that places human movement at the centre of its theoretical and practical explanations. It is not a secret that human movement or activity encompassing a vast expanse of play, exercise, and sport is practiced, studied, discussed, and dealt with from a scientific angle on one side and a rational angle on the other; that is, there are certain scientific facts that govern the performance of movement, and there are artistic, aesthetic, ethical, and social standards that govern the planning, organising, teaching, and performing of the movement. This makes physical education a science-art combination that adheres to the goals of organised activity programmes for the holistic development of the human personality. Therefore, a physical educator must ensure that neither scientific facts nor rational-logical considerations are neglected in the planning and execution of physical activities. This situation necessitates that physical educators understand what facts and generalisations based on human reasoning and scientific observation increase the likelihood of more effective interactions in the classroom and practices on the athletic fields, particularly in terms of imparting knowledge in health and fitness principles, acquiring motor and athletic skills, and engaging in sporting activities with the goals of achieving excellence and achieving high-performance goals.

Let alone the physical educator, the common man also must be aware of the real springs of physical activity for it is necessary for him to perform the movement economically and efficiently so as to maintain good health and fitness. The physical education spectrum reflects both science and philosophy. Putting up concrete and research-based evidence science explains what causes the movement to occur in our body; what conditions, factors, and forces facilitate or debilitate movement performance as we see it happening with our naked eyes; and what catastrophic changes occur in our body and mind as movement gradually progresses to its optimal pitch in such situations as an infant playing with a doll or a walking or running unaided, a young child learning to perform a front roll on a gymnastic mat, an adolescent athlete running a 100 m dash at an athletic contest or doing high jump using Fossbury flop, and seasoned soccer player making a mad rush for the ball to score a goal during a terribly contested match. Besides, science also tells us how these and myriads of other movements—whether as part of physical exercise or competitive sport—can be performed with greater poise, precision, economy, and efficiency, given the congenial climate. Correspondingly, various logical perspectives give us an opportunity to evaluate how rewarding human activities should be in terms of aesthetics, ethics and society.

Conclusively, the foundation of physical education as we know, understand, and study them is an inevitable outcome of the philosophical approach on the one hand and the scientific approach on the other, with relative fundamental facts and truths balanced on both sides. Cannons of divergent educational philosophies, viz. idealism, realism, naturalism, pragmatism, and many others, enable physical educators to develop a professionally sound personal philosophy and in spirit with it makes the right decisions about what is best (ideal) in terms of teaching material (content of physical education programme), methodology (teaching and training style), and likely outcomes (developmental effects of activity and sport). Significantly, personal and professional values cherished by a physical educator stem from philosophic thinking and constant interactions and experiences in the teaching–learning environment. The validity of the ideals and values developed by the rational physical educator is assessed by the realistic yardsticks based on established facts, laws, principles, theories, and paradigms put up by various sciences of life, matter, and mind. Over the decades, a host of exercise and sports sciences' disciplines such as—anthropometry, biomechanics, physiology, psychology, sports medicine, nutrition, etc. has emerged not only to assist athletes and coaches, but to move the curve of performance up, as well as to strengthen the foundational framework of physical education and sports. Also, to enrich the course-content of these disciplines, these hybrid sciences use the scientific principles from the mainstream biological and social sciences and apply them to the sports and exercise environment in order to improve performance, reduce injuries or increase motivation. While philosophic truths are liable to change often due to the transience of human experience and understanding, scientific truth continues to be permanent until new facts discover to add to or subtract something from them. Interestingly, both for the philosopher and scientist, every fundamental truth is tentative and liable to change.

Meaning of Physical Education

Physical Education is composed of two words physical and education. The term physical refers to the body or to one or more bodily characteristics, such as physical power, physical endurance, physical fitness, physical appearance, and physical health. And the second term is education, which refers to preparation for life or a specific task, as well as systematic instruction or training.

Using the human body as a means of instruction, the combined meaning of these two terms becomes training or preparation for life. Physical Education is, on a deeper level, the systematic training of an individual through the use of his or her own body to achieve the goals of developing and maintaining the body, developing motor skills, physical abilities, forming the habit of living a healthy lifestyle, and developing the capacity to control emotions for a fuller life.

According to the Kothari Commission, "physical education contributes not only to physical fitness, but also to physical efficiency, mental alertness, and the development of certain qualities such as perseverance, team spirit, leadership, discipline, tolerance, rule observance, moderation in victory, and equilibrium in defeat". Thus, physical education is regarded as an essential component of an education that emphasises physical activity predominately. This enables physical education to be integrated into the overall educational system.

Definitions

In all its kinds, forms, and shapes developmental activity constitutes the core of physical education, which is commonly called a large muscle activity forming part and parcel of the "learning experience" at school. Precisely, physical education is what children do at school on playfields and athletic tracks, in the gymnasium, and in the swimming pool under the guidance of the physical educator who is often addressed by students as physical training instructor (PTI), PT master, PT sir, Games/Sports Teacher. Physical education is not physical training which aims to toughen body as in military. Further, physical education is also no "exercise" alone, i.e. "a process of bodily movements in a particular way". However, exercise is a formally structured and planned physical activity that causes visible improvement to the body, its health, fitness, and general well-being. The element of fun, recreation, and amusement is absent in it. Physical education has all these, and perhaps, much more.

Physical education is a modern expression for various physical activity programmes carried out as a curricular educational experience in schools. The word "physical" refers to the body and underscores such qualities as strength, speed, stamina, endurance, coordination, flexibility, movement, etc.—all essential for the promotion of health and fitness for work and sport. Education may mean many things but when used in conjunction with physical, it is understood as a process of educating

oneself through bodily movements and seeking harmonious development of personality. Physical education is globally accepted as a curricular activity and an integral ingredient of a child's education.

These is no single definition of physical education but many, each one somewhat distinct from the other, according to Irwin: "Physical education is a programme of physical activities that develops health in youth through various organic systems; develops skills in physical activities which have implication for enjoyment, emotional development, recreation and the optimum development of the human organism." Jay B. Nash looks at physical education as "that field of education which deals with big muscle activities and the related responses." In Lumpkin's view, "physical education is a process through which an individual obtains optimal physical, mental and social skills and fitness through physical activity." Charles A. Bucher is of the considered opinion that "physical education is an integral part of total education process and has its aim the development of physically, mentally, emotionally, and socially fit citizen through the medium of physical activities which have been selected with a view to realising these outcomes". Same way Harold Barrow and Janie Brown consider physical education as "an education of and through human movement where many of the educational objectives are achieved by means of big muscle activities involving sports, games, gymnastics, dance, and fitness activities". J.F. Williams categorically said: "Physical education is the sum of man's physical activities selected as a kind and conducted as to outcomes". As per this definition, physical educators should (a) select activities in consideration of age, sex, and environs, and (b) look for outcomes that were more than physical. "Physical education," proclaimed Bucher and Wuest, "includes the acquisition and refinement of motor skills, the development and maintenance of fitness for optimal health and well-being, the attainment of knowledge, and the growth of positive attitudes towards physical activity".

The Central Advisory Board of Physical Education and Recreation in India formulated a comprehensive definition of physical education in the National Plan of Physical Education and Recreation-1956:

> Physical education is education. It is education through physical activities for the development of the total personality of the child to its fullness and perfection in body, mind and spirit. It is immediately concerned with organic fitness and such other outcomes as would help the individual develop into a balanced personality.

In sum, with large muscle activity as its chief medium, physical education has been accepted as an integral part of education with utmost emphasis on organ development, motor fitness, skill, and health. A scientifically planned and systematically conducted programme of physical activity, sport, recreation, and dance is capable of creating a physically educated person who can live most and serve best and be an integrated personality.

Current Trends of Physical Education in India

The thinking patterns and expectations of today's students are entirely different from those of yesterday. This is the result of changes in society, community, and family structure, as well as the shrinking of the globe due to technological advancements. All these factors influence the adolescents of today. All of these shifts become issues and trends that have an impact on society as a whole and education in particular. The education of the past will not meet the requirements of today's students, and the physical education curricula of the past will not meet these ever-changing demands. This prompted a discussion of the main trends and issues pertaining to physical education and its repercussions.

As per current trend, Indian physical educationists have a strong belief that today's physical education teachers should be called "human engineers". The rationale given to this idea is—as engineers are engaged in developing machines or engaged in the correction or restoration of any error in the machine, in the same fashion, a physical education teacher can help in the development/correction/restoration/and rehabilitation of human body (God generated machine).

As awareness of the importance of physical education has grown, the National Education Policy 2020 (NEP-2020) has been emphasised in various locations. In paragraph 15.4 of the NEP-2020, it is emphasised that a teacher education programme requires multidisciplinary inputs, and it is recommended that all multidisciplinary institutes establish education departments that, in addition to conducting cutting-edge research in various aspects of education, will also run teacher education programmes in collaboration with other departments, including physical education. This move of NEP-2020 is a steady progress in the right direction.

Physical Education in National Education Policy 2020

In various sections of the National Education Policy 2020 (NEP-2020), physical education is given due recognition. For example, in Paragraph 4.2 (dedicated to the Foundational Stage, which consists of five years of flexible education), it is stated that the preparatory stage will consist of three years of education based on activity-based pedagogy and will also begin to incorporate some aspects of more formal but interactive classroom learning in order to lay a solid foundation across subjects.

As far as empowering students through flexibility (Paragraph 4.9) in course selection is concerned, NEP-2020 states that students will be given greater flexibility and choice of subjects to study, especially in secondary school—including physical education subjects—so that they can design their own study and life plans. The new distinguishing feature of secondary school education will be holistic growth and a broad selection of subjects and courses from year to year. In addition to science, the humanities, and mathematics, the school curriculum will include physical education, taking into account what is interesting and secure for each age group.

In Paragraph 4.23, which relates to "Curricular Integration of Essential Subjects, Skills, and Capabilities," it is recommended that students have a great deal of freedom in selecting their individual curricula, specific subjects, skills, and capacities. In addition to other skills, the list included provisions for health and nutrition, physical education, fitness, wellness, and sports.

Paragraph 5.5 addressed the need for an adequate number of instructors in all subject areas, particularly in physical education, art, vocational education, and languages. Here, NEP-2020 suggested that teachers could be recruited to a single school and that the sharing of teachers between schools could be considered in accordance with the school groupings adopted by State/UT administrations.

These all efforts of NEP-2020 show that there is a need for an interdisciplinary approach in teaching–learning process and special thrust is given to the integration of physical education and sports as much as possible in the curriculum. Which lay the foundation for widening the scope of physical education.

University Grants Commission (UGC) also takes several steps for quality enhancement of higher education in the country. UGC suggested a Learning Outcome based Curriculum Framework for physical education graduate programmes. Although they are unrelated to the programmes offered by the NCTE for becoming a Physical Education Teacher, they illustrate the significance of the subject in the country. In the document's preamble, the UGC emphasises that Physical Education is one of the most effective methods for imparting education through movement and physical activities. According to this document, physical education is an integral component of the educational process, which results from simple participation in the activity. These outcomes are both instantaneous and have significant lifelong implications (UGC, 2021).

What Could Be the Scope of Physical Education?

Physical education is the branch of education where knowledge is imparted among the students by using students' whole body (majorly includes brain and big muscle activities), whereas, in general education, only the human brain is used as a medium for knowledge sharing or educating students. Physical education is a branch of education, therefore, it is having the same aim as education, i.e. preparing an individual for complete living. In addition to this "optimum performance in sports" is also added as an objective of physical education.

In its 1978 General Conference, UNESCO was persuaded that everyone should have the freedom to develop and maintain their physical, intellectual, and moral capabilities. Therefore, Physical Education and Sport should be assured and guaranteed for all individuals. Following could be the scope of physical education:

1. Physical Education and Sports as a Cultural Heritage: The physical education and sports activities that we participate in today have a strong connection with our culture. Sports activities that predominate in any region are ingrained in its cultural

milieu. Kho-Kho, Kabbadi, Archery, Lezim, Wrestling, etc. are examples of sports that reflect the culture of a region of India. You must be aware that our ancestors subsisted on foraging for a very long time. Stones, bows and arrows, running, leaping, and other activities are used for survival and recreation. Later, as civilization developed, competitive activities such as athletics, wrestling, and archery emerged. Consequently, the current development of physical education and athletics demonstrates a strong cultural bond.

2. Mechanical Aspects in Physical Education: One of the goals of physical education is "optimal athletic performance". The performance is dependent on the various mechanical aspects of movement; consequently, there is room for physical education. Here, the mechanical aspects of a variety of physical and athletic activities performed by individuals are considered. Important content areas of physical education include the laws of motion, lever, force and its generation, maintenance of equilibrium, the centre of gravity and its effect on movement, the law of acceleration, and the development of speed.

3. Biological Contents in Physical Education: Physical education also includes content derived from the biological sciences, such as the study of heredity and environment, growth and development, organs and systems, classification of joints, and movements possible around these joints. In addition, the content of physical education includes the muscles and their properties, as well as the effects of physical activity on various body systems (such as the circulatory, respiratory, muscular, metabolic, and skeletal systems).

4. Health Education and Wellness Contents in Physical Education: In Indian, 'health and health education' is studied in physical education. There are no separate departments where health and health education can be studied. Consequently, physical education includes content related to health and health education, such as understanding the concept of health and hygiene, knowledge about various communicable and non-communicable diseases, health problems and their prevention, proper nutrition and balanced diet, community health, school health service programme, assessment of health status, prevention, safety, and first aid for common injuries.

5. Psycho-social Content of Physical Education: Physical education includes the study of individual differences, personality development, skill acquisition, motivation and its techniques, anxiety management, ethical and social values, group dynamics, cooperation, cohesion, and learning. In this section, emotional development, relationships with peers/parents and others, self-concept, and self-esteem are also emphasised.

6. Sports Training Content in Physical Education: Sports instruction is an integral component of physical education. It contains information regarding the development of sport-specific components, as well as knowledge of aerobic, anaerobic, rhythmic, and callisthenics activities. Physical education also includes training programmes, learning and perfection of various movements, sports skills, techniques, and tactical patterns, as well as warming up, load adaptation, recuperation, and cooling down.

As far as India is concerned, physical education's scope is not limited to the above-mentioned points only, its scope is very wide and it is very difficult to include all scopes of physical education in the content developed for physical education teacher training programme. Thus, it is the need of the hour to think about it and start making separate discipline out of this one physical education. Because no institute in and outside India can cater all the content provided in the scope (Indian version) list to one programme. If we look at developed counties they already segregated physical education and its allied subjects and coming up with new disciplines such as health education, sports medicine, sports management, sports coaching, kinesiology, anthropometry, health and nutrition, recreation, dance, etc. Now, it is our turn to think on this line.

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Part III
Practices and Trends

Chapter 13
Teacher Education and Pedagogy of Science: Review and Reflection

Aerum Khan and Prerna Sharma

Abstract Science plays a significant role in the development of an individual as well as a nation. For advancing in the present era of modernisation and industrialization and for building a nation with citizens having a scientific attitude and temper, true science education is a necessity. The contribution of science in the modernisation of our country was realised soon enough after independence. The first Prime Minister of India, Jawaharlal Nehru once stated "It is science alone that can solve the problem of hunger and poverty, of insanitation and illiteracy, of superstition and deadening custom and traditions, of vast resources running to waste, of a rich country inhabited by starving people. Who indeed can afford to ignore science today? At every turn, we have to seek its aid. The future belongs to science and to those who make friends with science." His words clearly expressed the implications of science education for our nation. It is only through science education that we can equip our learners with the capability to cope with the continuously progressing technological world. In this fast-changing world, where it is crucial to have flexibility and creativity to adapt to new demands and opportunities, science education needs to be built around these principles. Keeping these in mind, the teacher education system must devise science pedagogy in a way that develops a critical and scientifically sound learner. There have been evident shifts from the disciplinary approach of science teaching to a more holistic and integrated approach with the inclusion of domains like health, nutrition, and environmental sciences. A transformation in the role of teacher and learner as the co-constructors of knowledge in the classroom has also been witnessed. Pedagogy of science has been focusing on new approaches like project-based, problem-solving, and discovery-based approaches to develop scientific attitudes in the learner. This chapter focuses on how the pedagogy of science has evolved in teacher education across policies at the national level.

"An investment in knowledge pays the best interest"—Benjamin Franklin

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Secondary Education Commission (1952–53) on Science Education

In order to survey the problems in secondary education, the Government of India appointed the secondary education commission under the chairmanship of Dr. A. Lakshman Swami Mudaliar. This commission severely criticised the existing teaching methods and suggested measures for their reform. The commission aimed at developing critical learners, awakening their curiosity regarding scientific phenomenon, and stressing the practical use of knowledge. This commission made the study of general science compulsory at the middle school stage. The commission stated that the study of science should be directed towards providing basic scientific literacy to all learners for developing a holistic understanding of life. At the high school, it recommended the study of physics, chemistry, and biology as independent subjects. The commission emphasised more on the methods of acquiring knowledge rather than the quantum of knowledge. In terms of science pedagogy, this commission focussed more on the knowledge acquired through the scientific method rather than the learning of factual knowledge about the scientific phenomenon. Demonstrations, field trips, and practical projects linking school science with real-life situations were recommended as a teaching method for science. This brought activity-based teaching to the forefront thereby focusing on child-centred education.

The commission recognised the significance of scientific literacy not only in terms of "facts of science" but rather in terms of acquiring knowledge through the scientific method. In terms of teaching methodology, there has been a pedagogical shift to activity-based teaching through this commission. The inclusion of real-life situations and building connections with school science makes science learning meaningful and relevant to the child. The child has been given opportunities to be an active learner, especially through activity and project-based methods. The learner is seen as an active participant in the process of teaching and learning.

Taradevi Report (1956) on Science Education

It was in the All-India Seminar on the teaching of science in secondary school held at Taradevi, Shimla, that a thorough discussion about science education took place. At the primary stage, it focused on arousing the curiosity of the learner about the environment and developing science process skills. It also recommended inculcating habits of healthful living. This can also be seen as the first step towards an integrated approach to science in Indian school education. Further integration was also

evident at the middle, high, and higher secondary levels where objectives of science teaching integrated the impact of science on society with disciplinary knowledge. It discussed generating interest in science through scientific hobbies, scientific stories about scientists and their discoveries, and the evolution of scientific development. Specifically, at the high and higher secondary level, it focused on familiarising the learner with the world in which they live and how science is impacting their society. It aimed at enabling the learner to adjust themselves to their changing environment. This was the need of the continually transforming scientific and technological world, where we need citizens who are acquainted with the capability to cope with this transformation and upgrade their scientific understanding as per the need. Another crucial aim of teaching science that was identified during this seminar was the significance of the scientific method and science process skills. For the pupils at the primary level, the development of science process skills was recommended, whereas, for the middle stage and higher levels, a focus on the scientific method was given. This reflects that, at every stage, the report recognised the importance of scientific literacy and placed it as one of the aims of science teaching.

The Taradevi report viewed science learning as an integrated discipline. Its recommendations encouraged the integration of science with health and society. It was through this seminar that for the first time, the domain of school science was extended from merely being a discipline to other spheres of life. The generation of interest in science was also given its due importance as it is the first step in keeping our learners motivated to engage with science. It also recognised the importance of the upgradation of scientific knowledge in the age of rapid scientific development. This can also be seen as an initiation towards the concept of lifelong learning. It was reflected that, at every stage, the report recognised the importance of scientific literacy and placed it as one of the aims of science teaching. The emphasis on science process skills at the initial stages of learning was advanced to the scientific method as the child progresses to higher stages of learning.

Kothari Commission (1964–66) and Science Education

Kothari Commission is considered a landmark for science education. It, for the very first time, recommended the compulsory inclusion of science as a part of general education during the initial ten years of schooling. The commission recognised the need for raising the quality of science teaching by overhauling the curriculum. The approach for teaching science to achieve the aims and objectives at various levels was also spelled out. For the primary level, the deductive approach and the use of the scientific method were emphasised as the teaching methodology. At the upper primary stage, the commission recommended that acquisition of knowledge should occur with the development of the "ability to think logically, to draw conclusions and to make decisions at a higher level". This was a move inclined towards the development of scientific attitudes in our science learners. Also, it was recommended that science should include geology and astronomy, in addition to physics, chemistry,

and biology. Through this commission, it was for the first time that the investigatory approach was prioritised for the teaching of sciences as it recognised that the lecture method approach followed by practical work was not efficient enough. The preparation of books, teachers' guides, and instructional material on this approach was also recommended. This provision aimed at providing additional support to teachers. The linkage between profession and science was stressed in the recommendations of this commission. It was stated that "Demonstration experiments and laboratory investigations should reflect the agricultural and industrial interests of the local community." This allowed science teaching to be more linked to everyday life and at the same time be profession oriented. At the secondary stage, the teaching was more oriented towards experimental science through an investigatory approach where the focus should be "location of a problem, development of the hypothesis, and designing of procedures and experiments relating to the theory". The scientific method was seen as the centre of teaching methodology at this stage and laboratory work was considered a tool for teaching science. The commission recommended that an integral part of science teaching should be the demonstration experiments done by the teacher or by some students under the supervision of the teacher. This established the onus on the teacher and she was playing the role of knowledge-giver rather than a facilitator in the classroom.

The Kothari Commission pointed out the necessity of science education for the modernisation of the country. The inclusion of geology and astronomy with other disciplines of science can be seen as a progression towards interdisciplinary studies. A shift in orientation to science teaching from the didactic approach to the investigatory approach can also be observed as it recognises the problem areas with the lecture method. There was a transition seen in the objectives of science teaching and the focus was shifted to developing the understanding of the facts and concepts rather than merely knowing the facts, particularly for the primary level. The provision for students to perform hands-on activities was missing in the recommendations of this commission. Though, the scope was provided for peer learning as it recommended experiments to be performed by a group of students. The commission also tried to include the gifted, varying, and special needs students at all levels of teaching but failed to state any provision or methodology. It vaguely states that the curriculum should be sufficiently flexible to cater to the needs of these learners. Unclear provisions for such learners again give rise to lacunae in the policy regarding science education for special, gifted, and varying need children rendering them more vulnerable.

Science Education in National Policy on Education (1968)

The National Policy on Education (1968), based on the recommendations of the Kothari Commission, stressed the radical reconstruction of the education system for its strengthening. Aiming for this, science was made an integral part of general education till the end of the school stage (Up to class X). This strengthened school science

education in the country and proved to be a strong foundation of science education in India. Along with other recommendations for school education, this commission also encouraged in-service training to build awareness and update knowledge and skills among teachers. In the light of NPE-1968, a new curriculum framework was developed in the year 1975 being discussed in the succeeding paragraphs.

National Curriculum Framework (1975)

NCERT in 1975 brought "Curriculum for the Ten-Year School: A Framework" aiming at developing a "common curriculum within a broad framework of acceptable principles and values". Science was established as an integral part of the first ten years of school education. Primary science education aimed at learning the method of science and to sharpen the learner's senses in order to enable them to observe their environment. The knowledge for the learner should be built on experiences developed from observation of the environment. For achieving this objective, the framework recommended "well-directed observation as the primary means of acquiring knowledge" and the use of poems or drawing as a means of expressing what has been observed in the environment. An integrated approach that is thematic in nature was stated as appropriate for primary learners. Activities, games, and work experience were suggested as a medium for the planning of learning experiences. The middle stage of science education was more inclined towards integrating physical science, life sciences, nutrition, health, and population education so as to make learning meaningful in life. The framework recommended a spiral approach with the application of math and science integrated throughout the curriculum. Stress was also laid on the practical aspect of the science curriculum. It recommended that concrete learning experiences should be built by students performing experiments by handling scientific apparatus. Demonstration by the teacher was also suggested with questions and answers.

The unit approach was also suggested as a potential approach for both the middle and lower secondary stages. The lower secondary stage should include the introduction of laws and theories but, with open-mindedness and scepticism. The investigatory or experimental approach was recommended and the scientific method was seen as a key approach for the teaching of science.

This framework provided details over various aspects of science curriculum and pedagogy at different stages of learning. Approaches appropriate for different stages were spelled out with emphasis on the aspects of the curriculum for each stage. A gradual progression can be seen from the primary stage to the lower secondary in terms of the development of skills and values. At the primary stage, the focus was more on science process skills. Various skills like observation, classification, communication, and measurement were explicitly stated in the instructional methodology for the primary stage. In the middle stage, a shift can be seen from memorisation of facts to emphasise the application of knowledge to the problems in the environment of the learner. At lower secondary, focus on the scientific method is placed with emphasis

on the nature of scientific knowledge. This encourages the fact that scientific knowledge is tentative in nature, the laws and scientific theories can be changed in the due course of new scientific discoveries. At every stage of learning, an attempt was made to include the societal and technological aspects of science learning. This would help the learner to build meaningful connections between everyday life and science. The framework focused on building an understanding of scientific phenomena through experiences, thus making learning more learner-centred. This framework suffered at the level of implementation as the teacher training and examination-related reforms were lacking to meet the aims and objectives specified by the framework. Due to this, a comprehensive overhaul of the curriculum and teaching–learning process could not take place (Chunawala and Natrajan, 2012).

In 1976, an amendment in the constitution took place which included education in the concurrent list. Several other changes took place in the socio-political scenario of the country, as a consequence of this, a new national policy on education was announced and implemented in 1986.

National Policy on Education (1986) and Science Education

The aim for strengthened science education was taken forward by the National Policy on Education (1986) wherein it focused on developing values like the spirit of inquiry, creativity, objectivity, the courage to question, and an aesthetic sensibility. It emphasised the education of science at every level of education. Integration of science teaching with agriculture, health, industry, and daily life was recommended. Also, one of the objectives spelled out in this policy was to develop problem-solving and decision-making skills in the learner. This was another move for the development of scientific temper and scientific attitude in our learners. For the implementation of this policy, a detailed scheme was prepared. It recommended monetary and infrastructural resources for the improvement of science education. Functional science kits were designed for 90,000 upper primary schools for science teaching. Provisions for monetary assistance for books and equipment were laid out under this policy. The identification of resource centres and in-service training of teachers at various higher education organisations, courses in teacher training colleges, and DIETs were also some of the provisions which aimed at science teacher education.

The integration of various domains of life with science education was a step towards developing a relationship between various domains of knowledge and daily life experiences with disciplinary knowledge. This integration with other domains of knowledge was appropriate in terms of providing a holistic picture for the learner. The provisions in the policy directed towards teacher training extended the periphery of science education. It targeted the professional development of teachers who were one of the main stakeholders for developing scientific temper in our learners. Science education in the policy was built around the designing of the science curriculum. The recommendations on science pedagogy in the policy were limited to suggestions on orientations towards science teaching which were based on the child-centred and

activity-based approach. The policy was lacking in emphasising the scientific method which is one of the basic tenets of science teaching. Innovation and experimentation were also given space in this policy, but it limited its implementation to pace-setting schools. The commission also insisted that the students switch to English from their respective state languages for studying science after class VIII. Learning in the mother tongue allows better understanding and expression for the students, but at the same time in the globalising world, the knowledge of science in the English medium was deemed a necessity. Thus, the knowledge of English nomenclature in science was appreciated but a complete overhaul from regional language to English was not welcomed.

Science Education in the National Curriculum for Elementary and Secondary Education (NCESE-1988)

Based on the recommendations of the National Policy on Education (1986) and its implementation, NCESE was brought by NCERT. This document was a culmination of reflections on the pedagogical and curricular concerns laid in NPE 1986. The focus was on the inculcation of scientific temper, knowledge of scientific methods of inquiry, and development of abilities for self-learning and lifelong learning in the learners. It stressed the role of a teacher as a facilitator in the process of learning and regarded teaching–learning as an interactive process. As per the recommendations of NCESE, the curriculum should equip the learner with problem-solving and decision-making skills, and develop a scientific attitude, objectivity, open-mindedness, and commitment to free inquiry. It also highlighted the scientific method of inquiry as the focal point of the curriculum almost at every stage of learning. At the primary stage, the science curriculum should aim at sharpening the senses, encouraging learners to make observations for the exploration of their environment, and enrich their experiences. It stated that the learner should be "encouraged systematically to observe and explore things and occurrences in his/her environment, formulate precise questions related to them, record and classify the observations systematically, collect information based on concrete experiences and analyse it, draw conclusions…..". The policy also included the role of science in the everyday life of the learner and stated that science education at the upper primary stage should equip the learners with an ability to understand the interrelationship between science, technology, and society. This falls in alignment with the curriculum vision of the policy which focuses on environmental education, energy management, and population education.

This policy shifted the discourse from rote learning to interactive learning and a transformation was present in the role of a teacher from an instructor to a "resource person". The policy puts forward the concept of child-centred and activity-based approach as instructional strategies for the transaction of the curriculum. Through this policy, we can also get a glimpse of the reconstruction of the role of the learner. The pupil was prescribed an active role in the process of learning wherein he/she

is involved in thinking, reasoning, feeling, and doing. There was a transition from mere information transactions to the development of scientific attitudes in learners. Teaching strategies like doing and discovering along with a variety of activities were recommended to enrich the process of learning. Stating a multitude of activities for curriculum transaction was like providing a roadmap for the teachers who are involved with the learners at the ground level and thus assisting them while designing pedagogy for science teaching and learning.

Science Education in Ramamurti Commission (1990)

A commission was set up in 1990 to review the NPE, 1986 with Acharya Ramamurti as its chairman. The commission aimed at reviewing the policy and its implementation, and recommending revision required in the policy. The commission mentioned that the teaching of science through English was pedagogically unsound and stated that this would impact learners' development. With the scientific body of knowledge, the Ramamurti Commission also advised the addition of traditional wisdom and knowledge to be a part of science education in schools. This commission also brought about the "child-centred approach" to the Indian Education system where it called for a "conscious deviation from practice of imposing on the students' standardised terminologies and nomenclature". It focused on encouraging learners to build their perceptions about the phenomenon around them through the discovery method. The deductive approach had to be followed. This was to allow them to develop the capability for justifying their role as "facilitator" while students go on their scientific endeavour through the discovery method. The commission recognised that science education should not emphasise only knowledge acquisition about the scientific phenomenon, i.e. "what". But rather stress should be laid upon the scientific method to acquire scientific knowledge, i.e. "how". The focus on preparing the science curriculum on this approach lies in consonance with the concept of lifelong learning. It is through equipping learners with the method of acquiring knowledge, that we can make them self-learners and lifelong learners which is a need for the scientific community. The commission also identified how concept formation and understanding of basic principles were being underplayed by over-emphasis on rote learning and recall of information.

Ramamurti Commission not only provided an opportunity to acclaim the local knowledge as scientific, but also provided students the opportunity to identify and appreciate scientific phenomena in their local culture. It was for the first time that the orientation of teachers for teaching science was brought into the picture. Teachers were aimed to be worked upon in terms of their orientation to science teaching.

Science and Technology in National Curriculum Framework for Quality Teacher Education (NCFQTE-1998)

Teacher education could not escape from the advancements occurring in the field of science and technology. It became imperative for the teacher education programme to include the new erupting scientific knowledge and modify the means and methods to teach science. The framework aimed at empowering teachers with the cultivation of rational thinking and scientific temper in their learners. At the early childhood stage, the framework stated the development of scientific and technological literacy as its objective. It stressed equipping the pre-service teachers with the abilities and skills required for making the learning joyful and memorable for the learner. Teachers are prepared to carry out recreational activities, organising games, plays, etc. for transacting the curriculum. For the primary stage, it aimed at enabling the teachers with abilities so they could develop curiosity, imagination, and creativity in their learners. It emphasised the knowledge of content and prescribed its integration with the insight gained through pedagogical analysis and foundation courses for classroom instruction. For the elementary stage, the emphasis was on equipping teachers with skills for developing curiosity, imagination, and self-confidence among children. The transactional strategies prescribed for this stage included instructional aids, media-supported teaching, field trips, practicals, and demonstrations. It also stated that teaching at this stage should be participatory, cooperative, activity-centred, and joyful. At the secondary stage, one of the objectives was to enable the pre-service teachers to foster creative thinking skills in their learners for reconstructing knowledge. It prescribed that prime importance had to be given to aspects of teaching like "how to teach", "when to teach", and "what to teach". It also sheds light on the minimal usage of interactive teaching, cooperative teaching–learning, and self-discovery approaches in day-to-day teaching practices. It recognised the potential in the problem-solving approach, discovery method, and competency-based teaching and learning.

The framework gave due importance to scientific and technological literacy which was the area that required emphasis. NCESE (1988) reconstructed the role of the learner and transformed it into a more active form making him/her an active participant in the process of learning. The implications of the curriculum framework for teacher education also stress the same where it suggested pedagogical approaches that allowed the learner to be an active participant and the construction of knowledge by the child was deemed important. The inclusion of media in pedagogical strategies could be seen as a step towards ICT integration. The framework also gave significance to pedagogical content knowledge which was an essential component for building an effective teaching–learning process. The classroom teaching was not limited to the content, but it also prescribed integration of various aspects of the foundation of education which gave a holistic understanding to the teacher. This framework encouraged a shift towards orientations to science teaching and learning which were more child-centred.

Science Education in National Curriculum Framework for School Education (2000)

With the advent of rapid technological advancement in the twenty-first century, the National Curriculum Framework (2000) also initiated the inclusion of technology in school science education. The policy was in agreement with the need of acquiring the basics of scientific and technological literacy for the learners of the twenty-first century. It aimed at making the learners understand the basic scientific principles and their applications for finding solutions to problems in the field of agriculture, defence, energy, health, etc. Along with the understanding and applications of science and technology, the framework also included the interaction of science-society-technology as one of the dimensions of science learning. The document did not limit science to the boundaries of the discipline but rather extended it to various domains of everyday life. It suggested that science should "….open itself to issues such as gender, culture, language, poverty, impairment, future occupation and environment and observance of the small family norm." The use of multimedia and information technology was also advocated in the policy. The inclusion of Indian traditional scientific and technological learning, along with the contributions of Indian scientists in the science curriculum was also suggested by the framework. Science learning in the documents prioritised science process skills as it would help in the development of scientific temper. For the primary stage, science education should emphasise sharpening the senses and encouraging learners in discovering, observing, and exploring their environment. This can be further utilised for encouraging the development of science process skills like the collection of data, classification, and measurement. Science learning at the upper primary stage has to strengthen the learners' understanding of the relationship between science, technology, and society. It also stated that the focus of science education has to be on learning some key concepts rather than loading the learners with scientific information. At the secondary stage, science learning should provide scope for practical activities that develop skills and values which are relevant for future life. Opportunities have to be provided to develop critical, creative, and generative thinking. The learners are to be supported in devising experimentation and activities in their immediate environment. For the elementary and secondary stages, the framework suggested instructional strategies that include various activities like demonstration, experimentation, projects, fieldwork, excursions, discussion, debates, and discovery learning. For higher secondary, problem-solving sessions, group discussions, laboratory work, and project work are suggested for science learning.

The document did not limit science to the boundaries of the discipline but rather extended it to various domains of everyday life. The use of information technology reflects the intent to keep up with technological advancement and integrate it with pedagogy for improving the learning experience. The inclusion of traditional knowledge and contributions of Indian scientists are a factor for motivation for the learner. The knowledge about the interface of science, technology, and society builds citizens who are sensitive to environmental issues and creates awareness of how science

impacts the environment and society. The focus on science process skills shows the inclination towards the scientific method instead of rote memorisation of scientifically loaded information. The instructional strategies suggested in the framework places the learner in the centre and places him/her in an active role.

National Curriculum Framework (2005) and Science Education

The national curriculum framework marked a sharp departure from previous policies and frameworks regarding the education system in our country. The framework was grounded in the constructivist paradigm and ensured that learning shifts away from rote learning. It gave importance to science process skills at every stage of learning. For the primary stage, science education should engage the child in exploratory and hands-on activities and must include observation, classification, inference, etc. The framework also prescribes the development of basic language skills through and for science education which reflects the integrated approach. Similarly, it suggests the incorporation of "health" as a component with the integration of science and social science as "environmental studies." At the upper primary stage, hands-on activities are prescribed in which learning of principles of science is encouraged through the experiences of the child. At this stage, the health component is further bifurcated into sexual and reproductive health, environment, and health. As instructional strategies, it suggests activities and experiments for the learning of scientific concepts. It further includes a discussion with peers and teachers, data organisation and exhibitions, and surveys as pedagogy components. At the secondary stage, an advancement in approach was suggested. It prescribes "learning science as a composite discipline" and analysis of issues regarding reproductive and sexual health. Also, the emphasis is laid on "systemic experimentation" for the discovery and verification of theoretical principles. For the higher secondary stage, experiments and problem-based approaches are suggested. The framework also discusses the departure from information-based learning from textbooks. It encourages an active approach to science that includes activities, observation, experimentation, and building connections between science and the world of the learner. Another point where the framework stands distinct from the previous ones is in its approach of not limiting the learning of science to textbooks and classrooms. It recommends the building of a science corner, access to science experimentation kits, co-curricular and popular science books, and science encyclopaedia for improving the child's access to information and enriching learning. The framework also discussed the inclusion of ICT for bridging the social divide and connecting students and teachers with scientists. It encouraged the development of inquiry skills, investigative ability, inventiveness, and creativity.

The national curriculum framework is considered a landmark for science teaching and learning due to its learner-centric approach and focus on the development of

scientific temper and attitude. It acts as an initiation in the journey towards science which is based on experimentation instead of being information-laden. There is a gradual advancement in the approach to science learning from primary to higher secondary. NCF is taking into cognizance of the fact that each learner will not set off to become a scientist, thus there is a need for developing scientific literacy. This will build citizens who are scientifically and technologically literate and are sensitive to the issues of society, ethics, health, and the environment.

National Focus Group on the Teaching of Science

Good science education has been regarded as the one "that is true to the child, true to life and true to science." It focuses on science teaching which is meaningful to the child and prepares the child for the life of work. The position paper discusses in detail the reforms in pedagogy for the new approach to science teaching and learning. The emphasis is on contextualising learning for the child and making science learning meaningful by engaging through the experiences of the learner. The approach towards science is centred around interactive learning and teaching. At the primary stage, the activity-based approach to teaching science is suggested which is not just limited to the classroom. Activities that include opportunities for observations, explorations, and identifying patterns and relationships are advised for the primary stage. The inculcation of values and sensitivity towards the environment along with practices of health and environment are to be taken up through activities. The concept of learning, and learning at their own pace is also introduced. The teacher is also provided freedom in terms of devising teaching strategies. It gives autonomy to the teachers wherein they are free from pre-determined learning sequences and build their classroom interactions based on their learners. The focus of science pedagogy at this stage is on the development of values, abilities, and skills in the learner rather than on memorisation of the content. Aiming for this, the environment of the child is considered instead of a structured textbook.

For the upper primary stage, there is a transition to science and technology from environmental studies in a gradual progression. Activity and experience-based approach for the teaching of science is suggested for this stage. Considering the lack of resources and infrastructure, the framework recommends inexpensive activities and experiments by using readily available materials. It also encourages engaging the learners in carrying out meaningful investigations through peer interactions, classroom discussions, gathering data from reliable sources, and discussion with an expert. The projects should be contextualised catering to the difference in interest and exposure of the learner. The component of technology in the curriculum could be catered to by giving an opportunity to learners to undertake "design and fabrication of simple models, practical knowledge about common mechanical and electrical devices and local specific technologies." Measures are being suggested to ensure larger participation and sharing of learning outcomes like organisation and display of information in the school and neighbourhood. Emphasis is also laid on the process skills of science

for ensuring the developing abilities of lifelong learning. The teaching of science for the upper primary stage is about developing a perspective about "doing science." The recommendations for the upper primary stage are following a very practical approach on the ground level especially in terms of infrastructure and resources. The scope is provided for gradual progression from the primary stage to the upper primary stage and restraining it to the integrated approach rather than following the disciplinary approach. Science is not in isolation in the classroom, instead, it is providing ample opportunities for interaction with society. Learning is not limited to the boundaries of the school and larger participation in the community is encouraged.

At the secondary stage, the science curriculum includes concepts, principles, and laws of science but the emphasis should be upon their comprehension rather than rote memorisation of their definitions. As not all scientific phenomena are observable, there needs to be an introduction to inference and interpretation. Also, it has been stated that there is a need to develop a critical ability for the evaluation of epistemological facts encountered by the learner. The scientific method is also focused on the framework, wherein it states that experimentation should be a part of the curriculum for discovery or verification of the theoretical principles of science. The designing and implementation and testing of more advanced technological modules are suggested. The problem-solving approach using science and technology for taking up projects that bear on local issues is also recommended. An imaginative integration of all the components is also being suggested. The recommendations at the secondary stage can be seen as an attempt to intensify the disciplinary knowledge. However, the scope for integration of society through local issues allows scope for holistic understanding up to a certain extent. The stress on the understanding of the scientific method and the processes of science signifies a shift from rote memorisation. Emphasis on inference and interpretation for understanding complex scientific phenomena serves the need for advancing disciplinary knowledge.

At the higher secondary stage, it recommends a disciplinary approach with appropriate depth and rigour that ensures at least a basic understanding of the subject. A reasonable gradient between the secondary and higher secondary needs to be established in terms of curriculum load. Emphasis is laid upon "experiments, technology, and investigative projects". It advocates coherent sequencing of important ideas within the discipline to optimise learning. The paper recommends that the theoretical component should stress on problem-solving, critical ability, and awareness of conceptual pitfalls. Scientific method is further encouraged through the integration of experiments that are open-ended, thus leaving scope for building hypotheses, testing hypotheses, data collection, and their interpretation leading to drawing a conclusion. The introduction of low-cost experiments and laboratory work is also encouraged. Engaging learners in issues at the interface of science, technology, and society through debates and discussion is suggested. Learners should be encouraged to adopt a problem-solving approach, and creative and investigative projects for local issues. It also caters to gifted learners by the inclusion of some non-evaluative sections in the textbooks. The recommendations for the higher secondary stage are emphasising on the disciplinary knowledge which is required for learners that are preparing to work in the field of science. At the same time, stressing the scientific method through

open-ended experiments results in developing the scientific temper in the learners. The inclusion of STS issues through classroom debates allows the learner to develop sensitivity towards the environment and be scientifically and technologically literate.

The recommendations of NCF are based on the premise that the learner plays an active role. It very well establishes its objective of making school learning close to the familiar world to the everyday life of the learner. The measures suggested are for bridging the gap between science learning and the learners' world and experiences. Science learning is seen as a collaborative process between the school and the society, and learning is occurring within the environment of the learner. The role of a teacher is of a facilitator who is encouraging and guides the child to observe, explore, analyse, and interpret the world around them and construct knowledge. It is providing freedom and autonomy to the teacher in designing learning experiences for the learners of her classroom. The recommended pedagogy stresses the science process skills and the scientific method. The learning is made relevant to learners' life by engaging them in issues at the interface of science, technology, and society. A gradual progression in the degree of advancement is seen in all domains like curriculum depth and rigour, science process skills, and technology integration.

Place of Science in the National Curriculum Framework for Teacher Education (2009)

For initiating reforms and coordinated development in teacher education, the National Council for Teacher Education published the National Curriculum Framework for Teacher Education (NCFTE) in 2009. It aimed at presenting a framework that is practical in its approach and at the same time is dealing with the issue of the gap between theory and praxis. Engaging deeply with the concepts studied by student-teachers during their education, it prescribes revisiting and reconstructing through hands-on activities. For this, it suggests "laboratory work, library, and reference, field surveys, group discussions, seeking expert opinion to investigate into questions that children often ask….." This would help the student-teachers to recognise their misconceptions and provide better clarity on content. It also encourages reflective discussions on the concepts, methods, results, etc. Also, this process will help them appreciate the nature of the subject and how it can be transacted to the children meaningfully through appropriate pedagogic strategies. In terms of pedagogic studies, it recommends a shift from pure disciplinary knowledge towards the understanding of the learner and his/her context. It stresses on organising the pedagogic studies that are integrated into its approach. It views pedagogy as an integration between the knowledge of societal context, content, and the learner. Engaging and critically examining the teaching methods such as concept formation, inquiry-based teaching, problem-solving, activity-based learning, and discovery approach is suggested. The framework states that it would help in building a reflective teacher.

NCFTE (2009) served as a response to the paradigm shift occurring in the field of education after the introduction of the National Curriculum Framework-2005b. There has been a gap between the theory and praxis when it comes to the implementation of previous policies and frameworks. This framework focused on minimising this gap and gave in-depth suggestions related to various aspects of education. It also brought in the concept of building teachers who are reflective practitioners. The stress on reflection in the teacher education programme is a domain that wasn't much focussed until recent times and has found space in this policy. The framework views teaching as a process that requires a holistic understanding of the interplay of knowledge of content, learner, and society. The integrated approach to pedagogy would help in preparing teachers who are capable of teaching integrated courses in science and social sciences. Engaging in a critical examination of various teaching methods like problem-solving, discovery approach, and activity-based learning is highly relevant to science education as it will help in building understanding about orientations to science learning.

Justice Verma Committee Report on Teacher Education (2012)

The Justice Verma Committee on teacher education highlights an inadequate emphasis on the knowledge of content in teacher education programmes and lays more focus on the "generic methods of teaching school subjects." It raises the concern that there is an ineffective engagement of student-teachers with subject knowledge during the teacher education programmes. It suggests that sound pedagogy is the one that integrates the knowledge of the learner, knowledge of content with the socio-cultural context, and the philosophical foundations of education. The problem-oriented approach has to be followed in teaching instruction. Rather than stressing on memorisation of facts, instruction should emphasise on the accomplishment of tasks, and develop competence and insights. Learners are to be seen as active participants in their learning experiences. It recommends training teachers to build learning experiences that are learner-centred, activity-based, and allow opportunities for the participation of learners. Several forms of participatory learning experiences are suggested like "play, projects, discussion, dialogue, observation, visits, integrating academic learning with productive work." The report suggests the need for a reconceptualization of citizenship education while laying emphasis on the environment and its protection.

The knowledge of the content has always been a crucial component of pedagogical content knowledge but it is not stressed enough during the teacher education course. The report suggests a problem-solving approach that has high potential for building connections between science education and real word challenges. It implies that science learning should not be limited to memorisation of facts but instead, scientific process and skills have to be focussed upon. The learning experiences suggested by

the report are inclined towards making the learner an active participant. The role of a teacher is also seen as one who initiates dialogue and discussion with the learners. The report did not speak much on the potential of technology integration in the pedagogic strategies.

Science Education in the Light of NEP-2020

After a duration of about 34 years, the National Education Policy (NEP) 2020 was implemented in India, which may also be referred to as the first educational policy of the twenty-first century in India. In the present times where science and technology play a huge role in the advancement of the country, the policy aimed at addressing the desired educational needs of the country. The policy stresses goal 4 of the sustainable development goals of 2030, which aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all". It clearly states that "Learning Should be Holistic, Integrated, Inclusive, Enjoyable, and Engaging." The National Education Policy 2020, is built on the principles like flexibility for learners, no fixed separation between arts and sciences, respect for local context, and multidisciplinary and holistic education.

Focus on curriculum and pedagogy: NEP-2020 stresses revamping the entire curriculum and making it more oriented towards "real understanding". It emphasised shifting the classroom towards competency-based learning. The policy describes curricular and pedagogical stages that are based on the cognitive development of the child and will inform the learning and teaching strategies for every stage. At the foundational stage, the learning experiences are play-based or activity-based. A progression to a more formal but interactive form of learning is suggested for the preparatory stage. This stage is more focused on building a foundation of reading, writing, speaking, science, and mathematics. An introduction to learning and discussion of concepts across disciplines that are relatively abstract is recommended at the middle stage through subject teachers. Subject-oriented pedagogical and curricular style is suggested at this stage but it also encourages exploring the relationships between various subjects. A similar pedagogical style is recommended for the secondary stage but it stresses more rigour in terms of depth, critical thinking, flexibility, and student choice. Greater exposure to various subjects and better flexibility are recommended at the secondary stage.

NEP-2020 prescribes the adoption of experiential learning, storytelling, and standard pedagogy respective to each subject. The policy also recommends a reduction in the curriculum content-building scope for critical thinking, discovery-based learning, discussion, and analysis-based learning experiences. The role of technology integration in education is also highly emphasised. The policy visualises the process of teaching and learning as an interactive process in which questions are encouraged and lessons include activities that are creative and exploratory in nature aiming for deeper and experiential learning.

Assessment: NEP-2020 emphasises 360-degree holistic assessment. Various aspects of learning are taken into account for assessment in this policy. It talks about assessment for learning, assessment of learning, and assessment as learning. It prescribes that these domains of assessment must be in consonance with "learning outcomes, capabilities, and dispositions" respective to each subject and class. But more emphasis is laid on assessment for learning rather than the other forms of assessment. The assessment is shifted towards competency-based learning instead of rote memorisation. Assessment for learning focuses on improving the teaching strategies based on the feedback of the students. For this, a co-constructive environment is required where learners can freely express their ideas and teachers can establish their learners' knowledge. It needs effective interaction with the students. **In science teaching and learning, it is through peer and collaborative learning that assessment for learning can be encouraged**. Discussion and questioning are effective tools for eliciting misconceptions. Another strategy can be **developing diagnostic questions that are designed to elicit students' understanding and uncover their misconceptions**. For investigative projects and discovery-based learning, allowing the learners to fill a learner's journal during the course of any project can be an effective way to document and provide feedback for learning.

NEP-2020, at every stage of learning, is emphasising interactive learning which provides an opportunity for the learner to construct knowledge. There is a gradual progression in terms of depth and rigour as we proceed through different stages of learning. The stress on discovery-based and analysis-based learning experiences brings the learner and the process of learning to the forefront. These approaches encourage the curious and inquisitive nature of the learner and foster creative thinking. The approaches suggested in the policy encourage collaborative learning with peers as well as the teacher. The provision for inclusion of local context in the science classroom will create a connection between science and the everyday life of the learner. This makes learning more relatable for the learner. The principle of multidisciplinary education falls in alignment with the current need of the education system where there is a need for holistic understanding from various perspectives and disciplines to cater to any problem or issue. This will also encourage the learners to look at any challenge or issue through various perspectives drawn from an understanding of multiple disciplines. However, greater flexibility in making disciplinary choices also requires modifications in the provisions of the National Testing Agency. The specialisation required for any profession or higher degree, and the learner's interests must be in consonance with each other. This approach is also beneficial to gifted children as such a holistic and diverse perspective will fetch better opportunities for them. At the same time, it calls for the development of specific guidelines for assessment. The medium of instruction is suggested to be the mother tongue, especially till the primary stage. This is a significant move as engaging in the process of learning in the mother tongue is considered beneficial for the learners. In the learning of science, the presence of context and the use of local language is crucial (Wellington and Osborne, 2001). The integration of technology will help in improving the efficiency

of the teaching–learning process and the teacher education programme. However, the integration of information and communication technology seems a challenging task considering the lack of infrastructure and resources in our education system.

Analysis of Pedagogical Shifts

As various policies, frameworks, and commissions regarding school and teacher education were formulated, there has been a constant evolution of science education in terms of its aims, the role of the learner, the role of the teacher, pedagogy, and science curriculum. As the understanding of education evolved with time, each of these aspects has undergone a pedagogical shift which is discussed below.

(a) **Aims of science teaching–learning**

The aims of science education have widened over time. The aims are no longer limited to merely developing scientific literacy and building connections with real life. They have **extended to building a holistic understanding of science and its interaction with society and the environment of the learner**. In the recent past, an inclusion of imagination, inventiveness, and creativity has also been documented. These are essential for creating learners that are capable of exploring the applications of science. The components of nutrition and health are also included in science education so as to make learners aware of their bodies. The aim of science education is to emphasise the development of scientific skills to critically and logically analyse and view scientific information instead of pouring them into a learner's mind. This develops the lifelong learning ability.

(b) **Role of the learner**

The **learner is no longer a passive recipient of knowledge and his/her role is transformed into a more active form**. The learner is constructing knowledge, initiating inquiries, and collaborating with others to build their own conceptions. There is a transition from engaging in learning as a solitary activity to engaging in learning which is a collaborative activity. Thus, it makes the learner an active participant and co-constructor of knowledge instead of mere reproduction of knowledge. The learner is also seen as a curious and inquisitive being, and the pedagogic approaches like inquiry and discovery-based learning also stress these characteristics.

(c) **Role of the teacher**

The role of the teacher has transcended from that of a knowledge provider to a facilitator and collaborator. The teacher's role was perceived to be of a resource person and an instructor who provides information and instructions to the learner. The teacher is now responsible for creating a conducive environment where the learner can engage and collaborate for knowledge construction. **The teacher is a contributor to the construction of knowledge and should develop curiosity, imagination, and creativity in their learners**. The teacher needs to gain an understanding of

the knowledge of the learner, context, and content for an efficient teaching–learning process.

(d) **Science Curriculum**

Science curriculum has evolved from a disciplinary approach to an integrated approach. The curriculum is no more laden with facts, rather it **focuses on developing content knowledge through the exploration of the environment of the learner. The science curriculum is suggested to be integrated with components of health, nutrition, and environmental sciences**. In recent times, the integration of Science-Technology-Society-Environment has been encouraged. This helps in developing an understanding of the interface between science, technology, society, and the environment. The curriculum also integrates the context of the learner and inclusion of traditional wisdom and knowledge is encouraged.

(e) **Pedagogic Strategies**

A shift from the behaviourist to constructivist paradigm has occurred lately. This has influenced the pedagogic approach in science education. The orientations to teaching science have evolved with time, thus transforming the way science is being taught to learners. **A gradual transition has occurred from a didactic approach to an activity-driven approach which was more child-centred as compared to the previous one. This was followed by encouraging pedagogic strategies like discovery-based approach, project-based approach, and problem-solving approach**. These strategies were more inclined towards providing opportunities to the learner for building their own knowledge while they inquire and collaborate during the process. Technology has also been regarded as a significant component of pedagogy and recently has gained much importance for an efficient teaching–learning process in science.

Roadblocks in the Implementation of Previous Policies

The Indian school science education came across a shift in discourse towards a constructivist approach long back, but in-ground reality, it is still a challenge for our classrooms. Every subsequent policy discusses similar lines and arguments but various factors have acted as roadblocks in transforming the teaching and learning of science in real classrooms. The quality of education in government primary schools has deteriorated due to factors like overcrowded classrooms, poor infrastructure, empty vacancies, and a lack of trained teaching staff (Narayan and Mooij, 2010).

(a) **Infrastructure**: Inadequate infrastructure is one of the prime hurdles for an effective science teaching–learning process. The lack of resources in schools is an obstacle especially when it comes to the practical aspect of science education. The activity-based learning and hands-on experience of "doing science" is primarily affected when there is a shortage of resources and infrastructure. The

urban–rural divide is another complexity that adds to this. The infrastructural inadequacy is more extreme in the rural region where the textbook serves as the prime resource for teaching and learning science. As a country, there is a lack of seriousness on the aspect of "how science is learnt and lack of infrastructure and practical science learning experience is a proof of it" (Sarangapani, 2014).

(b) **Class size**: The student–teacher ratio as per the Right to Education Act is 30:1 but it stands far away from the ground reality. Concerning science teaching, it is easier to undertake activity-based, discovery-based learning with a relatively smaller class size where there is an ease of interaction between the pupils and teacher. In remote rural areas, single-teacher schools are very common (Diwan, 2015), whereas, in urban areas, there is a huge variation extending up to double the prescribed class size. This variation in the class size has made it difficult for policy interventions to transform the ground reality for science education.

(c) **Dearth of quality science teachers**: Teacher education requires well-qualified teachers with a degree in a science discipline and a professional degree in education. But science education is not always the first preference for our youth who are more inclined towards science-related streams or industry jobs. We require more popular and appropriate integrated courses that prepare quality science teachers and emphasise continual professional development. It is difficult for the management or the state to employ suitably trained science teachers having the zeal and dedication to teach science the way it should be taught. Sarangapani (2014) suggests employing science graduates with a provision of undertaking teacher education training on the job but expresses unsurety about the outcome in terms of desired professional development.

(d) **Approach to science teaching**: The policies have put forward a very progressive approach to teaching science education and it has been prevalent for a long time. A focus on the scientific method rather than scientific facts has been an area of constant discussion. The development of scientific temper in our students is an aim that is spelled out in almost every policy and report related to school education. But, the reason behind the failure in developing a scientific temper is still under question. The curriculum has undergone an overhaul in the previous years but the emphasis seems to be more on reproduction of knowledge rather than construction of knowledge. The new approaches to science education have made their way to discourses on the curriculum but lacked a "systematic review and response" (Sarangapani, 2014). Thus, developing scientific temper in our learners remains a challenge for us.

Future Needs

In our recent policies, the vision for science education calls for several changes in order to meet the stated aims and objectives. The current discourse in science education is inclined towards science which is applied in nature. There is an inevitable need to mould science education for our current and future needs; rather than sticking and

relying on core science disciplines, there is a need to shift towards more contemporary and emerging topics. NEP-2020 prescribes the introduction of contemporary subjects such as holistic health, global citizenship education, and organic living. We need **orientation towards subjects that are modernised and integrated enough to provide solutions to modern problems arising out of scientific and technological advancements**.

Moving towards the digitalized world, it becomes extremely important for our education system to appreciate and incorporate ICT in our pedagogies. The incorporation of ICT should not be limited to the science curriculum rather it should extend to teacher education programmes as well. In a country like India, where a lack of infrastructure and resources impedes quality education; science education with the incorporation of ICT seems a plausible option with high potential. **Virtual labs, which require basic internet connectivity can be a resource that can compensate for the lack of laboratories**. Virtual labs utilise pre-defined interactive simulations and real-time experiment videos for learners and allow them to perform experiments. The use of technologies like augmented realities and mixed realities helps the learners to experience the phenomenon that is otherwise not feasible in the real world. It helps the learners to immerse in simulations and engage with the 3D phenomenon. The bigger challenge here is financing the science education curriculum with these kinds of technologies. **The inclusion of such technologies on a larger scale requires collaboration between schools of a specific geographical area**. A common resource centre with access to such technologies can be established for all the schools present in its neighbouring areas. **Collaboration with private corporations and research institutions for these costly technologies can also be another way of providing access to these technologies to schools**. The use of educational apps also needs encouragement at the school level for making science education livelier and more interesting.

Conclusion

Science Education in India has transformed over the last few decades considering the needs of our nation and advancements at the global level. Each aspect of our education system has evolved with time and this transformation is the result of suggestions and recommendations through various policies, reports, and commissions. Kothari Commission which is considered a landmark in science education brought about some foundational changes in our education system. The National Curriculum Framework (1975) detailed various aspects of the science curriculum and pedagogy at each stage of learning. A prominent shift towards the understanding of the nature of science was observed through this framework. National Policy on Education (1986) in addition to recommendations on science education, directed its suggestions towards teacher training and their professional development. The national curriculum for elementary and secondary education (1988) emphasised interactive learning and transformed the role of a teacher from instructor to

a "resource person". Ramamurti Commission for the first time put forward the teachers' orientation to science teaching. The National Curriculum Framework for Secondary Education (2000) was in agreement with the technological advancement occurring globally and thus gave preference to scientific and technological literacy. It also extended science to various domains of everyday life like agriculture, defence, industry, energy, etc. The National Curriculum Framework (2005a) was grounded in the constructivist paradigm and marked a sharp transition from the previous policies and frameworks. It aimed at building citizens who are scientifically and technologically literate and are aware of the issues at the interface of science, technology, and society. NCF focussed on "doing science", experimental and investigative approach, and problem-based learning. It considered the learner in an "active" role and the teacher as a "facilitator". It was imperative for teacher education to cater to the ongoing scientific advancement, and thus various suggestions and recommendations were documented in the curriculum frameworks for teacher education. The recent National Education Policy (2020) emphasises on learning which is holistic, integrated, and joyful. It recommends the building of critical thinking, discovery-based, discussion, and analysis-based learning experiences. This policy builds the pathway for the future of science education and plays a significant role in setting the discourse of science pedagogy in the coming era of scientific and technological advancement. It is through innovative strategies and the inclusion of technologies in our science education curriculum we can take over the roadblocks in the implementation of previous policies and fulfil the aims of science education envisaged in our recent policies.

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Chapter 14
Teacher Education and Pedagogy of Social Sciences: Review and Reflection

Mehnaz Ansari and Raisa Khan

Abstract Social science is an important part of the school curriculum. The content of social science discusses diverse concerns of society drawn from varied disciplines, i.e. history, geography, political science, economics, and sociology. The goal of social science cannot be realised without considering the diverse nature of Indian society. We all are social beings and must seek social adjustments and coordination with ecological surroundings. It is an area of study that helps to acquire essential information about the physical and social environments to seek adjustment. The significance of social science in the curriculum can be comprehended by inculcating human values that are essential for social adjustment and social development. It helps to preserve and sustain constitutional values; strengthen and uphold the democratic values of the country. It also helps to prepare vigilant citizens with an analytical and critical mind. This chapter begins with the conceptual understanding of social science in the light of NCF, 2005, and highlights the historical development and basic structure of social science at the school level. It also mentions provisions and recommendations as suggested by different policies and committees. The chapter deals in detail with the scope and importance of social science in the curriculum. It also discusses substantial pedagogical practices essential for the successful implementation of social science concepts into practice. Some constructive measures to bring desirable changes and improvement in pedagogical practices and assessment in social science are also discussed.

Keywords Social science · Social adjustment · Human and constitutional values · Pedagogical practices · Assessment

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Introduction

Education plays a significant role in bringing about significant changes in the behaviour and attitude of an individual. It provides an opportunity for maximum development of their potential to ensure individual, social, and national development at large. Integration of varied subjects in school curriculum works towards the realisation of objectives associated with the social and national interest. Social science as a discipline is no exception, it plays a significant role in satisfying social needs, ensuring better adjustment and better living of an individual according to the social structure. It facilitates learners to seek social adjustment, coordination, and cooperation with other members of society. "*Society maintains educational institutions to preserve and disseminate among its members such knowledge, skills, ideas, and habits that are essential to its perpetuation and its constant development*" *(Franklin).*

Thus, the insertion of social science into the school curriculum helps students to understand the complex organisation and structure of society. Social science draws its subject matter from multiple disciplines to meet the desired demands of society. The development of social science was not a spontaneous event. It has evolved along with human development and is associated with the transformations and developments observed in the eighteenth century. There were many factors like industrialization, urbanisation, renaissance, technological advancement, etc. that brought revolutionary changes in society. The transformation in society brought varied social problems and challenges for human society the world over. Thus, to deal with these challenges, social science emerged as a possible solution to impede the devastation of society. During the eighteenth century, social science emerged as a formal discipline of study in higher education curriculum. It was a sincere effort to comprehend the existing social phenomenon and to predict the future of modern society. During the twentieth century, social studies was introduced as an important component of the school curriculum. Many organisations like UNESCO, UNICEF, UNDP, and the UNO emphasised on the teaching of social science more formally and systematically to foster healthy social living in the world. Universal Declaration of Human Rights, (1948), United Nation states, "*All Human beings are born free and equal in dignity and rights. They are endowed with reason and conscience, and should act towards one another in a spirit of brotherhood.*"

Conceptual Understanding of Social Science from a Policy Perspective

Social science is a study of humankind and its association with society, to recognise the value pattern and social relationship. It is helpful in recognising the importance of varied social institutions and their contribution to the process of development. The study of social science promotes an idea of integrity and contributes to the development of analytical and creative minds. The incorporation of social science in the

curriculum as a core discipline at different levels of schooling reflects the significance of the subjects in the life of an individual. Social science as a formal discipline is associated with different disciplines that are helpful to understand the interaction of humankind with their environment, i.e., historical, geographical, political, economic, and sociological aspects. Thus, it is a scientific and humanistic study of the society concerned with its origin, development, sustainability, and interaction at the local, national, and international levels.

Secondary Education Commission in 1952 endorsed that social science was a new term for the Indian Education system which aims to help students to adjust to their social environment and understand the development of society to its present form—to be able to understand the distinctions of functioning of the society and its sociocultural context.

National Curriculum Framework, (1975), (pp. 19–24), *recommended that in initial classes, i.e. class 1st and 2nd social science should be taught as* the study of the environment. It should be introduced as the main subject in the consecutive classes. Environmental studies must discuss the natural and social environment. It also recommended the term social studies instead of social science at the primary stage. It also acknowledged that teaching social science would provide sufficient prospects to cultivate socially desirable attitudes, habits, and values among learners. At the middle level, social science should comprise history, geography, civics, and economics, and History, geography, and civics may be introduced as a separate discipline. At the higher level, economics may be introduced as a separate discipline. History and civics may formulate one group and geography and economics may present in another group that can be introduced in class VI and brought up to class X.

National Curriculum for Elementary and Secondary Education, (1988), (pp. 26–28) review brings no foremost changes in the syllabi of social science at upper primary with the statement that curriculum planners should not overlook its core components while designing the curriculum. The curricular review on page 27 states that the aim of social science is to enable learners to envision the present in the context of past development. The study of the social environment in social science should have three aspects, i.e. learning about, learning through, and learning for the social environment. In pre-primary education, the social development of the child is a primary objective that can be achieved through a series of activities and programmes that provide them maximum opportunities to interact with their physical and social environment. At Grade level I and II, the child should be introduced to the environment as a whole in Environmental Studies without any distinction between natural and social environment. From grade III–V, the concern for the environment should continue and the core area of study should be related to the physical and social domains of the environment. In the upper primary stage, social science should dwell on the content involving history, geography, civics, and contemporary issues. At the secondary stage, social science should constitute components of history, geography, civics, and economics which would help to develop an understanding of contemporary India.

The National Curriculum Framework for School Education, (2000), (pp. 62–67) suggested that social science is an integral part of education up to the secondary stage. It helps the students to understand society and grow into empathetic and peace-loving

human beings. It further suggested that the curriculum of social science should elicit its content from various subjects like history, civics, geography, economics, and sociology. It helps the learners to comprehend social science in a more meaningful way to understand their society. They need to be sensitised about contemporary issues and concerns of society. A comprehensive curriculum will help students engage in varied activities and gain meaningful learning experiences. It further suggested that at the primary level, the content should be from their immediate environment to help them relate to it. The discipline of environmental studies from grades III to V should deal with the social and natural environments of the students. At the upper primary stage, the students should be introduced to the social, political, and economic institutes and their functions. Secondary levels help them to understand the interdependence of humans and nature, the importance of taking care of the environment, and the effects of human interventions in the environment globally. Real life experiences of the students help them to understand the content through cross-disciplinary approaches. NCF further argues why civics should be replaced with Political Science as civics was introduced during the colonial period to teach obedience and loyalty to disloyal Indians, whereas political science dealt with developing a civic society and democratic citizens.

Nature of Social Science

The content of Social science discusses varied aspects of human development which is reflected in its varied disciplines. Understanding the interdependence of humans and the environment is valuable and meaningful for the students. Social science is a unique combination of different disciplines, i.e. history, economics, geography, political science, sociology, and anthropology. The study of each discipline is significantly different and provides a varied nature of knowledge to understand the social phenomenon.

The study of social science is considered a realistic study of society. Subject matter or learning experiences of social science have a scope to incorporate real-life experiences of a child in understanding the phenomenon as a whole.

The harmonious development of society is largely associated with the nature of human relationships that exist in society. The study of social science provides substantial assistance to inculcate, preserve, and transmit human and constitutional values to achieve national integrity.

It aims to develop a critical and creative mind in those who can reflect on a social issue that may hinder the process of social development. Social science follows a notion of pragmatic philosophy, principles of viability and utility based on social experiments and actions, and it is useful to serve the changing needs of society. In this context, only those ideas and principles are valid that can satisfy individual needs, social needs, and social aspirations.

The subject matter of social science reflects the composite structure of society. It helps to conceptualise the diverse nature of society; it also helps to realise the need

for social and constitutional values that are necessarily useful to create a conducive and progressive environment in the society and nation at large.

Scope of Social Science

The scope of social science can be analysed in two ways, one is the depth, intensity, and extensiveness of subject matter with experiences incorporated. On the other hand, the scope can also be measured in light of its functions, applications, and applicability in the present context. Considering the criterion mentioned above, we can conclude that the scope of social science is quite comprehensive to understand the realities of the world as a whole. It includes a varied nature of disciplines associated with every sphere of life as depicted and discussed below (Fig. 14.1).

History: It is a vital part of the social science curriculum that allows students to learn from the past while also developing a comprehensive view and understanding of the current situation. It is beneficial to be aware of noteworthy events that may have an impact on human growth and development. Recognising our roots, strengths, and accomplishments in the past provides us with a sense of pride and makes us learn from the past experiences of our ancestors.

Geography: It is a study of the physical and natural world around us which affect our lives and environment. Understanding the complexity of the physical and natural world is beneficial, as it allows us to become acquainted with and acclimatise to other cultures and environments.

Political Science: Its content and experiences of the students help in the inculcation of desirable habits, virtues, interests, attitudes, and skills among children for exercising civic responsibilities.

Economics: Understanding the economic structure and competence of a country is aided by studying Economics. It is vital to familiarise the student with current economic challenges and problems, as well as to foster an interest in participating in the economic rehabilitation process of society at all levels.

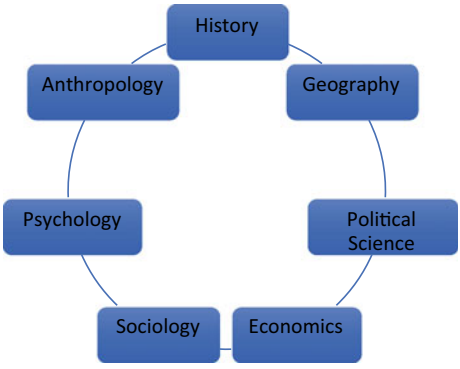

Fig. 14.1 Scope of social science

Sociology: The term sociology was introduced by French philosopher Auguste Comte in the year 1837. Sociology is the scientific study of society. It assimilates varied aspects of society that can be used for reconstruction and re-organisation of the society. It studies the interaction of humans with their society and becomes the subject matter of social science at a higher level. It facilitates learners to understand the social elements of varied cultures in a scientific manner. It is also significant to comprehend the importance of social institutions in the process of socialisation of an individual. The subject matter of sociology helps to develop some desirable traits and prepare the child for good social living.

Psychology: psychology is the study or science of human behaviour. Psychology as an independent discipline of social science being introduced at a higher level is a distinct field of study based on observation and social experimentation. It deals with the present behaviour of an individual and makes predictions based on present behaviour patterns in society. It helps to learn social skills that promote social sensitivity and belongingness. It provides opportunities to explore varied elements of society and conceptualise the relationship between human interaction, socialisation, and group behaviour.

Anthropology: the term anthropology is derived from the Greek words "anthro" meaning "human being" or humankind. It is defined as the study of humankind. Anthropology as a separate discipline under the domain of social science deals with diverse phases of human development and experience from early age to the present stage all over the world. It has some classifications like archeological studies, biological, cultural, and linguistic anthropologies that help to realise varied aspects of human development.

In the context of the social sciences curriculum at the secondary stage, National Curriculum Framework, (2005), (p. 53) remarks that the focus of the curriculum at the secondary stage should be on Contemporary India which would help students to develop a deeper understanding of the issues and challenges which the country is facing, as the aim of teaching this discipline is to relate its content to the daily lives of the students.

Aims of Social Science Education

Environmental Sustainability: The study of social science facilitates learners to conceptualise the relationship between the natural environment and human existence. It helps to realise the significance of preservation and conservation of natural resources. It also encourages understanding sustainability at a global level and learning to use natural resources to ensure a sustainable future.

Develop Critical Thinking and Analytical Skills: The study of social science provides extensive information about wide-ranging concepts, thoughts, and ideas discussed in varied contexts. It allows learners to establish a linkage between two or more related topics or situations to comprehend the phenomenon from a broad perspective. According to National Curriculum Framework, (2005), social science

helps students to become aware of social realities and also critically explore and question them.

Cultural Preservation and Transmission: Culture has a great influence on society and education as well. The subject matter of social science helps to preserve, transmit, and promote significant aspects of culture. It helps to bring desirable traits of behaviour to accept and respect diverse and multicultural aspects of Indian society.

Develop Desirable Traits for Good Citizenship: The subject matter of social science contributes to developing desirable knowledge, attitude, values, and characteristics among learners to be good citizens. It facilitates learners to develop the right understanding of political ideologies, legal orders, constitutional laws, fundamental rights, duties, etc. It enables learners to become good, civilised, responsible, and reflective citizens to address social, political, and civic affairs. National Curriculum Framework, (2005), also highlights the responsibility of social science to inculcate social and democratic values among students.

Develop Moral and Social Character: The study of social science aids in the development of children's moral and social character. The child's social behaviour is influenced by society's social norms and ideals. Trust, respect, caring, sympathy, cooperation, and tolerance are examples of these virtues. As a result, studying social science makes individuals aware of these social norms and values, as well as assists them in realising their significance. National Education Policy, (2020), emphasises on development of constitutional values at all levels of Education.

Cultivate a Sense of Collaboration and Cooperation: The foundations of social structure are cooperation and interdependence. The study of social science aids in the comprehension of the complexity of social structure. It also aids in the recognition of the importance of mutual trust, cooperation, and interdependency in promoting individual and social well-being.

Develop the Right Understanding with the Right Attitude: Social science enables learners to perceive any event or situation with the right understanding. It helps to develop positive attitudes about oneself, one's family, society, nature, and the nation as a whole. National Curriculum Framework, (2005), reiterates that Education cannot function in isolation, as it is part of society. National Education Policy, (2020), also emphasises on the importance of ethical decisions by teaching students at a young age the difference between right and wrong.

Ensuring Better Adjustment with the Environment: Change is a ubiquitous phenomenon. By its very nature, society is progressive and prone to change. Social science is a discipline that helps an individual in adjusting to a changing environment. It also helps to prepare students as social agents and enables them to bring desirable changes in society. NCERT (1969) rightly stated that the main aim of social science is to make students aware of their social processes and structures and prepare them to bring about social change in the country.

Promote a Feeling of National Pride: The ultimate goal of social science education is to cultivate national character in the service of nation-building. Emotional integrity must be cultivated to develop a sense of national integrity. The study of social science aids in the development of national or democratic values that are woven into the philosophy of India's democratic system.

Foster International Understanding: The study of social science aids in the understanding of our past and allows students to appreciate the evolution of various cultures, their nature and structure, and their involvement in the global economy. It is also important to understand the implications of unique historical events that have had a huge impact on the lives of people across the world. National Education Policy, (2020), asserts that School education will help to develop a scientific temper, aesthetic sense, communication, ethical reasoning, digital literacy, knowledge of India, and knowledge of critical issues facing the community and the world.

Uphold Democracy and Promote World Peace: Peace is not only the absence of war or violent clashes. It does, however, manifest itself in a healthy and respected social culture as well as a harmonious partnership. In the age of globalisation, to achieve personal and universal peace, the teaching of social science, with a variety of co-curricular activities, aids in the global recognition of the values of human rights and world peace.

Develop the Sense of Social Sensitivity: Social sensitivity is linked to emotional concerns about maintaining harmonious human connections within a group, social institutions, and society as a whole. It is the ability to empathically observe, understand, and interpret social situations. Social science subject material and experiences have considerable potential to serve this goal. National Curriculum Framework, (2005), says that social science should make the students critical and alert towards the social forces that threaten the values of the country.

Place of Social Science in School Curriculum

The importance of social science in the curriculum can be realised in terms of changing social needs that demand a higher level of aesthetic sensibility and social sensitivity among children. Although social science tends to be considered as less utility in comparison to natural sciences, still, the scope of social science is extremely extensive and embraces a strong position in the school curriculum as an academic discipline to develop an ability to explore and question social, political, economic, and environmental realities. Thus, the study of social science is a distinct field of study that is concerned with society and human relationships. It is helpful to provide the desired knowledge to understand our past, to identify the present needs, and to envisage the future. Aforesaid, purposive subject matter and learning experiences of social science presented a subject matter of related discipline in a correlated and integrated way to achieve the desired outcomes.

The significance of social science in the curriculum:

- It is necessary to understand human development and its existence in the present scenario.
- It is helpful to realise the importance of time, space, and their impact on human development and the progress of society.

- It helps to nurture the desired values and attitudes among children to be good and civilised citizens.
- It is necessary to develop the feeling of patriotism and brotherhood among the citizens of a country as well as a global citizen, i.e. cultivating the spirit of internationalism.
- It helps to build national character and cultivate the right attitude.
- It is important to acquire an understanding of the past to comprehend the present in the right context.
- It is helpful to develop a broad and liberal outlook to perceive the world from different perspectives.
- It is helpful to develop an outlook of appreciation towards multiple cultures (multiculturalism) that contribute to the process of social development.
- It is significant to develop sensitivity towards environmental issues and challenges.
- It is necessary to develop a feeling of tolerance and appreciation for diverse religions and religious practices in India.
- It is helpful to develop an aesthetic sense towards natural resources and encourage the justified use of valuable natural resources.
- It is important to develop a sense of belongingness for the environment to encourage sustainable development.
- It is helpful to understand the development of varied civilizations in India.
- It is essential to comprehend the living conditions of people in different parts of the globe.
- It is important to understand the existence and evolution of humans in varied climatic conditions.
- It is helpful to comprehend the importance of the physical and social environment for survival.
- It is helpful to understand the economic issues and challenges and to justify their roles in the process of economic development of the country.
- It is helpful to nurture and provide an impulse to contribute to the process of economic growth by making the students aware of and develop an understanding of the economic policies and to realise their influence on economic growth and development.
- It is helpful to compare the economic affairs of different countries all over the world to comprehend the economic efficiency of the nation.
- It is necessary for the realisation and protection of humans and their fundamental rights and also to make them aware of their fundamental duties.
- It helps to realise the importance of democratic values to strengthen democracy in India by imparting knowledge and preparing them as good and civilised citizens.
- It is helpful in the development of social and political consciousness.
- It is necessary to satisfy the need for democratic socialism and secularism.
- It is necessary to understand the complexities of social structure and the scope of social development.
- It is relevant to realise the value of social institutions, i.e., family, school, and society in the process of socialisation and social development.

Suggested Pedagogical Practices in Social Science

The quality of a nation may ensure by its quality citizens and quality of education is ensured by the quality teachers. The selection of appropriate pedagogical practices and resources may determine the extent of quality teaching as well as teacher effectiveness.

Methews, N. S. (1999) while talking about quality education emphasised on the quality of teachers, he said that it is important to have quality teachers if one wants quality education. Thus, there's a dire need for sincere efforts by the teachers while selecting the activities and resources to achieve the desired level of learning outcomes in terms of conceptual knowledge, attitude, and behaviour of the learners.

Some selected pedagogical practices are discussed below:

Experiential Learning: it advocates the acquisition and integration of life experience into the teaching–learning process to acquire new knowledge. It is the process to draw inferences from direct experiences. National Education Policy, (2020), advocates new teaching–learning processes having interactive and fun classrooms, having room for exploration, and experiential learning. National Curriculum Framework, (2005), stresses the need for relating the content to students' daily life. Here, the focus of learning is on the ability to use acquired knowledge in varied contexts. To achieve the required level of outcome, a teacher must follow a systematic procedure including the activities like planning, inferring, analysing, sharing, and experiencing to facilitate learning. Carl Roger stated that Experiential learning leads to personal change and growth. He stated that all humans have a natural potential to learn and the teacher is only a facilitator. The teacher facilitates students to comprehend the phenomenon at their own pace. Here, learners are the centre of all activities, and the teacher plays a significant role as a guide and facilitator. The teacher must provide an opportunity for independent thinking and reflection. Here, learning takes place through observation, critical thinking, and meaningful activities A teacher must take care of varied aspects and characteristics of learners in relation to their developmental stages as discussed below (Fig. 14.2).

Cognitive Abilities: Cognitive abilities will help the students to determine their specific needs. The mental horizon of an individual may differ with respect to the knowledge and experience acquired that may influence their learning and level of achievement.

Physical Characteristics: The growth and development of the students have a direct impact on their learning style. While selecting the learning resources and activities, a teacher must consider the varied degrees of physical differences of learners.

Personality and Learning Style: Every child is unique and their learning style may differ. Understanding personality facilitates the educator to recognise the varied pattern of learning styles and select appropriate teaching methods and strategies.

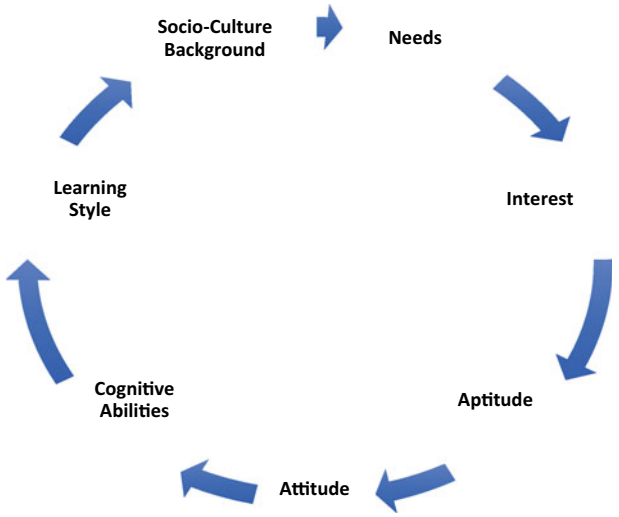

Fig. 14.2 Considerations for experiential learning

Socio-Cultural Aspects: A school with its own distinctive culture also reflects the diverse culture of Indian society. Cultural experiences may influence the teaching/learning processes and academic achievement of learners. A teacher must consider the sociocultural aspects of the learners to facilitate their learning and to ensure the accomplishment of desired learning outcomes.

Problem-Solving: It is a learner-centric and problem-oriented method of teaching social science. It is based on the assumption that a problem does not occur without a reason, the problem leads to response and learning. The process is initiated with the identification and realisation of the problem. The inability to find out the solution to a specific problem encourages them to sincere investigation of the problem by specific means, i.e. self-study, discussion, survey, practical, etc.

Learners attempt to find out the possible solution of the problem with continuous efforts and the viability and validity of the solution may be further verified based on its applicability and reliability in the solution of similar problems in other identical situations.

Steps involved in the learning by problem-solving: Identification of the Problem: The problem encountered should confirm the requirements of the prescribed syllabus and have some social utility. It should be designed according to the abilities and capacities of the students and must provide maximum opportunities for serious exploration of the problem.

Understanding the Problem: Here, a clear understanding must be provided to the students through situations by which they may comprehend the problem in light of specific objectives. It must provide insight into the actions, possible solutions, and limitations of the problem.

Collection of Data/Information: Here, the learners must be encouraged to collect data or information from varied sources like libraries, surveys, fieldwork, or any other means available for them.

Analysing the Data and Drawing Inferences: At this step, the learners summarise the data collected in tabular or graphical form and draw inferences to understand the problem from a broad perspective.

Thus, the problem-solving method brings a scientific attitude among learners. It helps to develop various skills like observation, analysis, reasoning, imagining and social skills, etc. It enables learners to make logical decisions to solve the complexity of life on the personal front.

Learning through Integration: Integrated learning facilitates the learner to understand two or more concepts together. It draws subject matter from multiple subjects and is presented in an integrated form for a better understanding of the phenomenon. It is helpful to develop multiple sets of skills and experiences to accelerate the process of learning. It is an approach based on the assumption that the mind is a unit that perceives things or thoughts as a whole, not as a part. It also advocates that students are not inactive listeners but they are active members playing a significant role in the process of knowledge construction. There are many factors like past experiences, needs, and attitudes that may influence their perception. The conventional method of teaching social science did not use integrated approach instead taught each branch of social science in isolation. The integrated approach covers the limitations of conventional methods of teaching social science and helps to create a learning environment across several disciplines. An integrated approach enables learners to establish connections across the disciplines of social science that can be extended to varied academic disciplines like science, mathematics, art, and language. It provides a holistic view for conceptual understanding. The role of the teacher is projected to be that of a facilitator that provides constructive and resource-based learning strategies to establish relationships between two or more concepts independently.

Constructivist Approach: Constructive approach of learning influenced by social constructivism was proposed by the Russian psychologist Lev S. Vygotsky. The basic idea of the constructive approach is that learning is a process where active learners are able to construct their knowledge on the bases of their previous knowledge and experiences. Here, the focus of learning should be knowledge construction instead of the transmission of knowledge from one to another. The teacher must ensure continuous engagement of learners and provide maximum opportunities for interaction, reflection, and experience. Some suggestive activities of constructive classrooms are discussion, viewing films and documentaries, experiments, field visits, projects, and surveys. The guiding Principles of the constructive approach are presented and discussed below (Fig. 14.3).

Engage: A teacher must create a learning environment to engage learners in meaningful activities to comprehend the phenomenon. These activities must be designed

Fig. 14.3 Guiding principles of constructive approach

according to the grade level of the students. NEP 2020 provides a list of problem-solving activities and games, viz. *word puzzles, that involve spatial reasoning, wordplay, strategy, logic, arithmetic, and play with large numbers.*

Explore: At this stage, a teacher must provide maximum opportunities to explore or investigate an extensive range of experiences. This stage allows learners to conceptualise the concept through experience and observations.

Explain: This stage focuses on the conceptualisation of facts and concepts within the unit of the study. It may include formal terms, explanations, and definitions of the concepts which have been investigated and explored.

Elaborate: A teacher must encourage students to assimilate their prior knowledge and experiences with new knowledge. Assistance must be provided to employ or extend the concept in different situations. Here, a learner attempts to establish a connection between two or more contents to comprehend the phenomenon from a broad perspective.

Evaluate: It includes the evaluation of conceptual understanding and applications of skills acquired during the process.

Thus, constructive learning as pedagogical practice follows a learner-centred approach that encourages learners' autonomy in the teaching–learning process. It promotes self-learning through intrinsic motivation and reinforcement techniques. Teachers play a significant role to create a suitable learning environment and provide space for self-learning. It also suggests innovative, unique, and varied evaluation techniques mainly focused on peer and self-assessment. Here, Learning and assessment are linked together and learners continue to learn throughout the assessment process. Evaluation techniques are meant for learning not for learners.

Learning through Dialogue: Dialogue is one of the significant techniques to engage the learner in constructing the knowledge. In general, dialogue is an exchange of ideas and views between two or more people. Dialogue in the teaching–learning process is termed a pedagogical communicative social relationship. It is an association of students and teachers based on some emotional concerns like trust, respect, affection, empathy, tolerance, appreciation, patience, etc. The dialogue process assumes that learning is a social activity that supplements interaction and reflection. It enables learners to think independently in a creative, conducive, democratic, and progressive environment. The dialogue can be constructed in many ways like one to one, within the members of one group, and among the members of different groups. There are some suggestive methods to facilitate learning through dialogue like discussion, demonstration, brainstorming, role-play, debate and tutorials, etc. Here, a teacher

plays a significant role as a planner, organiser, guide, facilitator, motivator, resource person, and a democratic leader.

Thus, it can be concluded that dialogue is an interactive method of learning that is centred around the learners to realise the desired learning outcomes related to the specific theme or content discussed. Dialogue promotes democratic and collaborative learning that may overcome the limitations of conventional classrooms. Here, a teacher plays a significant role to carry out a successful discussion and lead the discussion in a desirable direction.

Learning through Art and Drama: Art is a creative expression of ideas, imagination, experience, and perceptions in a variety of ways, i.e. visual or performance art. The application of art and drama in the teaching of social science helps to connect an individual with society or to reflect upon social issues. National Education Policy, (2020), states that Arts must be included in the teaching–learning process to develop creativity, innovation, and humanity in students. Art acts like a sponge where social, economic, environmental, cultural, and psychological experiences are engrossed. Whereas it also reflects as a fountain where all these experiences converge in various forms of art, i.e. visual or performing art. Knowledge and application of art are necessary to develop aesthetic sensibility and critical thinking among children. Reflection and expressions through art and drama provide an opportunity to investigate, explore, discover, reflect, and express at their own pace with full freedom, Reflections and expressions through art and drama provide an opportunity to investigate, explore, discover, reflect and express at their own pace with full freedom, it promotes the frequent use of mental faculties like reasoning, observation, imagination, analysis, synthesis, generalisation, and conclusion. There are varied forms of art that can be employed to teach diverse nature of content in social science. The art forms can be categorised as visual and performing art. Visual art that can be aesthetically observed by seeing or viewing, i.e. drawing, painting, sculpture, poster, collage, etc. Performing art is a communicative idea that interacts with the facial expressions and body gestures of an individual that reflects in the form of actions like drama, theatre, dance, musical recital, puppetry, etc. Drama and theatre are the most effective, interesting, and interactive methods to discuss contemporary social issues that may directly touch the public forum. The importance of theatre as discussed in National Curriculum Framework, (2005), points out how it is the least utilised art form.

Thus, the integration of art must be a part of the social science curriculum at all levels. Learners must be encouraged to learn about varied art forms of Indian culture. The teachers' role is to accept the ideas of children and provide a platform for creative expression and allow them to explore all possibilities to understand the existing phenomenon and express it in their way. Field trips or excursions must be organised to understand the realities of the outside world. It will be helpful to widen their mental horizon concerning the facts and principles already established. Heritage crafts along with various art pieces/articles, and sculptures must be an important component of a social science lab at school premises.

Learning through Community: The community has two distinct meanings—as a small social unit that shares common values; in another sense, a community is a cluster of individuals sharing a collective geographical area. The subject matter of social science reflects upon the prevailing culture of the existing community. There are many resources available in the community that can be utilised by the social science teacher as instructional resources. These resources can be categorised in many ways like sources of geographical interest, religious interest, historical interest, economic interest, sociocultural interest, scientific interest, etc.

Integration of community resources in the teaching of social science may ascertain to develop social sensitivity among the students and prepare them for effective social living. Facilitating student learning through community participation may be organised by two major approaches, i.e. activities to bring the school to the community and activities to bring the community to the school. To bring community to school, a social science teacher may conduct the activities like the formation of an alumni association, formation of the parent–teacher association, invited talks, celebration of festivals and national days, organising fairs and exhibitions, etc. For bringing the school to the community, a teacher may organise the activities like field visits, community surveys, projects, community service programme, etc.

Concept Mapping: Concept mapping as a teaching strategy was developed by Joseph. D. Novak with his associates at Cornell University in 1970. Novak developed the idea of a hierarchical representation of a concept framework called "cognitive map" or "concept map" (Novak, 1991). The technique emerges as a beneficial approach for meaningful learning in the area of science and other related areas of knowledge. Concept mapping is a technique that never considers the concept in isolation. It is a visual and graphical presentation of data or information to establish linkage between the concepts with associated sub-concepts, issues, and ideas that allow learners to envisage in multiple directions to facilitate conceptual understanding. A good concept map should include the nodes, connecting lines, and levels on lines.

Summary

Social science is an area of knowledge that deals with humans and their association with society, to understand their value patterns and social relationships. It helps to understand the complex organisation and structure of society. Although the scope of social science is very extensive, it helps to understand the realities of the world. It includes varied nature of disciplines that aim to subsidise or mobilise social needs, environmental sustainability, economic efficiency, and political stability. To realise the aim of teaching social science, the subject matter of each discipline must be integrated with social realities. Here, the teacher plays a significant role as a reflective practitioner and critical pedagogue to develop analytical and creative minds. Some

innovative pedagogical practices can be employed to achieve the desired level of learning outcomes in relation to conceptual knowledge, attitude, and skills.

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Chapter 15
Teacher Education and Pedagogy of Mathematics: Review and Reflection

Roohi Fatima

> A teacher affects eternity; s/he can never tell where her/his influences stop.

Abstract Since independence mathematics education has undergone a drastic change. Mathematics in the current education system had a long journey from the focus on numbers and algorithms to the Mathematisation of the concepts plus the journey of a teacher as an instructor to a teacher as a facilitator. This journey includes some major recommendations from the Kothari Commission, NPE (1986), learning without burden, operation blackboard, NCF (2005) and its position paper, and most recently the New Education Policy (2020). The chapter points out the factors influencing the curriculum to be taught like the need of the society, ideologies of policymakers, prevailing government influences, etc. But the purpose of education is to create a balance amongst all. This chapter would also give a view of how mathematics education should be perceived and how the notion has evolved over the years. Whilst pedagogy has always been a central aspect of the teaching-learning process. National curriculum framework (2005) suggests various approaches to make the teaching-learning process effective in mathematics classrooms like bridging the gap between a child's previous experiences and the new concepts, giving examples and non-examples to strengthen the concept, and many more. The chapter also includes some different effective mathematical approaches which are being used worldwide for example the CPA approach of Singapore and the student-centred approach in the Finnish curriculum help us to understand what a mathematics classroom should look like. In a nutshell, the chapter provides a pure reflection on how mathematics education has evolved in India with special reference to pedagogy, curriculum, and teaching-learning processes.

Keywords Teacher education · School education · Pedagogy of mathematics · National curriculum framework 2005 · National education policy 2020

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Introduction

Teacher education is like an umbrella term that brings under not only the university's faculties and departments of education and their affiliated colleges, government, and government-aided institutions but also the private and self-financing colleges and open universities. The implementations of the programmes differ widely across the institutions**.** The aim of teacher education is the improvement of school education and it also functions as a bridge between schooling and higher education by preparing competent, committed, and professionally well-qualified teachers.

As a process of nation-building, teacher education has universal recognition. The Universal Aim is to produce well-qualified, efficient, and committed teachers as well as citizens, whereas teacher education in India has been confined to school education only. After the 86th amendment Act 2002 through Article 21-A, Children in the age group 6–11 are given the right to education, where the government has to provide free and compulsory education to all children in this age group. The result was a rapid expansion of Primary and then secondary schools. Further with the vocationalisation of secondary education and expansion of higher and professional colleges, the demand for qualified, trained and committed teachers increased, that too without compromising on the quality of teachers, hence teacher education. Hence, it is a huge challenge to bring out the qualitative changes in the institutional efficacy of the teacher education system and we need a fresh look over the past two decades at how teacher education has evolved and what needs to be added. It is well recognised that for overall progress there is a need for improved levels of educational participation.

A lot of changes have been undergone in the teaching-learning process in recent decades. Now the focus is on student-centred classrooms instead of teacher-centred ones where new experiments are being tried out in the classroom. It includes the discovery learning approaches, the development of critical thinking, and project-based learning. Now the students are not the passive learner or recipients of content, instead, they are supposed to construct their own knowledge by involving themselves in activities. The role of teachers is also changed, s/he is not a dictator in the classroom but a facilitator in learning. There is a need to train teachers for implementing the concepts of the new curriculum of different school subjects including the mathematics curriculum.

Mathematics is the central component of all school subjects, which influences decision-making in all areas of life be it private, social, or civil. Mathematics education helps us to understand our world in daily life, be it problems related to mathematical computations, problems related to mathematical modelling, etc. Since all development work in any society depends on the knowledge and understanding of mathematics, it is essential to develop the skill of solving mathematical problems from the initial stages of education so that students not only adjust in society but also become efficient citizens who can help in further development of society. Making classrooms based on mathematical goals could help students in developing mathematical identities and proficiencies.

Teacher Education and Mathematics: A Historical Trace

Since independence, many policies came and recommended curriculum transformations. These transformations took years and years of time to realise what we actually mean and understand by the term 'mathematics education' today. The teaching of mathematics has always been a matter of concern for academicians as the nature of mathematics is very different from what it has always been perceived in the classroom. Mathematics is often perceived as rote memorisation of facts and figures, focusing more on procedural knowledge rather than conceptual ones. But eventually, the researchers and academicians in the field of mathematics education realised the nature of the subject, and the curriculum transformed as per the need.

In 1826, when the Britishers came to India the Indian system of education was replaced by a new system where the Britishers started schooling to produce the desired workforce for themselves. The curriculum in that period for Mathematics at the Lower Primary level includes Arithmetic, simple mensuration, Bazar, and Zamindari accounts, and while at middle schools it includes Arithmetic, Theory of Surveying, Bazar, and Zamindari accounts, Money handling and Geometry, and Mensuration.

In post-independent India, the teaching and learning of mathematics have been a matter of great importance. The Zakir Hussain committee in 1937, recommended "*Knowledge of mathematics is an essential part of any curriculum. Every child is expected to work out the ordinary calculations required in the course of his craftwork or his personal and community concerns and activities*".

In 1954 the Basic Education Act came and the curriculum included Arithmetic, (mental and written), along with Accounts and money-handling problems. They used the method of 'learning by doing' by focusing on craft-based education but that became very difficult for the teachers to teach all subjects using craft.

Thus, the major reform came after the introduction of the National Policy of School Education, in 1968. The policy introduces the $10 + 2 + 3$ pattern and introduces a common curriculum at the national level giving States the opportunity to adapt as per their local needs. This policy introduces general mathematics up to class X and advanced mathematics at the secondary level which becomes a matter of choice whether to opt for or not. General Mathematics includes Arithmetic, Geometry, a simple Algebra while the Advanced version includes Integers, Quadratic Equations, Logarithms, and Coordinate Geometry. But this system does not work much as the number of dropouts was huge between the primary and middle stages.

Later, in 1986, New Education Policy came with the vision of universalisation of Elementary education and eradication of adult illiteracy. The policy states that "*Education will have to be streamlined to facilitate the modernization of production, services, and infrastructure. Besides, to enable young people, they must be exposed to the challenges of new ideas. Old concepts have to be replaced by new ones in an effort to overcome the resource constraint and input dynamism*". The policy identified the Minimum Levels of Learning (MLL) for each subject at the primary level and a child-centred approach was recommended by the policy. The mathematics

curriculum for the Lower Primary level includes numbers, number operations, simplification, money, clock, metric system, and basic Geometrical concepts while at the Upper Primary level, it includes Number Fractions, decimals, measurement, Unitary method, simple interest, Ratio proportion, and simple Geometry. At the Secondary level, it includes Number systems, Sets, Algebra, Geometry, Mensuration, Graphs, Banking, Introduction to Trigonometry, and Statistics. The policy explicitly focuses on Mathematics and Science. Under the Operation Blackboard scheme Mathematics and Science kits were supplied to schools. The curriculum, thus, mentioned in that stage was found very loaded, especially at middle and secondary levels. Also, the teachers appointed were not so professionally qualified and efficient in making mathematics learning a joyful experience. This loaded curriculum made mathematics simple rote memorisation of facts and figures. As a result of the heavy and irrelevant curriculum, which is also distant from the lives of children, we saw the dropping out problem whereas the report of 'Learning Without Burden' pointed out that the children were not dropping out but were pushed out from the system.

Hence, to respond to this problem, the National Curriculum Framework (2005) guides not only the development of new curricula but also the textbooks based on the construction of knowledge. It emphasised the active participation of learners in the process of learning. The curriculum was introduced in a thematic way. The primary section includes Geometry (shapes and spatial understanding), Numbers and operations, Mental Arithmetic, Money, Measurement, Data Handling, and Pattern. At Upper Primary Level it includes Number systems, Algebra, Ratio and proportions, Geometry, Understanding shapes, Symmetry, Construction, Mensuration, Data handling, and Graphs. The secondary level includes Number system, Algebra, Coordinate Geometry, Geometry, Mensuration, Statistics and Probability, and Trigonometry.

Throughout this trace, we can see that the subject matter has been continuously reformed but the teaching aspect remains 'untouched'. The National Policy on Education (1986) states that:

> Mathematics should be visualised as the vehicle to train a child to think, reason, analyse, and articulate logically. Apart from being a specific subject, it should be treated as a concomitant to any subject involving analysis and reasoning.

This policy first talked about mathematics education and that mathematics should be treated as a tool to think, reason, analyse, and rationalise but this lacks on 'how' to achieve this goal. It lacks in providing direction for the teachers. But later, NCF (2005) states that, "*Developing children's abilities for mathematization is the main goal of mathematics education. The narrow aim of school mathematics is to develop 'useful' capabilities, particularly those relating to numeracy–numbers, number operations, measurements, decimals, and percentages. The higher aim is to develop the child's resources to think and reason mathematically, to pursue assumptions to their logical conclusion, and to handle abstraction. It includes a way of doing things, and the ability and attitude to formulate and solve problems. This calls for a curriculum that is ambitious, coherent, and teaches important principles of mathematics*".

The curriculum clearly gives the vision of mathematics to the teachers and how we can actually help the learners in the process of learning and help them to apply mathematics in their daily life.

The NCF-2005 gives a vision for school mathematics, which includes;

- Children should enjoy mathematics instead of fear.
- Children should see mathematics as something to communicate through, to talk about, to work together on, or to discuss among themselves.
- Children should know that mathematics is more than mechanical procedures and formulas.
- Children should know why we are doing anything rather than what we are doing.
- Children should understand the basic structure of mathematics i.e., arithmetic, geometry, algebra, and trigonometry.
- Children should understand the basic content areas of school mathematics.
- Children should understand all the methodologies offered for abstraction, structuration, and generalisation.
- Children should pose and solve meaningful problems.
- Children should use abstractions to perceive relationships, reason out things, see structures, and argue the truth or falsity of statements.
- Teachers should engage every child with the conviction that every child can learn mathematics.

Moreover, a separate position paper on the teaching of mathematics (NCERT, 2006a, 2006b) has been published to give a wider perspective on mathematics education. As per this position paper, the primary goal of mathematics education is the 'mathematisation of the child's thought processes' and the development of the 'inner resources of the growing child'.

This framework thoroughly explains the need for the shift from the traditional approach to the learner-centred approach along with the strategies for how to deal with the various associated concerns with the teaching of mathematics like fear and failure, curriculum, assessment, and most important the teacher training aspect. It clearly mentions that inadequate teacher training (Pre-Service or In-Service) reflects the inability to link formal mathematics with children's experiences in and out of the classroom. Also, it reflects an incapacity to offer connections within mathematics or across subject areas.

National Education Policy 2020 and Mathematics Education

A shift from a $10 + 2$ format to a $5 + 3 + 3 + 4$ format is the major highlight of the new education policy in 2020. In this new pattern, 5 indicates the first 5 years of education, which includes 3 years of preschool and 2 years of classes I and II together. 3 indicates classes III, IV, and V. This covers the ages of 8–11 years. The next 3 indicate Classes VI, VII, and VIII. This stage covers the ages of 11–14 years. The last digit 4 indicates the classes IX to XII from the age of 14–18 years.

Achievement of Foundational literacy and numeracy were emphasised. The other changes may include the introduction of the four-year integrated programme with entry and exit at various stages, a credit transfer system, a three-language formula, and the abolition of the M.Phil. programme.

i. **Teacher Education**

To impart foundational literacy and numeracy, National Education Policy 2020 recommended that teachers should be trained, encouraged, and supported with continuous professional development. The early-grade curriculum should focus on foundational literacy and numeracy and for that teachers need to be continuously given opportunities for self-improvement and learning twenty-first-century skills. They should advance themselves with the latest innovations and advances in their professions by participating in various levels of training be it regional, state, or central level. It is expected that every teacher will participate every year for at least 50 h of the Continuous Professional Development Programme, which would cover not only the latest pedagogical advances, competency-based learning, and formative and adaptive assessment of learning outcomes but also focus on pedagogies such as experiential learning, storytelling, sports integrated and art integrated approaches, etc. It is also expected from the head of the institutions that they will also participate every year for 50 h or more of the Continuous Professional Development module. This CPD covers leadership and management. It also covers content and pedagogy with a focus on preparing and implementing the pedagogical plans based on competency-based education.

Pre-service teacher education would include the advanced techniques in pedagogy, foundational literacy and numeracy, multilevel teaching and evaluation. It also includes the pedagogy related to inclusive education, i.e., teaching students with special interests or talents, teaching students with disabilities. Here, the focus will be on learner-centred and collaborative learning.

ii. Pedagogy of Mathematics

The national policy of education 2020 specifically focused on foundational literacy and numeracy. To achieve the goal of universal foundational literacy and numeracy by 2025 have the highest priority in the policy. For this, a National Mission on foundational literacy and numeracy will be set up by MHRD on a priority basis and thus to achieve the goal, the state/UT governments will set stage-wise targets and closely monitor the progress of the same.

Throughout the preparatory and middle school curriculum, there will be an increased focus on foundational literacy and numeracy in particular and in general on reading, writing, speaking, counting, arithmetic, mathematical thinking.

Prospects

The Policy recommended the 4-year integrated programme offering various entries and exits during the course. This would definitely groom the teachers with the necessary pedagogical skills and give the students the opportunity to opt as per their interests. The policy focuses on the achievement of foundational literacy and numeracy although no such clear definitions of the terms are mentioned and how the achievement would be measured.

NEP also states that 'wherever possible, the medium of instruction will be the home language/mother tongue for at least till V but preferably till VIII'. Due to this, we could imagine that in government schools, there would be a lack of access to English education, which could lead to the migration of students from government schools to private schools. This type of statement leaves a lot of room for discussion.

Mathematics Curriculum and Practices Worldwide

Let us see the worldwide practices in mathematics in some of the selected countries.

Finland

The Finland curriculum and its outcomes have received attention worldwide. The PISA results clearly showed that the Finnish comprehensive school yields high achievement in mathematical skills and abilities. The Finland mathematics curriculum makes mathematics teaching and learning more effective, fun, and engaging. The pedagogy lies in the student-centred learning approach. This approach believes that the learner should have an active role in the learning process and the teachers have to engage every child. For student engagement and participation, the quality of personalised feedback is crucial. The curriculum also believes in stress-free learning. Short school days, regular breaks between lessons and lack of national and standardised tests are the main features for which Finland is famous. All these create an educational environment in which the students can concentrate on learning with very less stress and shows that the focus of the Finnish curriculum is not on the product of learning but on the process of learning. Student's mistakes are considered to be a normal part of the learning process and they believe that schools should be a safe, stress-free environment for building the passion for learning.

Singapore

The Singapore mathematics curriculum is also renowned for its approach and methods. The key aspect includes the CPA progression, which basically includes the concrete, pictorial and abstract representation, bar modelling, number bonds and mental mathematics. Students learn to think and reflect mathematically instead of rote learning. CPA progression means the learners would be introduced to the concepts by building on existing knowledge. There are different phases in CPA progression such as the concrete phase in which the learner interacts with physical objects to model problems. The next phase is the pictorial phase in which a mental connection has been made between the objects they just handled and in the abstract phase, they use symbolic modelling of problems using numbers and symbols. But they believe that not all lessons include three CPA stages but CPA principles are woven throughout the curriculum itself.

Students would be enabled to visualise different concepts through Bar Modelling. In a given situation, word problems help students in determining the knowns and unknowns by drawing bar models. The approach of teaching mathematics in Singapore teaches the skills and techniques of doing mental mathematics easily and accurately. Many strategies for mental mathematics involve breaking numbers into parts and then performing the operation on them in different orders from the original expressions. These strategies could help students in developing number sense and flexibility in thinking about numbers. This way could lead to the progression toward mathematical modelling.

How Future Mathematics Classrooms Would Look Alike?

To the best of my understanding, I firmly believe that the mathematics classroom is where children eagerly question and reason about the WHY of the phenomenon and HOW of the phenomenon. Provide an atmosphere where children question each other; reason with their perspectives and analysis, draw out inferences, and many more. Mathematics classrooms should give the child a feeling of acceptance whether it is of a correct response or a wrong one. Mistakes should be seen as a process of learning. Engage children in problem-solving so that they inquire for reaching out to the solution. Not just problem-solving is important but problem-posing is much more important. We can give them tasks where we have an equation and then ask them to formulate the problem to justify the equation. Also, enable the child in discussing various aspects of a given problem, and this mathematical modelling could be the best strategy. More than one solution/method should be emphasised in the classroom so that they realise that there could be ‘n’ a number of ways to find a solution to the problem. For example: $5 = 2 + 3$, 5 is also equal to $1 + 1 + 1 + 1 + 1$. Further, children should be able to discuss or talk about why I choose a particular method. Can it go with other problems also and many more? Also,

mathematics classrooms should enable the child to visualise the surroundings which can help them in developing spatial sense. Mapping skills, paper folding, tracing the path, building, and creating such activities could be done with the learners in order to develop spatial understanding. Moreover, teamwork and reflection help them to discuss, reason, and have a chance to modify their interpretations and results. Also, every child should feel that mathematics is everyone's cup of tea and they can also do well in mathematics. Students should receive the diagnostic feedback regularly on their work. Scores and grades are not very fruitful. Therefore, if we follow this method then only students believe that mathematics will help them in their lives, not only because they will see the same types of problems in the real world but also because they are learning to think abstractly and quantitatively.

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Chapter 16
Conceptualizing Future Trends of Teacher Education in India

M. N. Mohamedunni Alias Musthafa

Abstract India possesses a rich heritage of education that started from the ancient period which attracted scholars from different parts of the world. In the glorious Vedic period, Indian teachers were well competent in materialistic as well as mystical knowledge and they were exemplary models of what they preach. During those periods, the prime objective of education was self-actualization. In the Mediaeval period also there have been some remarkable changes in Indian education which has contributed in its way by Mughal emperors. Both in the ancient and mediaeval periods, the teachers had enjoyed a respectable position in society. In the post-independent period, many efforts have been made to transform the role of teachers to meet social demands. Accordingly, some efforts have been made to reform the teacher preparation programmes across the country. The expansion and rapid growth of school education have brought out great pressure to the system of teacher preparation then prevailed. This necessitated a significant updating of the curriculum and its mode of transaction according to the changing societal needs. Even though national and state-level resources are used in the field of teacher education, pre-service, and in-service skill enhancement, the teacher education system of the country is lacking the prospective vision corollary with the changing socio-economic perspectives and technological advancements. The present system has been subjected to sporadic changes to meet the challenges that the COVID-19 pandemic has brought in all realms of life. There is a great need for rigour to produce prospective teachers and teacher educators who can respond to the changing needs of society vibrantly and meticulously. Here an attempt was done to analyse the progressive pathway of the Indian teacher education system with due stress on the quality apprehensions. The effort is made to present a futuristic curricular approach to teacher education envisaged to meet the challenges of the present and to lead the progressive movement of the nation sustainably.

Keywords New model of teacher education · Self-actualization · Vedic education · Social demands · Progressive pathway · Futuristic curricular approach · National sustainability

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Introduction

Any discussion that aims to present a futuristic perspective on socio-psychological issues is not possible without a reflection on the existing portfolio. Such a treatment provides a lot of learnings and empirics which can be utilised as inputs to design a road map for further progression. Hence, such an attempt is made here as a prologue.

India has a prolonged heritage of education starting from the Vedic period itself that attracted and satisfied scholars from different parts of the world. In the ancient period, knowledge transmission was mainly done orally and disciples had to memorise what the teacher said through repetition and manana. A teacher was considered as the treasure house of knowledge including worldly knowledge as well as spiritual wisdom. Different methods are used by the teacher for the effective transaction of the content. The Gurukul system was followed where Guru and disciples lived together as a family during the entire period of education. Knowledge transaction was never treated as a matter of commodity at that time. The transition of the education system from the ancient period to the present, especially the path of teacher education deserves most care that can be categorised into education during the Vedic period, development under the western invasion, mediaeval education, and growth of education in the post-independent period. Pre-independent and post-independent Indian teacher education progression is discussed in brief as follows.

Development Under Western Power

The education system introduced in India by the Western invaders was entirely different from the education system followed by Indians till that time. Many schools were established by foreign missionaries and education was provided without the barrier of caste and creed. This led to the popularisation of education among ordinary people and more stress was given to systematic teacher education. Various teacher training institutes were established in this period in different parts of the country. In 1819, the Calcutta School Society was established which took initial steps in the field of teacher training. Governor of Madras Sir Thomas Munro stated that “no progress in education can be made without a body of better-instructed teachers”. In 1847, normal schools were instituted in Bombay, followed by teacher education centres at Calcutta, Poona, Agra, Meerut, and Banaras. Wood’s Despatch of 1854 caused revolutionary changes in education that triggered the pace and quality of education in all domains. Hunter Commission in 1882 also made a remarkable recommendation on the establishment of normal schools for the training of teachers. Later on, the Sadler Commission (1917) suggested more systematic teacher education. With this analysis of the rich tradition of teachers and speculations under British invasion, it will be worth enough to analyse the issues of the contemporary scenario.

Teacher Education in India—Contemporary Scenario

Before the in-depth analysis of the different issues about teacher and teacher education in the contemporary scenario, there is a felt need for discussing the present profile at each level. The present teacher education requires transformation. Contemporary teacher education centers on nurturing the professional abilities of aspiring educators, emphasizing comprehension of curriculum, pedagogical methods, and strategies for student growth. But unfortunately, the present teacher education is not given much training on how to manage emergencies in education and how to cope with real-life situations. It indicates that teachers should possess a clear understanding of how the changing social environment is reflected in education and what are the strategies to be adopted in such circumstances rather than merely engaged in traditional classroom activities. Community participation of teachers is deserving more attention in teacher education programmes to understand the changing social, economic as well as political circumstances and how it demands the restructuring of teacher education.

The most important aim of education is to nurture socially responsible skilled manpower. For this purpose, various educational committees and commissions have been constituted by the government from time to time. It is teachers who can help to achieve this goal. Hence, a teacher education programme must encompass all these factors along with updated advancements in educational technology. The quality of training provided in teacher education institutes would affect the performance of the teachers in the community. Moulding a group of teachers who are not competent to address the present issues and foresee future changes, and plan to meet these challenges is a futile attempt. The working teachers who are already in the system should be empowered with the skills and competencies to design appropriate operational strategies and implement them effectively.

Well-planned teacher education programmes can improve the performance of teacher educators by equipping them with innovative technology as well as a changing pedagogical approach. The educational policymakers are also interested in improved methods of assessing teachers' effectiveness with the concern for improved learning outcomes. The local level decentralisation of the educational institution governance may bring local societies into direct connection with school performance as well as teacher assessment.

Following this juncture, it will be worth enough to have a micro-level treatment on the different levels of teacher education that are existing now to yield a constructive synthesis.

Teacher Education at Various Levels

Teacher education programmes are based on the educational level of the students to be taught. The eligibility criterions also differed at each level.

- Pre-Primary Level

In the pre-Primary level teacher education, preparation is given to teacher trainees to deal with the kids of pre-primary schools. Various courses are available for this purpose recognised by the government.

- Primary or Elementary Level

At this level, training is provided for preparing teachers for elementary schools. Usually, it has a two-year duration. Qualifying the course leads to a certificate under the name of Diploma in Elementary Education (D.El.Ed.) or Diploma in Education (D.Ed.) or Trained Teachers' Certificate (T.T.C.), or Junior Basic Teachers' Training (J.B.T.).

- Secondary Level

It is intended for preparing teachers for secondary schools. It is generally a two-year course that is open to graduates, with an emphasis on the principles and methodology of teaching, leading to the Bachelor of Education (B.Ed.) degree.

- Master's Degree in Education

This is to prepare teacher educators at the higher education level there are various agencies to provide Master of Education (M.Ed.) degree courses. Also, there are provisions for taking Master of Philosophy (M.Phil.) in education and Doctor of Philosophy (Ph.D.) in education in various Universities.

Policy Initiatives for Augmenting Teacher Education

Teacher education policy in India has been developed based on the recommendations made by various education committees and commissions over time. Remarkable recommendations for the improvement of teacher education were done by the Kothari Commission (1966), National Policy on Education of 1986 and its Programme of Action (1992), the Chattopadhyay Committee in 1985, Acharya Ramamurthi Committee in 1990, Yashpal Committee in 1993, National Curriculum Framework in 2005, and new National Education Policy 2020. The revolutionary Right of Children to Free and Compulsory Education in 2009 was a milestone in Indian teacher education.

Both central and state governments have taken efforts to implement diverse programmes, policies, and frameworks on teacher education, and stress is given to pre-service training for prospective teachers for various levels of education and to provide in-service programmes to improve the skills and capacity of the existing teachers. Monitoring of the pre-service training in the country is done by a statutory regulatory body, the National Council for Teacher Education (NCTE), by providing norms and standards for different teacher education programmes, minimum educational qualification for each course, and duration of teacher education course at different levels. It also grants recognition to the teacher education institutions and regulates the quality and standards.

In-service programmes for school teachers are provided by a network of government-planned teacher training institutions (TTIs). The National Council of Educational Research and Training (NCERT), and the Regional Institutes of Education (REIs) concentrate on preparing modules for different teacher education courses and organise specific courses for the training of teachers and teacher educators. The National Institute of Educational Planning and Administration (NIEPA) also affords institutional sustenance. Both NCERT and NIEPA are national-level autonomous bodies. At the state level, the State Councils of Educational Research and Training (SCERTs) conduct focused programmes for teachers and teacher educators and develop modules for teacher training. For the training of secondary and senior secondary school teachers, the Institutes for Advanced Studies in Education (IASEs) and the Colleges of Teacher Education (CTEs) are working. District Institutes of Education and Training (DIETs) provide in-service training at the district level. In-service training for school teachers is also conducted by the Block Resource Centers (BRCs) and Cluster Resource Centers (CRCs). Financial support to the government and aided teacher education institutions for pre-service training is done by respective state governments.

National Curriculum Framework on Teacher Education

The present National Curriculum Framework of teacher education was published in March 2009, by the National Council for Teacher Education (NCTE) on the background of NCF 2005. The Right of Children to Free and Compulsory Education Act greatly influenced the curriculum framework. Various attempts have been made by NCTE for the quality enhancement of the teacher education system. An inclusive teacher education curriculum framework was released in 1978 giving due stress on the theories of pedagogy, community interaction, methodology of teaching, and practice teaching. The practical-oriented approach is also equally considered along with theoretical components. Keeping this framework, universities and other state-level agencies modified the curriculum of elementary teacher education programmes.

The national curriculum for secondary education was released in 1988 that made significant implications in the improvement of various stages of teacher education programmes. NCTE acknowledged the necessity for developing the autonomy of educational institutions and organisations responsible for teacher education curriculum development. A two-year professional preparation framework of elementary and secondary school teachers was also endorsed by NCTE in 1998.

The significance of the education system in social, cultural, and economic participation is stressed in this framework. Two-year M. Ed. Programme with proper provision for specialisation in pedagogic and curriculum studies as well as foundational studies was recommended by the Justice Verma Commission in 2012. NCTE has brought out four Curriculum Frameworks for Teacher Education in the years 1978, 1988, 1998, and 2009 to enhance the quality of Master of Education programmes. Finally, the recent National Education Policy (NEP, 2020) also made remarkable

suggestions regarding teacher education. In the NEP (2020), teacher education is given due stress and suggested possible means for quality improvement of teacher education, recruitment, service, deployment, and enrichment of teachers. National Education Policy 2020 emphasises the essentiality of restoring the glory of the Indian tradition of teaching. Some of the pertinent thrust areas need a separate discussion.

An inclusive and holistic approach regarding the recruitment of eligible individuals to the teaching field is the most important step for quality improvement in any education system as recommended in NEP (2020). It demands the necessity for the implementation of merit-based scholarships, especially for outstanding students who wish to enter into the teaching profession from rural areas. Implementation of a four-year integrated B.Ed. programmes also will be effective in attracting competent students to the teaching field. Posting of teachers based on their qualifications as well as their place for preference in the job also will reflect in the quality of teaching. The unscientific transfer of teachers to distant institutes leads to mental stress, which adversely affects their performance. Excessive transfer will affect the learning environment of students also. Transfer of teachers should be transparently based on specific reasons and circumstances. The shortage of teachers should be rectified from time to time for ensuring the uninterrupted education of students.

New teachers must be entering into service in the proportion of retirement through qualifying examinations and interviews. For this, teacher eligibility tests at the state level, as well as national level in terms of teaching aptitude, content knowledge, and pedagogic competencies, must be strengthened. The scores of such eligibility tests also can be taken as recruitment criteria along with detailed personal interviews. Not only the government institutes, but the private educational institutes also should keep quality criteria while recruiting teachers. An adequate number of qualified teachers in each subject also should be ensured including art, vocational education, physical education, and language education.

Realising the fact that teachers must need training in pedagogy as well as thorough content knowledge, teacher education should be incorporated into accredited multidisciplinary institutes. A four-year integrated bachelor's programme in education will be the future minimum eligibility for teaching with a strong foundation in content, pedagogy, and practical experiences. Separate two-year B. Ed programme will also continue to be offered by such institutes for those who have already completed their bachelor's degrees or master's degrees in their concerned subjects.

The curriculum can be robust with recent pedagogic techniques, effective evaluation strategies, and educational techniques. Learner-centred as well as a collaborative learning environment drawing the full potential of the students should be developed. Community-based activities and involvement in social affairs would be compulsory domains of teacher education programmes. Environment education and the development of sensitivity and responsibility towards environment conservation also must be integrated into the teacher education curriculum. Sufficient time for in-classroom teaching in local education institutes also ensured practice teaching. Teacher education in the coming years must include practical knowledge of using technology and how the novel advancement in technology can be integrated with effective classroom activities. New strategies for teacher education for students with special needs should

be designed based on empirical research in the field. Short-term post-B.Ed. courses will also be made available at universities and multidisciplinary colleges for teachers who are interested in expertise in specialised areas of teaching like special education, school management, legal provisions of the teaching profession, counselling, guidance, etc.

Along with internationally recognised pedagogical approaches for teaching specific subjects, nationalised and regional studies, research reports, documents, and empirical findings also can be compiled with the curriculum that would provide better results. National Education Policy recommended restoring and sustaining the glory of the Indian teacher education system, through taking firm actions against substandard Teacher Education Institutions (TEIs) functioning in the country.

All the above-mentioned commissions and committees stress the need for a qualitative reformation. Hence, it will be relevant specifically to probe into the weaker areas of the present teacher education system to submit a futurist approach.

Teacher Education in India: Present Issues and Concerns

At present, the education system mainly concentrates on the examination achievements of the students. Teacher education programmes also stress the means for enhancing student achievement and marks in the subject. Other domains of child development like innovative thinking, creativity, self-exploration, and community participation were poorly considered. The education system varied greatly according to the nature of the society even though there are some common educational standards of the country.

Institutional inertia is very much prevalent in the Indian teacher education system due to the diversified societal, judicial as well as state norms. The education system cannot work as an independent institution as it is influenced by various social factors.

There exists a quality divide between private and public educational institutes. This inequality leads to the commodification of education and the quality crisis to a great extent. In teacher education also there exists a remarkable difference in the actual quality and expected performance. The distribution of teacher education institutes over the country is also not in an even manner that affects the accessibility to the aspirants, especially students from rural areas. Many teacher education institutes are working in substandard conditions.

The degradation of the quality of teaching is the most threatening condition the country is facing in the present scenario. This is largely because of the quality degradation of teacher education programmes. Some teacher education institutes stressed the academic achievement of the teacher aspirants rather than holistic development.

Along with the knowledge of pedagogy and content, a positive attitude towards society as well as personal qualities are inevitable attributes of a teacher. Unfortunately, teachers with personal integrity, ethics, and teaching attitudes are decreasing day by day. Life skills education can be very much useful to teacher educators to

develop such qualities among the students and to produce teachers with emotional integrity and social responsibility.

Even though various advanced educational technologies are available and used worldwide, these technologies are not appropriately integrated into the teacher education curriculum so far. Robust practical experience should be provided to become an expert in such education technologies that will help teachers handle students with high technological knowledge.

To produce good teachers, teacher education institutes must provide rich field experience to the learners to understand real-life situations, social issues that affect education, difficulties in practice teaching, empirical research regarding educational problems, and self-study. Research in teacher education must not be the repetition of previous students. It should be genuine and worthy. Different research approaches including qualitative as well as quantitative approaches can be utilised for finding solutions for the carefully selected education problems. The research methodologies also need to be renovated according to the new trends in education research. Laboratory practices regarding psychological tests are also not done in teacher education programmes.

Mere theoretical knowledge is not sufficient enough for understanding psychometric methods, rather psychology labs should be equipped with all test items and equipment and utilised well. Education technology labs also must be used in the same way to understand various techniques as well as statistical software. Distance education programmes in teacher education are also causing a quality crisis for teachers. The actual vision of teacher education programmes is not matched with actual performance and productivity.

Strategies for Quality Enhancement for Future

After independence, various education commissions have analysed the conditions of Indian teacher education and made recommendations and suggestions for quality improvement. Policy initiatives and implementation of such recommendations are not done appropriately because of the heterogeneous nature of teacher education programmes across the country. In Indian culture, teaching was considered a divine profession. But the decreasing teacher qualities and faulty educational practices diminished that concept. Recently, National Educational Policy (2020) recommended that India has to regain its glory in teaching. Quality degradation of teaching is evident from that statement itself. It is the peak time to think and act seriously to make the teacher education programmes more productive since it is most important to make teachers with good personal as well as professional calibre. Teacher education programmes must be empowered with appropriate strategies and facilities for the training of the selected teacher aspirants. Unbiased research should be done regarding the quality concern of teacher education programmes and teacher aspirants. There should be all infrastructure facilities according to the standards. The curriculum must be reformed periodically according to social needs in terms of

content and technology. Various changes have been attempted in the pedagogy and academic content based on new policies and practices without much success.

Integration of the most appropriate curriculum that reflects the range of Indian diversities is the primary step in quality augmentation. Admission for a teacher education system based on an entrance examination testing the teaching aptitude, attitude, and content knowledge would increase the quality. Seldom attention is given to community involvement and utilisation of community resources in the areas like health and physical education, cultural studies, and social education. Teacher educators can integrate the curricula with hands-on experience in different occupational activities like pottery, agriculture, and craft-making to provide a better understanding of work experiences. A feeling of cultural belongings also developed through such activities.

The growing tendency of privatisation and liberalizations also affects the learning ecosystem of the Indian education system along with other challenges like cultural, religious, and ethnic diversifications. The Indian teacher education system needs a revisit to analyse the role of teachers in developing self-respect, personal dignity, good conduct, and productivity among students and to make them social engineers. To attain the great vision of Education for All, teachers should come out from the narrow thoughts of caste and race barriers. All learners deserve equal opportunities for quality education. For this, the positive interrelation between teacher education and school education needs to be maintained and renovated. Increasing the course duration by introducing meaningless curricular inputs is not the right way of quality improvement. Well-planned curriculum development is essential to ensure the successful functioning of the teacher education system so that teachers become the most powerful agents of social reformation.

Future Prospects of Teacher Education—Global Scenario

The teacher education system should not restrict merely to the present social scenario, but it must vision the future of the destiny of education. A futuristic perspective of education must be a fundamental element of any teacher education programme. The most fundamental aim of teaching is to prepare the learners to lead a happy, productive, and socially responsible life. Education must enable the students to face the challenges they are going to face in the future also. Teacher education must be capable of making teachers empowered to ensure education for the future generation.

There is a growing need for understanding the global perspectives of the teaching profession. With the help of novel technologies, it is very easy to interact with teachers all over the world to know more about different strategies adopted for effective teaching and learning. Teachers must be sensitive and responsive to the social dimensions of education. There exist various issues regarding social justice, equity, and so many such controversies in the global context. A keen observation of how educators and policymakers handle such issues is essential for the professional growth of a teacher. Hence, the new era of teacher education would facilitate opportunities

to observe, understand, engage, and communicate with children. Teacher education must be a centre for self-learning, absorption, and articulation of innovative ideas, and to develop novel educational strategies and practices that enable critical and progressive thinking. To develop adaptability and flexibility among the learners to the changing society as well as personal life situations is also the responsibility of education.

Both professional, as well as personal skills of teachers, must be nourished through teacher education programmes by providing opportunities for improving self-awareness, tolerance, knowledge, understanding, interdisciplinary awareness, social realities as well as professional skills like in-depth knowledge in pedagogy, document writing, inquiry, evaluation techniques, and innovative teaching strategies.

New Model of Teacher Education

Teacher education institutes should have a good learning environment as well as physical infrastructure along with other quality standards. A positive learning environment with adequate spacing and appropriate physical facilities must be there for creating such a healthy atmosphere.

Eligible teachers and trainers are the backbone of any teacher education institute. Permanent teachers recruited who meet all the quality standards can help the teacher aspirants to metamorphose into good teachers. For this training, basic theoretical knowledge related to the psychological and pedagogical approaches suitable to students from different socio-economic backgrounds is essential. Along with that a thorough understanding of what is happening in the local as well as a global society is also important to involve and find the solution for various societal as well as educational issues.

New trends in education at the national and international levels also must be watched and analysed carefully to be updated. Students also need teachers who can survive in the digital era. Teacher educators, as well as teacher trainees, should be aware of innovative educational technologies and research trends along with traditional educational theories. Teacher education institutes must act as the centre for nurturing self-discipline, good character, honesty, and self-reliance among the aspirants. Cooperative and collaborative learning strategies can be utilised for this purpose. Residential institutes are more appropriate for teacher education programmes so that more time can be spent on various activities. Good infrastructure facilities like classrooms, furniture, a good library with sufficient resource materials, a reading room, etc. should be there. Educational programmes like seminars on various educational as well as social issues, conferences, symposiums, workshops, and discussions should be conducted from time to time for the development of student teachers as well as teacher educators. Different teaching approaches like team teaching, programmed learning, SWOT analysis, brainstorming, and research methods like case studies, action research, empirical surveys, etc. should also be taught effectively in teacher education institutes. The teacher aspirants should

develop a lifelong self-education attitude and adaptability to uncertainty and emergencies. Teachers should possess the ability to handle unexpected adverse situations with appropriate and intelligent strategies. For this, emotional development, as well as understanding, is essential.

Teacher Education in the Post-Pandemic Period

The unexpected attack of the COVID pandemic has affected the education system all over the world. Education institutes are forced to close to prevent the further spread of disease and the future of the students was in question. Soon after the initial stages, educators found alternate ways to continue the spirit of education through various innovative ways. The immediate need of restoring schooling was addressed through various online as well as offline platforms. Even though these arrangements were done for a short term, their impact would last for a very long time. Teachers acted as the backbone and power source for the successful restoration of education during the pandemic period. Teachers and teacher educators have passed through the transition in the uncertain period of their profession.

Even though devastating consequences and crises have been made by the pandemic on mankind, it has also been an astonishing period for learning new things and practicing a life that is now called the "new normal". Students, teachers, and policymakers together learned how to be adaptable and resilient to the alternative systems in such emergencies.

Teacher education in the post COVID period demands certain changes in the curriculum and transaction to meet the changing social demands. This shift must touch all the aspects of education like the "what, when, how, where, and who" of education. The changes must begin from the drafting of the curriculum to its transaction and from the teacher to the student radically. The spontaneous shift to online modes of curriculum transaction led to the development of more student-friendly software that triggers academic activities. The new curriculum should be tailored to facilitate the development of innovative skills in learners, empowering them to excel in the digital age while fostering creativity. Along with content knowledge, skills, and other competencies, emotional and social wellbeing must also be treated equally.

A digital transformation is inevitable to meet the educational requirements of the students. Most of the students are living with technology, but still some students don't have the possibility of accessing such facilities. This digital divide must be treated very carefully by teachers and education policymakers since it will lead to social disparity.

Teacher education institutes must act as resource centres for area-specific as well as general education. These resources and expertise can be shared with society according to the need. Sound in-service programmes also should be conducted for professional development. A strong foundation in educational research should be developed that enables teachers to solve future educational problems more systematically and scientifically.

Teacher education should be sufficient enough to train each prospective teacher to equip and handle emergencies with thorough knowledge in growing educational technologies, intelligent decision-making, and the right choice of technologies that are most appropriate to the social and intellectual demands of the learners.

Conclusion

To attain the cherished goal of Education for All, more renewed efforts have been made all over the globe in recent decades. Since young people are going to determine the future of the world, it is very much essential to provide quality education to all youngsters that would equip them to sharpen their knowledge, attitudes, skills, values, and social involvement. To accomplish this aim, the education system and teachers should be competent enough. Teachers must be well prepared to work efficiently in ever-changing social circumstances, especially in pandemic situations and other adversities. It is the teacher education programmes that determine the quality of teachers as well as the education to a great extent. Various commissions and committees made remarkable suggestions for the improvement of the quality of teacher education and the effective implementation of these recommendations. The eligibility and competency of the teacher is the primary factor affecting education along with the learning materials, school infrastructure, and other learning environments. So, the recruitment of teachers into the system must be treated very carefully. Teacher education should address the real-life issues of the students and the realities of contemporary society. In the future, the responsibility of teachers in social involvement and social ethics would increase. Effective teacher education programmes are essential for developing teachers with a society-friendly attitude. For this, the isolation of teacher education institutions must be changed to materialising the recommendations made by various policies. Teachers need to be well equipped with the most advanced educational technologies and additional skills and content knowledge to guide digital native students.

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Chapter 17
ICT and Digital Revolution: Implications for Teacher Education

Aerum Khan

Abstract Talking about education or teacher education was different before COVID-19. Post pandemic scenario has placed a new kind of challenge in front of the entire humanity. Each sector related to human population is diabolically affected by this virus, the human race struggled to defeat the pandemic. When nobody is left from its affect how the teaching learning process in schools, colleges and universities can be. This disastrous virus has taught us a very important lesson. Now we are coming out of the difficult situation and resuming the normal life patterns, but now all of us have internalised the importance of ICT. In the difficult times most of the authorities and even the government advisories suggested the teachers and students to go online by using various ICT tools and platforms. Many suggestions are received from stakeholders regarding using different ways and means of the online education. ICT skills have emerged to be one of the twenty-first century teaching–learning skill. The emergence and acceptance of online courses is the best example. The areas of education at every level are trying to minimise the damage and resurrect in the best possible way by adopting to various ICT solutions. This chapter attempts to present discreet information on some of the initiatives taken by the Government of India for enabling the stakeholders, providing assistance in terms of study materials, resource, platforms and different ICT based solutions free of cost to both school education and the higher education sectors including teacher education, the parents and administrators can also use them for their collaboration in the education of our future generation. Possible suggestions for the use and significance of all the discussed online solutions are given based on empirical efforts so that a more practical implementation practice can be adjudged.

Keywords Massive open online courses (MOOCs) · SWAYAM platform · SwayamPrabha · Diksha portal · ePathshala · Nishtha program · Sakshat portal · PM e-Vidya project

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Introduction

The world of education before COVID-19 and after COVID-19 or most rightly with COVID-19 is very different. Most of the parts of the world is having online classes and the teachers are providing online support to the students as far as possible. Most of the parts of the world is imposed with a government led lockdown happening periodically. The Pandemic caused due to COVID-19 has confiscated our time and in many ways our lives. Governments asked everyone to work from home. This implied on the teachers too. The use of simple online methods of providing online materials to students in the form of useful articles, essays, videos or writeups compiled using different materials from the internet can be a very facilitative act. Even in normal study conditions these materials can be provided to the students beforehand to a particular class with a message of what to do with them as an instruction. This proceeds a classroom process initiation with the help of a discussion on the provided material. This kind of 'Flipped classroom' type system is very useful for students at all the levels. The sharing of materials can be done by the means of email groups and the very popular WhatsApp or Telegram groups. Even YouTube link sharing can be done to avoid use of extra space on the personal devices.

After the pandemic outbreak, a stage has arrived which made it mandatory to use the online systems for teaching and learning. Even the students have to submit their assignments and projects online. The examinations are also transforming to something called 'open book exams.' Through this chapter, I wish to share my experiences with fellow teachers in terms of providing some information which I found very useful for teaching and learning, these are those platforms which I amply use for my regular teaching learning process and can be very useful in the blended learning situation for us, the teachers. The chapter will also focus on emphasising on the projects and programmes of teacher education which are related to ICT which can play instrumental role in supporting the education system if utilised in a judicious way.

ICT and Teacher Education in India

Teacher education is directly or indirectly related to the areas of education and training across the fields, invariably from school level to higher education, technical education, or medical sciences. If we consider teacher education as the foundation step for preparing teachers to serve every level of education then it is essential for a person belonging to teacher education field to have the basic knowledge of all the advancements happening in the broader arena. We can witness the protrusion of technological advancements to various extents in this field. Displacement of physical resources like teaching equipment and books, to the development of digital repositories, online libraries, smart classes, QR coded Smart books, virtual laboratories, specialised mobile applications for assisting students and teachers, augmented

reality applications, digital portals, e-Portfolios for assessment purpose are some of the examples of ICT inclusion in this area. The projects and programmes of Government are playing superlative role especially in the present situation post pandemic. They focus to reach the unreached and make every advancement readily available to the last child. Let us try to detail out some of these initiatives and projects through this chapter.

PM e-Vidya

PM e-Vidya is an umbrella program of government of India which was launched in the mid of 2020 for the purpose of educating students through digital platforms so that their education does not suffer due to nationwide lockdown and homebound scenario. This is a multi-model digital online learning education platform (Fig. 17.1) launched by Government of India. Under this program we have many initiatives such as Diksha which involves e-content and QR coded energised books for every class in multiple languages, this platform is also known for its very popular tagline 'one nation, one national platform.' This program offers one devoted TV channel each for classes 1 to 12, called as 'one class one channel' initiative. There is radio podcasting and special programs for differently abled students. Many of the existing SwayamPrabha DTH channels telecast useful content for the betterment of students residing in remote areas and may be having less access to the internet. It is focussed towards providing digitisation and on-line access to the entire country. Which includes specialised eContent for the disabled under the section of accessibility. Under the PM e-Vidya program 100 reputed universities of our country have been directed to start online courses for providing basic education as well as higher education. Web address of PM e-Vidya is: https://www.pmevidya.com/.

NCTE Open Educational Resources Web Portal

National Council for Teacher Education (NCTE) is a statuary body of Government of India, it was established in 1993 by an Act of Parliament. It has a mandate to achieve planned and coordinated development of teacher education in the entire country for regulating and properly maintaining the norms and standards in the teacher education system in India. It also has the mandate of doing research and training for the teachers of various levels of education. In order to support the training of the teachers Open Educational Resources act as the expanded and flexible access to learning which enhances the opportunity of self-learning and skill development. NCTE OER web portal offers course material for different levels of teacher education. These materials are accessible to all and the stakeholders creating any material which maps to the courses can be contributed on the platform as well (Fig. 17.2).

Fig. 17.1 Homepage glimpses of PM e-Vidya platform

Manodarpan

Manodarpan is an initiative of Ministry of Education, Government of India. Launched in July 2020, this initiative focuses on promoting the mental health issues and concerns of students and teachers. It also facilitates, provides support for addressing the mental health and psychological aspects of citizens during adverse conditions. It releases time to time advisories for the psychological support and mental health promotion for school students and students of universities and colleges as well. The

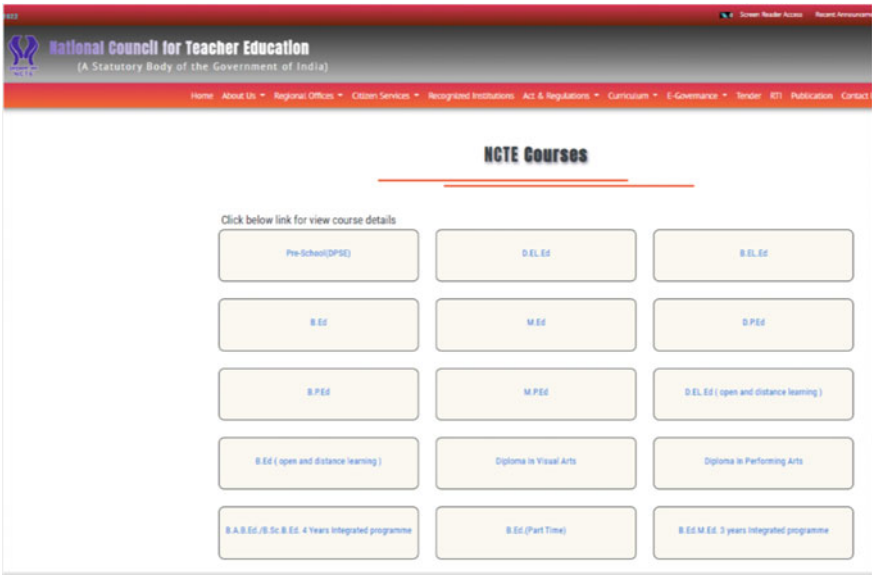

Fig. 17.2 Homepage of NCTE's OER Web Portal

web portal provides tips for school students, teachers and families, and also University stakeholders for making the learning process stress-free. There is a provision of life skills training for teachers, also many other resources and suggestions for them. Students can ask their queries too through the portal. Also, a national toll-free helpline number 8448440632 is provided to address students' psychological issues (Fig. 17.3).

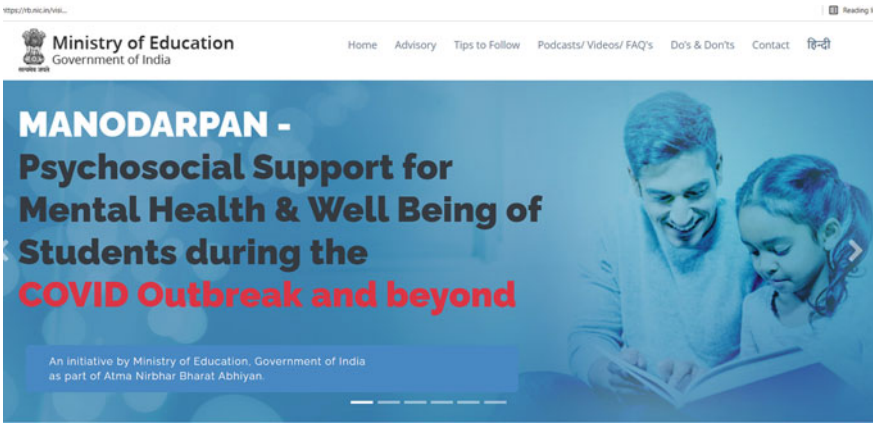

Fig. 17.3 Homepage of Manodarpan Web Portal

SWAYAM Platform

This online course providing platform of Government of India provides courses for both school level and higher education level. The acronym for SWAYAM is 'Study Webs of Active Learning for Young Aspiring Minds'. SWAYAM provides an integrated platform for various online courses across the educational levels and subject areas also covering the skill based and vocational courses. SWAYAM platform which happens to bs the first indigenous course delivering online MOOCs platform of India, is developed by the Ministry of Education (Erstwhile Ministry of Human Resource and Development) and the All India Council for Technical Education (AICTE) with the help of various international agencies. It is intended to ensure the benefits of every student by providing excellent material through the means of ICT. The major objectives of this effort are aimed to deliver the best teaching learning resources to all, including the most disadvantaged group of audiences (Fig. 17.4).

All the Massive Open Online Courses (MOOCs) are developed under the aegis of MoE-GoI by various National Coordinators like, AICTE (All India Council for Technical Education) for self-paced and international courses, UGC (University Grants Commission) for non-technical post-graduation education, NPTEL (National Programme on Technology Enhanced Learning) for Engineering, CEC (Consortium for Educational Communication) for under-graduate education, NCERT (National Council of Educational Research and Training) and NIOS (National Institute of Open Schooling) for school education, IGNOU (Indira Gandhi National Open University) for out-of-school students, IIMB (Indian Institute of Management, Bangalore) for management studies, and NITTTR (National Institute of Technical Teachers Training and Research) for Teacher Training programmes.

All these courses follow the 4-quadrant approach and are being hosted on the web platform of SWAYAM. Now the more developed new version of SWAYAM 2.0 for

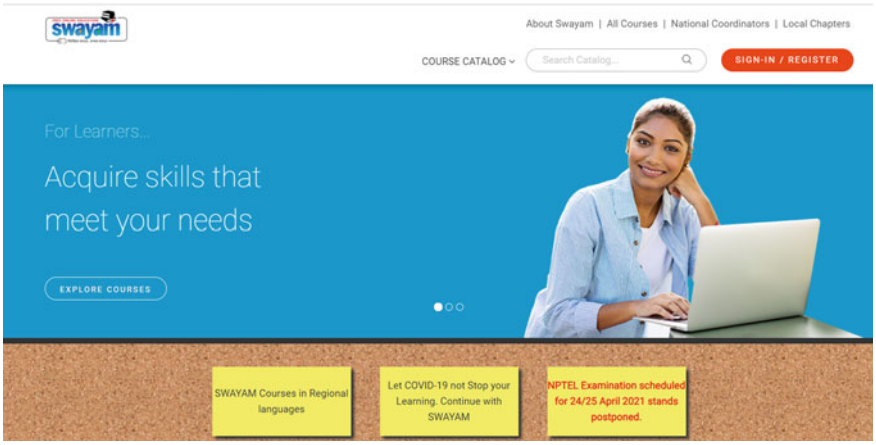

Fig. 17.4 Homepage of SWAYAM Platform

hosting MOOCs is available, more exciting features are added in it. The SWAYAM platform is also accompanied by a mobile application for easier access to the courses. The courses provided through SWAYAM platform can be accessed by the registered students of the respective course in universities and colleges for certification and credit transfer, the other registered learners also can access the platform and take courses in which they are interested, they can get certificates on successful completion of the courses. The assessment is being done through online evaluation processes as well as offline proctored examinations. The credits of these courses get transferred to the report cards of the students. Now in many cases the external exams of SWAYAM courses are conducted and evaluated by National Testing Agency (NTA).

In the present time we as teachers can visit the SWAYAM Platform (Weblink: https://swayam.gov.in/explorer) and search for those courses which can be given as supplementary to our students, this information can be passed on even to the administration. In case of those courses which are perfectly designed keeping in mind a particular paper at any level can be chosen by the teacher and given to the students. The successful completion of this course can provide credits to the student which can be transferred to the academic progress report of the student.

Annual Refresher Programme in Teaching (ARPIT) for Faculty Working at the Level of Higher Education

This is a unique and major initiative on SWAYAM to provide online professional development to around fifteen lakhs faculties with the help of MOOCS (Massive Open Online Courses) platform known as SWAYAM. Seventy-five discipline-specific institutions have been identified for this purpose. These selected institutions have been notified as National Resource Centres (NRCs) in the first phase of implementation. They are allotted the task of preparing online training material with focus on the latest developments in the selected discipline, including the new and emerging trends, pedagogical improvements and methodologies for transacting the revised curriculum (Fig. 17.5).

The ARPIT program was launched in the year 2018 and it was expected that it will cater to around 13 lakhs faculty in the same year.

The courses under ARPIT cover a diverse range of topics. Registration for any of the offered courses on SWAYAM platform may be done on http://swayam.gov.in/courses/public.

Each course under ARPIT project is divided into approximately 40 modules. Each module is of one hour duration consisting of half an hour of video content and half an hour of non-video content. This way, each course has 20 h of video and 20 h of non-video content. The courses are provided in a highly flexible format and can be done at one's own pace and time by the learners. Assessment exercises are built-in feature of the course. Activities are also inbuilt within the course as a part of the academic progression. There is a provision of terminal assessment at

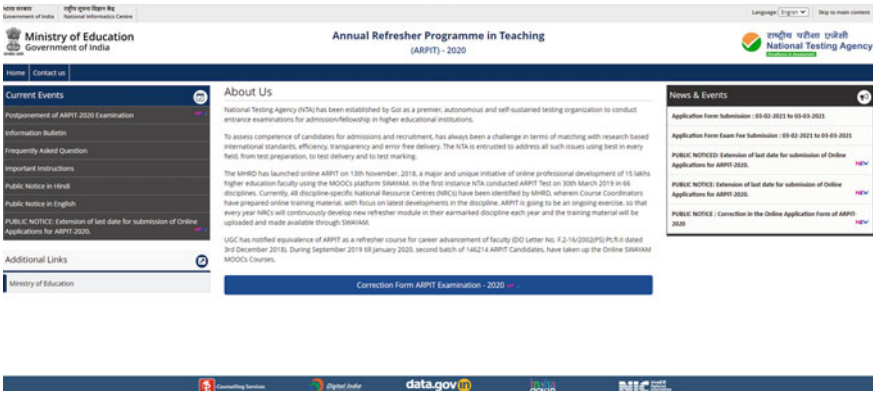

Fig. 17.5 Homepage of SWAYAM with a section for ARPIT

the end of the course which may be online or offline (written examination). There is a provision of awarding certificate to all the successful faculties at the end of the course. All in-service teachers, irrespective of their subject and seniority may register and complete the refresher course. The successful completion with certification may help the faculty in their career advancement.

National Resource Centers (NRCs) are spread across the country. These centres have been allotted keeping in mind their strategic location and expertise in the area. Some of the NRCs are IISc, IUCAA, IITs, IISERs, NITs, Central Universities, State Universities under MHRD's, Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT); UGC's Human Resource Development Centres (HRDCs), National Institute for Technical Teachers Training (NITTTRs), IIITs and IGNOU.

ARPIT is an ongoing programme in cycles so that every NRCs may develop new refresher modules/courses on continuous basis in their earmarked discipline. The training material are uploaded and made available through SWAYAM. NRCs are also supposed to publish the list of the faculty who are going through the course and who has been certified. It is hoped that NRCs will bring revolution in the professional development of faculty by catering to a large number with the use of ICT and online technology platform of SWAYAM. The link to reach Arpit is: https://arpit.nta.nic.in/.

SwayamPrabha

The SwayamPrabha is a consortium of 34 DTH channels devoted to telecast of high-quality educational programmes on 24X7 basis, it uses the GSAT-15 satellite. The platform was launched on 9th July 2017. Every day, content of 4 h which is repeated 6 times is telecasted. This allows the students to choose the time of their convenience to watch the programs. The channels are uplinked from BISAG, Gandhinagar. The

Fig. 17.6 Homepage of DTH SwayamPrabha

content provider institutions include NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The web portal is maintained by INFLIBNET Centre. Curriculum-based video programs at post-graduate, under-graduate levels, certificate programs and School level programs covering diverse disciplines such as arts, science, humanities, commerce, performing arts, social sciences, engineering, technology, law, medicine, agriculture, etc. are available on these channels**.** Teacher's training videos as well as teaching and learning aids for children to help them understand the subjects better and also help them in preparing for competitive examinations and professional degree programmes are also available on SwayamPrabha (Fig. 17.6) (Source: https://swayamprabha.gov.in/).

We can visit the Website of SwayamPrabha where advance schedule of a month or more are provided, from here the information about the useful programs with time can be collected and shared with our selected and shared with our students. They can go ahead with viewing these telecasts and learning from them. During the Covid-19 pandemic related homebound situation SwayamPrabha has taken the initiative of getting programs based on various UG courses developed at home by the expert faculty at home. These programs are proving to be immensely helpful for the needy students.

National Digital Library of India (NDLI)

National Mission on Education through Information and Communication Technology (NMEICT) is the sponsor to the National Digital Library of India (NDLI). This funding is arranged through the Ministry of Education, Government of India. NDLI is aiming towards making available the learning resources through a single

Fig. 17.7 Homepage of national digital library of India

window to the learners' community. NDLI is developed, managed and operated by IIT Kharagpur (https://ndl.iitkgp.ac.in/). It is a virtual repository of learning resources which provides a number of services to the user in addition to the regular searching and browsing functions. This platform provides various filters to make the search process more focussed for the learners. The content availability in multiple languages and different levels makes it more useful. NDLI is tailor made to be equally facilitative for differently abled learners too (Fig. 17.7).

ePathshala

For realising the goals of Digital India in the school education and teacher education sector and to reach out to all the people of India, NCERT took the initiative of providing its resources on the web and mobile platforms. Through a special license, it has liberated access to all the digital contents including e-books. One can download and share the collections of e-textbooks for all classes and all areas of the curriculum (classes 1 to 12), supplementary reading material, resources for teachers, teacher educators and parents, in English, Hindi, Sanskrit and Urdu.

Supported by a web portal, http://epathshala.gov.in and mobile apps available for the Android, Mac and Windows environments, the e-contents including digital textbooks are being readily accessed across the country (Fig. 17.8). The objective of ePathshala was not only to provide free and easy access to the books, but also to involve parents, teachers and teacher educators in helping the children achieve desired levels of learning. Resources specifically aimed at parents are to help them understand and participate in quality improvement of their children's education. Resources for teachers to design their teaching–learning to different needs of children have been

Fig. 17.8 Homepage of ePathshala

categorized and deployed. The collections include digital textbooks, supplementary readers, audio and video resources for students; teacher's guides and teaching resources for teachers; journals, policy documents and other scholarly resources for researchers and educators; resources for parents to help them appreciate and support their children's education on their own.

On the ePathshala the textbooks of classes I to XII of all subjects are available in EPUB 3.0 format. Supported by a specially designed EPUB reader, the text can be selected, the page zoomed, portions highlighted or bookmarked and the screen, font and colour changed to cater to the needs of children including children with special needs. ePathshala mobile application interface is available in multiple languages. The free app is downloadable from the respective app stores. The teachers can download the materials, chapters and other useful resources through the ePathshala mobile App and directly share the same with their students accompanied by the assignments and related work.

DIKSHA Portal

DIKSHA Portal is another initiative of GoI which houses QR coded energised content. Lakhs of e-Books across the standards created by CBSE, NCERT and States/UTs are available in multiple languages. The content is also accessible through scanning the QR codes or visiting the Diksha mobile app as well as the website (Fig. 17.9).

DIKSHA is an acronym and it expands to 'Digital Infrastructure for Knowledge Sharing'. It follows the core principles of open architecture, open access, open licensing, and diversity, choice and autonomy as featured in the approach paper and

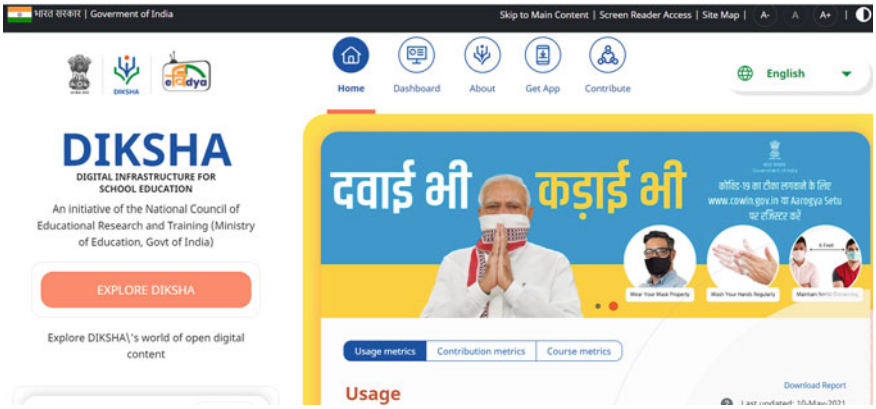

Fig. 17.9 Homepage of Diksha portal

strategic document for the National Teacher Platform released in 2017 by Government of India. After launch DIKSHA has been adopted by almost every state/UT across and also by NCERT and CBSE. In addition, millions of students and teachers have adapted the platform for the betterment of teaching–learning (Fig. 17.10). We can select the materials or e-resources from here and share the same with our students through the mobile phones or any other device. The web address for Diksha portal is https://diksha.gov.in/.

DIKSHA infrastructure is based on open-source technology, which incorporates the Internet scale technologies that enable several use cases in the area of

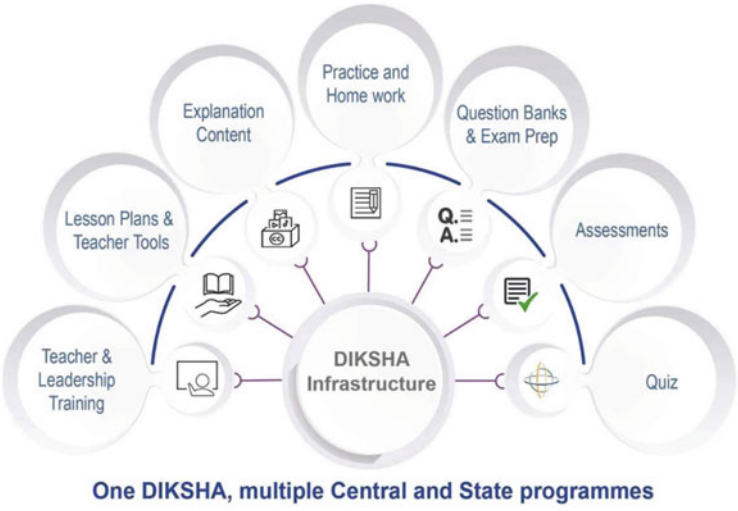

Fig. 17.10 Infrastructure and functionalities of Diksha portal

teaching–learning. Its design supports multiple languages, at present it supports 18 + languages. The policies governing DIKSHA platform facilitated the education ecosystem including educationists, subject experts, institutions and organisations to participate, contribute and leverage this common platform for achieving goals of teaching–learning at scale across the country.

DIKSHA platform can be reached through smart phones as well through its mobile App, it also has the QR coded content, which can be scanned to access the support material relevant to the prescribed school curriculum on various devices. The DIKSHA mobile app is available for Android 5.1 and above versions. This can be used by the teachers in the most appropriate way during the online classes through their smart phones.

Virtual Labs (VLabs)

Virtual Labs is an initiative of Ministry of Education under the National Mission on Education through ICT. The philosophy behind the establishment of VLabs is based on the point that physical distances and lack of resources should not make us unable to perform laboratory experiments. This becomes even more difficult when experiments involve sophisticated instruments. In the times when, good teachers are rare resources, web-based and video-based online courses address the issue of availability of good teachers to certain extent. Virtual possibilities of conducting joint experiments by multiple participating institutions and sharing costly resources with fellow researchers has become possible, which was earlier a challenge for all (Fig. 17.11).

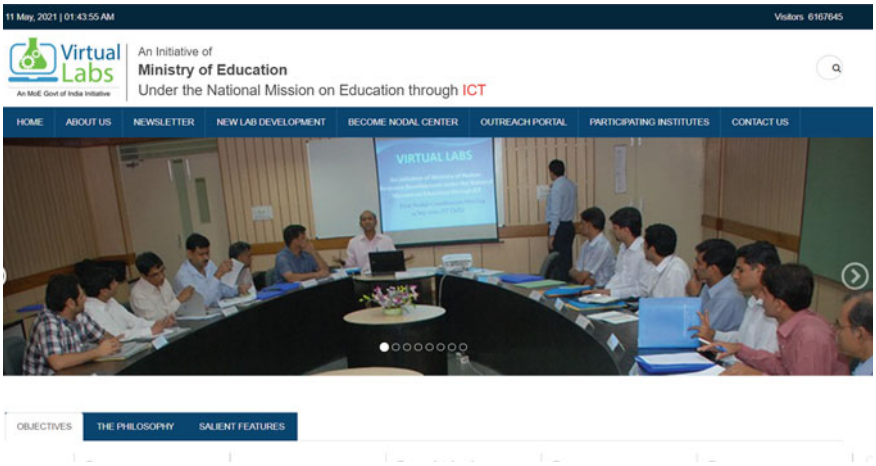

Fig. 17.11 Homepage of virtual labs

In the present times with the Internet and communication technologies the above limitations can no more hamper students and researchers in enhancing their skills and knowledge. The initiatives taken for designing web enabled experiments can be prepared for remote operations and viewing so that the curiosity of the students for innovation can be enthused. Virtual Labs provide the students the result of an experiment by using multiple methods like modelling the physical phenomenon by sets of equations and also carrying out simulations to get the result of the experiment being executed. This process can provide at the best nearby version of the real experiment. Virtual labs also work on remotely triggering an experiment in an actual laboratory and providing the results of the experiment to the students through its computer interface.

Virtual labs are being made more and more effective and realistic by the additional inputs provided to the students for example the additional audio and video streaming of the laboratory equipment and the experiments. Virtual labs cover experiments in almost all the broader areas of science and engineering.

The major objectives of developing the Virtual Labs were to provide remote-access to laboratories in different disciplines of Science and Engineering. The purpose is to cater to students at the undergraduate, post graduate and research levels. The other objective is inclined towards enthusing the students to conduct experiments by awaking their curiosity. It would be helpful for them in learning basic and advanced concepts by the means of remote experimentation. The next objective is focussed towards providing a complete Learning Management System (LMS) in the Virtual Labs so that the students can come here to avail the various tools of learning, which also includes additional web resources, videos, simulations, animations, demonstrations and self-evaluation items. The last objective of Virtual Labs is focussed towards sharing of costly equipment and resources, these resources and tools are otherwise available to a few users, the reason being the constraints on time and geographical barriers.

ePGPathshala

ePGPathshala has been a project of Ministry of Education, under its National Mission on Education through ICT (NME-ICT). The University Grants Commission (UGC) took the task for development of e-content in 77 subjects at postgraduate level, as it was taken into consideration that Post-graduation forms the base for research. High quality, curriculum-based, interactive content in different subjects across all disciplines of social sciences, arts, fine arts & humanities, natural & mathematical sciences, linguistics and languages is developed under this initiative (Fig. 17.12).

The modules created through this project are available on its website as well as on the website of eAcharya, INFLIBNET's official web page and they are being organised into online courses which are popularly called as the Massive Open Online Courses (MOOCs) and are being made available through Govt. of India's SWAYAM Platform. All the papers have been divided into 40–45 Modules, which are the

Fig. 17.12 Homepage of e-PGPathshala

sections or topics from the papers. Every module has four Quadrants comprising of the following:

- E-text including, Learn More (References/Bibliography/Suggested Further Readings/Other Reference materials)
- Self-Assessment
- E-tutorial
- Discussion Forum

ICT Curriculum for Students and Teachers

CIET, NCERT has launched the ICT Curriculum for students and teachers. This Curricula aims at realising the goals of the National Policy of ICT in School Education and the present National Curriculum Framework. Foreseeing the dynamic nature of ICT, the curricula emphasise the core educational purposes, it is generic in design and focuses on a broad exposure to technologies, in addition it aims at enhancing creativity and imagination of the learners.

The ICT curriculum for teachers is an initiation into exploring educational possibilities of technology, learning to make right choices of hardware, software and ICT interactions, and growing to become a critical user of ICT.

The teachers who are already proficient in ICT can fast track through the course. Based on availability of infrastructure and access, students can begin as early as grade 6, they can complete this 3-year diploma course before they leave school after completing class XII or early.

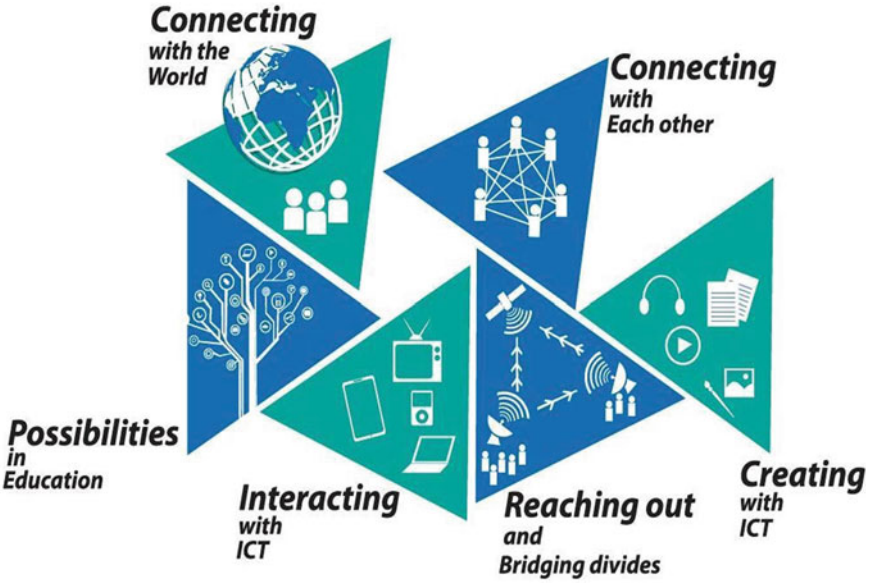

Fig. 17.13 Six basic strands of ICT curriculum

The six major strands which are the soul of ICT Curriculum are (Fig. 17.13):

- Interacting with ICT
- Reaching out and bridging divides
- Creating with ICT
- Connecting with each other
- Connecting with the world
- Possibilities in Education

NISHTHA: National Initiative for School Heads' and Teachers' Holistic Advancement

NISHTHA is a capacity building programme for "Improving Quality of School Education through Integrated Teacher Training". It aims to build competencies among all the teachers and school principals at the elementary stage. The functionaries (at the state, district, block, cluster level) are trained in an integrated manner on learning outcomes, school-based assessment, learner-centred pedagogy, new initiatives in education, addressing diverse needs of children through multiple pedagogies, etc. A robust portal/Management Information System (MIS) for delivery of the training, monitoring and support mechanism is also infused with this capacity building initiative (Fig. 17.14).

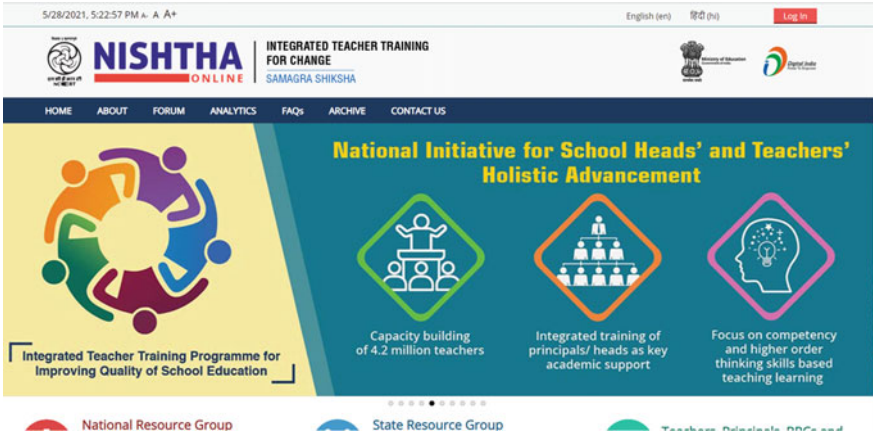

Fig. 17.14 Homepage of Nishtha platform

NISHTHA program is intended to bring Improvement in learning outcomes of the students. Creation of an enabling and enriching inclusive classroom environment is the other objective. Teachers become alert and responsive to the social, emotional and psychological needs of students as first level counselors. Teachers are trained to use Art as pedagogy leading to increased creativity and innovation among students. They are trained to develop and strengthen personal-social qualities of students for their holistic development. Creation of healthy and safe school environment. Integration of ICT in teaching learning and assessment. Developing stress free School Based Assessment focused on development of learning competencies. Teachers adopt Activity Based Learning and move away from rote learning to competency-based learning. Teachers and School heads become aware of new initiatives in school education. Transformation of the Heads of Schools into providing academic and administrative leadership for the schools for fostering new initiatives is the last objective.

(Information procured from public domain webpage for educational purpose only: https://itpd.ncert.gov.in/).

Pindics

This is again a very innovative initiative of the Government of India. The Performance Indicators (PINDICS) are used to assess the performance and progress of teachers. It consists of performance standards (PS), specific standards and performance indicators. Performance standards are the areas in which teachers perform their tasks and responsibilities. Under performance standards there are some specific tasks which are expected to be performed by the teachers. These are termed as specific standards. From specific standards performance indicators have been derived. PINDICS

Fig. 17.15 Homepage of PINDICS platform

is based on the provisions in Sects. 24, 29 and the schedule specifying norms and standards for schools in the RTE Act 2009, NCF-2005 and SSA Framework-2011. It has been further fine-tuned using the feedback received from the NCERT Study- 'In-service Education for Teachers (INSET) impact on classroom transaction' conducted in 2010–11, try out with primary and upper primary school teachers and comments received from state level officers from SCERT and SPO, and teacher education professionals. PINDICS web page (Fig. 17.15) can be accessed through this link: https://pindics.ncert.gov.in/.

Performance Standards (PS)

Performance Standards communicate expectations for each responsibility area of the job performance. There are many performance standards like, designing learning experiences for children; knowledge and understanding of subject matter; strategies for facilitating learning; interpersonal relationship; professional development; school development; and teacher attendance.

PINDICS can be used by teachers themselves for assessing their own performance and to make continuous efforts to reach the highest level. These can also be used for teacher appraisal by the supervisory staff/mentor to assess and to provide constructive feedback for the improvement of teacher performance. Each performance indicator is rated on four-point scale ranging from 1 to 4 indicating the levels of performance. The rating points are:

1. Not meeting the expected standard
2. Approaching the expected standard

3. Approached the expected standard
4. Beyond the expected standard.

Self-assessment by the teacher should be done at least twice per year, first time at the ending of first quarter and second time at the ending of the third quarter. If the teacher performs tasks in an innovative way and makes extra efforts for improving student performance can be rated as beyond the expected standard. PINDICS can be accessed with the mobile application also for better usability.

The Sakshat Portal

The Ministry of Education, GoI is very much interested in creating an open house for knowledge dissemination. This aim is fulfilled through creating and preserving educational and knowledge- based resources in a meaningful manner, which adds value to them as well as make them more personalised and useful for a student and even for a lifelong learner. This ambitious effort involves content packaging and its integration with the curriculum for making it suitable for the specific needs of the students or stakeholders at various levels of education. For this purpose, the Sakshat portal (sakshat.ac.in) has been created which attempts to address many of the requirements of our educational system by putting together the best expert teachers in the country from their respective fields and best available learning resources on a web platform in public domain. It also seeks to standardise the learning materials available across the curricular levels in the country and make them in tune with the latest trends world over, which will strengthen the learning environment in our country (Fig. 17.16).

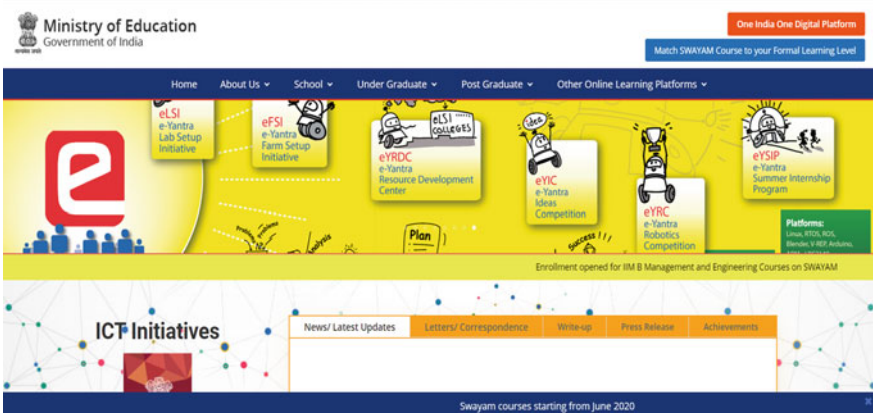

Fig. 17.16 Homepage of Sakshat portal

The portal provides modules which are teacher independent and can be instrumental in rural or remote areas where students have less access to quality teachers and studying independently is a near to impossible task for them.

Shagun Portal

Shagun Portal is an over reaching project of Government of India to improve the school education system. The name Shagun is initiated from two different terms – 'Shala' which means 'School' and 'Gunvatta' which means 'Quality'. This initiative is involved towards creating a junction in the form of a platform for all the portals and websites which come under the Department of School Education in the Ministry of Education under the Government of India. This department has also launched a repository and online monitoring website named as 'ShaGun which aimed towards capturing and showcasing innovations in the elementary level of schooling and continuously monitoring of the SSA (Sarva Shiksha Abhiyan).

After the merging of SSA into Samagra Shiksha from the year 2018–19, all the levels of education are dealt by it only. This has made the Shagun Potal applicable to all. Now it is able to provide a single point access to all portals and websites of the department (Fig. 17.17).

Shagun Portal also helps in navigating through the various schemes and their comprehensive monitoring. The data for the schools is collected through the UDISE system and is used further for researches in Teacher Education. Shagun Portal is

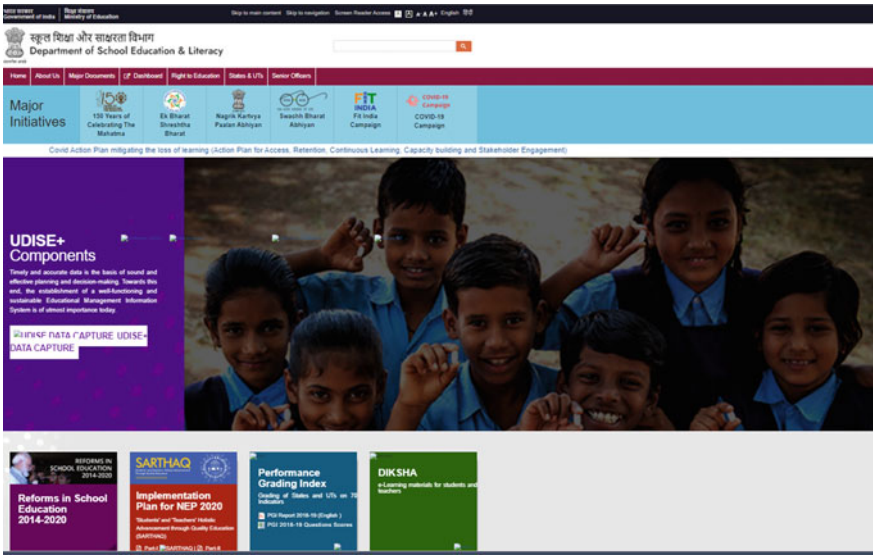

Fig. 17.17 Homepage of Shagun portal

proving to be the recourse to seamless and single source of access to information for all the activities running through the school education, which can be immensely beneficial for almost all the stakeholders of Education especially for research purposes in the Teacher Education. The link to access Shagun Portal is: https://dsel.education.gov.in/.

YouTube as Educational Resource

YouTube happens to be the most popular online video sharing platform started in February 2005 by three friends who worked at the American e-Commerce company Pay Pal, they were Steve Chen, Chad Hurley, and Jawed Karim. In November 2006 Google acquired the site and now it runs as its subsidiary. YouTube allows its users to upload, share, view, comment, rate and add to playlist small video clips and video programs. Now a days YouTube has become the biggest teacher. It has democratised the learning process, now any one can learn with the right selection of videos from it.

We can go ahead and search for appropriate videos useful for the students, their links can be copied and shared with them. There is a caution which we can take before sharing, the Auto play button must be switched off so that only the particular video is shared. Also, it can be noted that if we want to adapt a video portion, we should check the license of the video. There are two type of licenses the 'YouTube standard License' which is placed on a perfectly copyrighted video and the other one is 'CC-By' which is an Open License. So, we can just check the license before reusing the video, sharing of a video for educational purpose can be done for a video with any type of License. We can select the materials and share the same with our students through the mobile phones.

Conclusion

As teachers most of the times we are in favour of face-to-face teaching–learning process, which is no doubt irreplaceable. But ICT at times becomes the only solution to keep things going, and the current situation of the entire globe is the ready example of the same. We hope and pray that the situation created throughout the world due to COVID-19 gets fully over at the earliest and the educational system including the other sectors of our economy come back to their usual form. Till then we should follow the social distancing practices and utilise the online services freely available to us. At least they will assist us to narrow down the gap caused due to the homebound situation. We always wanted that in the age of continuously evolving technologies the ICT tools get absorbed into everyday teaching, although its actual practice came in a weird way. The efforts and initiatives of the Indian Government in terms of launching the various projects, websites, repositories, portals, free tools, open resources, mobile

applications, software and platforms can prove to be instrumental in this situation. Although a good lesson is learnt now that we should go hand in hand with the conventional teaching methods and online methods regularly so that our student can have affinity towards the use of technology. Even in normal conditions we should give some place to online methods in education, the etiquettes of online work should be taught to all of us so that the inhibitions and hesitations to use online methods can be removed. The humanitarian touch of the teacher-student interaction is difficult to recreate in ICT methodology, still its significance is immense in terms of saving the precious time and energy of our generations. Keeping this fact in mind let us join our hands for being positive in using the technological innovations in right way so that we can move ahead in forward direction together to make our future better!

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Chapter 18
Teacher Education Through Distance and Online Learning

Bakhteyar Ahmad

Abstract Teacher education through distance and online learning has presented potential solutions to many of its issues such as flexibility, cost, quantity, time-bound delivery, diversity, and quality not only in India rather globally. In order to ensure quality teaching to Palestinian refugee children UNESCO institute of teacher education provided training to thousands of teachers in a time-bound manner with the help of correspondence lessons covering both academic subject matter and teaching methods as early as in 1960s. Education ministry Government of India in 1967 recommended (RMoE in Report of the Ministry of Education. Government of India, 1967) establishment of correspondence courses at school level (Dubey in Report of the Common School System Commission. Government of Bihar, Patna, 2007) to overcome the training needs of 5 lakh untrained school teachers across the country. International task force on teachers for education 2030 (UNESCO in Workplan, International Task Force on Teachers for Education 2030. Education 2030. United Nations Educational, Scientific and Cultural Organization, Paris, 2019) in its strategic plan report 2018–2021 reaffirms recruitment needs of 69 million teachers to achieve the SDG target 4 of the United Nations of equitable, quality inclusive education for all. It proposes technology-driven distance education for teacher training and development as one of the thematic groups to be piloted in the very first phase to achieve the set target (Kumar in Teacher education in the light of National Education Policy 2020: challenges and opportunities, 2021). The recent national policy on education of the Government of India (MHRD in National Policy on Education 2020. Ministry of Human Resource Development Government of India, New Delhi, 2020) popularly known as NEP 2020 also recommends quality B.Ed. programme in ODL mode particularly for remotely located and in-service teachers. The global COVID-19 crisis in the year 2020–2021 has influenced all stakeholders across all disciplines and activities across all institutions and has revealed the hidden potentialities in information communication technologies in general and online teaching and training in particular. Almost all courses of teacher education across levels not only in India rather globally have not only been transformed into virtual and online mode rather have successfully completed 1 year. The present chapter engages with the historical

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evolution of teacher education through distance and online learning, the challenges embedded with this mode of education, the potentialities hidden in it in detail. The chapter also discusses some best practices in relation to teacher education through ODL mode.

Keywords Distance education · Teacher education · Online learning · ODL

Introduction: Teacher Education and Distance Education

Teacher Education as a branch of education and training which at present we are seeing in India and around the world with its varied programmes, specialised institutions departments and faculties, having its own varied need-based courses, syllabuses and frameworks, committee commission reports, well-documented vision and mission with a fine planning implementation, and feedback mechanism both at micro- and macro-levels has a long history of more than two centuries and evolved gradually starting as apprenticeship, monitorial to normal schools to teacher training and presently commonly used teacher education. Similarly, distance education as a mode of education and training has also evolved gradually over the past one and half centuries starting as correspondence to distance to open and online learning.

NEP 2020 on Teachers and Teacher Education

Teachers truly shape the future of our children and, therefore, the future of our nation …. The quality of teacher education, recruitment, deployment, service conditions, and empowerment of teachers is not where it should be, and consequently the quality and motivation of teachers does not reach the desired standards.

Source—MHRD (2020, p-20)

However, the fusion of teacher education to distance and open education was comparatively spontaneous and need based during the 1960s both in India and at global level. On the global front in the year 1963 it was United Nations Relief and Work Agencies (UNRWA) and UNESCO's jointly setup Institute of Education that provided training through written assignments and correspondence lessons to about 4000 teachers who were teaching children of Palestinian refugees for whom separate training leaving the children without teachers was not possible (Young et al., 1980). Report of the Ministry of Education, Government of India 1967 (RMoE, 1967) recommended establishment of correspondence courses to clear the backlog of 4 lakh untrained elementary and secondary school teachers, which was a huge number at that time in comparison to the human and material infrastructure available to the country's normal training colleges (Mangal, 2020).

This spontaneous inevitable need and importance has been once more realised in relation to Open and Distance Learning (ODL) education when the COVID-19 pandemic during 2020–2021 and subsequent lockdown and work from home situations forced all teacher education programmes across levels across institution not only in India rather globally to adopt and adapt towards ODL mode of transaction and delivery. Further this mode has clearly established its credentials by successfully completing one complete calendar year to all teacher education programmes which is in practice through the ODL system since the beginning in 2020.

Before going into detailed discussions on Teacher Education through ODL it is better to understand the basic tenets and prerequisites of Teacher Education and the nature and limitations of ODL system which will enable us to understand their fusion in a much better way.

Good's Dictionary of Education defines Teacher education as, "all the formal and non-formal activities and experiences that help to qualify a person to assume responsibilities of a member of the educational profession or to discharge his responsibilities more effectively" (Good, 1945).

The contemporary societies and the world are changing very rapidly from multi-dimensional perspectives. Naturally like all other fields the demands and the roles of teachers are also changing considerably. Any teacher education programme therefore must consider the social concerns, the technological advancements, and psychological and diverse needs of the learners. The issues related with love, care, being humane, inclusiveness, life skill, environment, independent thinking, innovation, and creativity need to be included in the curriculum.

Oyenike Adeosun, Soji Oni, and Bayo Oladipo (2013) in their article in Journal of International Cooperation (Adeosun et al., 2013) in Education have very comprehensively depicted teacher education curriculum framework through the help of a Fig. 18.1 that should accommodate components from all the core competencies including Teaching Skills, Pedagogical theories, and Professional skills to produce effective quality teachers for twenty-first-century classrooms.

Mary Burns in her book *Distance Education for Teacher Training: Modes, Models, and Methods* is impressed by the changes in technology and advancement in the field of teaching and learning. She discussed dramatic changes that have come into the field of distance education since 1939. Distance learning has been providing opportunities in a sustained manner to those sections of societies which have remained excluded from the formal system of education and schooling historically for a long time. Such a population includes cultural or religious minorities, women, inhabitants of conflict zones, and geographical remotely and scarcely located populations. The problems of resources, demographics, geography, and terrain have been tackled in this mode many times effectively by leveraging combinations of latest technologies at that time such as the post, printing press, trucks, ships, telephones, and currently with fibre optic cables and computers. She stresses the significance of new ideas and innovations both methodological and technological that leads to generation of new modes and methods of learning for traditional as well as nontraditional learners (Burns, 2011, p. 2).

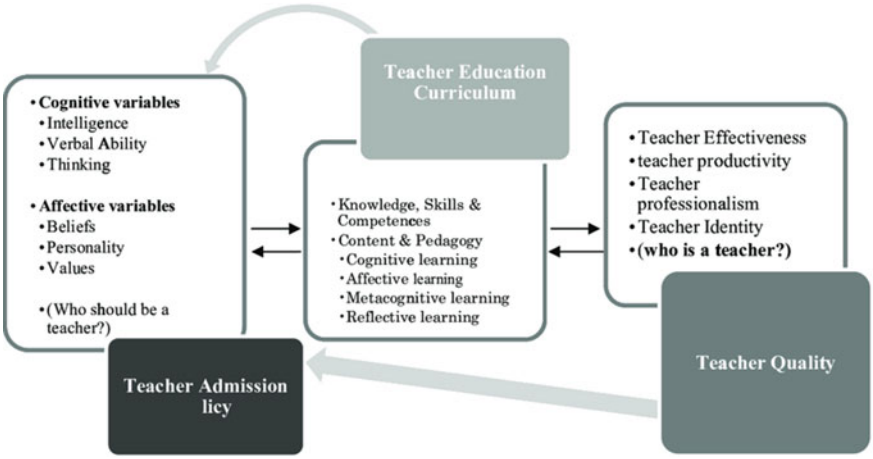

Fig. 18.1 Teacher education framework connecting admission, curriculum, and output. *Source* Adeosun et al. (2013)

Distance education is characterised by its flexibility, access to larger population, minimum infrastructural requirements, reach to remotely and scarcely located audiences, cost-effectiveness, time-bound delivery, and learner centrism and time place autonomy.

Distance education which is technology-mediated despite huge technological advancements suffers from certain limitations such as technological divide spread across the globe in terms of reach, accesses, affordability, training to run, and the minimum logistics required to use, be it electricity, Internet, and latest versions of electrical and electronic gadgets. It is not suitable for group activities and the ideal peer interaction is also missing. Projects based on field visits cannot be performed effectively through ODL methods. Excess uses of technologies have health-related problems as well.

Both teacher and distance education have distinct features and are complex fields of education (Danaher & Umar, 2010). Both are crucial fields of endeavour. Their fusion has embedded potentialities to provide equitable quality education to a large mass of learners in a cost-effective manner (Table 18.1).

History of Teacher Education Through ODL

The significant landmark globally in the history of teacher education through ODL mode goes back to the year 1963 when United Nations Relief Work Agency (UNRWA) and UNESCO established Joint Institute of Education (Perraton, 2010) to fulfill the immediate unavoidable requirement created to train approximately 4000

Table 18.1 5 Generations of distance education along with examples

Types of distance education	Examples
Correspondence model	Print
Audio-based models	• Broadcast: IRI • Narrowcast: IAI (via audio tape or CDs) • Two-way radio • Audio conferencing and telephone • Broadcast radio
Televisual models	• Broadcast television (educational and instructional) • Videoconferencing • Video
Computer-based multimedia models	• Interactive video (disc and tape) • CD-ROMs • Digital videodiscs (DVDs/VCDs) • Interactive multimedia
Web-based models	• Computer-mediated communication • Internet-based access to World Wide Web resources • Online courses (e-learning) • Online conferences (webcasts and webinars) • Virtual classes/schools (cyberschools) and universities
Mobile models	• Hand-held devices • Portable media players (podcasting) • Cell phones and smart phones • Tablets • E-readers

Source Burns (2011)

teachers (poorly educated and untrained) who were teaching about 200,000 Palestinian refugee children at primary or lower secondary level. The UNRWA analysed the whole situation and realised that providing pre-service traditional training to these teachers (which required both time and replacement) was very difficult since there was no other option to continue classes of the children uninterrupted. In-service training was devised by the Joint Institute of Education. Teachers were sent study materials through correspondence. This material included both academic and teaching methodology-related content (Young et al., 1980). They were given assignments to be completed fortnightly based on their correspondence materials and practical classroom experiences. Fortnightly seminars were organised under the guidance of 20 field supervisors in which presentations were made and face-to-face activities were conducted. Despite the UNRWA/UNESCO project being small but was unique in many aspects and was quite successful. Within a time span of 5 years the untrained teachers were reduced from 90 to 9%. This model was adopted in many parts of the world later. It validated that teachers can be trained from a distance without much physical interaction effectively with the help of correspondence material and periodic guidance and supervision. It also broke the traditional physical attendance criteria compulsory for being certified as trained. This project became exemplary for many future projects in South Africa. Global acceptance came with

the establishment of an open university in Britain in 1969. Distance learning graduates were first time awarded degrees which were equivalent and at par to that of conventional universities (Perraton, 2010, p. 5).

African countries, namely, Kenya, Botswana, Malawi, Uganda, and Swaziland responded to distance learning projects as early as the 1960s immediately after their independence to tackle the problem of scarcity of primary school teachers in their countries. Almost common strategy was used by these countries of teaching through correspondence materials supplemented by radio-based programmes and supervisory activities by the teachers in their classrooms (Young et al., 1980). Later on during the 1970s and 1980s Zimbabwe, Tanzania, and Nigeria realised its potentials and used distance education on a comparatively bigger scale in order to expand their primary education (Perraton, 2010, p. 6).

A strategic change came in the later decades, taking into account the large shortfall of trained teachers. In countries like Tanzania and Zimbabwe, secondary school teachers were first recruited on apprenticeship model and later on trained partially on job and partially through distance education. Many countries followed similar training often on an on and off basis. For example, Malawi used ODL for training its teachers from 1997 to 2004 and it has also started using it again. Uganda from 1993 to 1997 ran a project of training the teachers by integrating its distance education with that of its existing teachers' colleges.

Countries like China, Tanzania, and Britain initiated their distance education through their open universities which were largely innovative. Such programmes addressed the training needs of a huge number of teachers to meet the demands of the schools. For example, in China, 7,17,300 primary teachers and 5,52,000 secondary teachers gained certificates and diplomas during 1987–1999 through ODL mode. Britain Open University during the 1990s introduced postgraduate certificate courses in the field of education (Perraton, 2010).

During the early 1960s it was found that in India most of the teachers at different school levels were on one hand under-qualified and on the other hand were mostly untrained. This number of untrained teachers gradually and slowly year after year got compounded and reached in lakhs, and it was in this background that The Education Commission Report of 1964–1966 (NCERT, 1970) made several provisions in relation to correspondence courses with special reference to teachers and their training.

The Education Commission 1964–1966 at several places in its report highlighted the potentialities hidden in correspondence education and recommended the inclusion of correspondence courses with special reference to teacher training and education. It suggested special diploma courses preferably through correspondence (NCERT, 1970, p. 64). It recommended correspondence education for professional training especially of women who cannot remain away from their homes for longer durations (NCERT, 1970, p. 101). It further recommended special courses in additional subjects (if any teachers want to teach in their schools) for teachers by correspondence or summer institutes (NCERT, 1970, p. 128). The commission emphasised enhancing the qualification and support to unqualified teachers through concessions and correspondence courses (NCERT, 1970, p. 130).

The Education Commission 1964–1966 also recommended establishment of centres for correspondence education in every state to provide courses for all teachers (NCERT, 1970, p. 137). At one place it recommended full training of 1- or 2-year duration to all teachers having less than 40 years of age and simultaneously less than 5 years of service either through part time or correspondence courses (NCERT, 1970, p. 138). By the year 1966–1967 there were about 1 lakh secondary teachers and 4 lakh teachers at primary level (Mangal, 2020) that required training. In order to train these backlogs, the Education Ministry report of 1967 (RMoE, 1967) suggested establishment of correspondence programmes both for training secondary and elementary teachers.

National Policy on Education 1968 of the Government of India gave due weightage and recognition to correspondence courses in the country. Devoting a paragraph exclusively on Part-time Education and Correspondence Courses it suggested development of correspondence and part-time courses at large scale. It specifically mentioned the name of secondary school students, teachers, and agricultural and industrial workers for whom such courses and facilities should be provided. The importance that it gave to these courses is clear from its recommendation to provide correspondence and part-time courses equal status to that of full-time courses (NCERT, 1970, p. XVII).

Meanwhile as a result of all such reports and recommendations NCERT in 1967 itself started correspondence B.Ed. courses in its four Regional Institutes of Education to train and educate the untrained teachers. In the year 1975, Mysore University offered B.Ed. correspondence course with an enrollment of as many as 609 students in the very first batch (UGC Report, 1976). Thereafter the scenario changed drastically and the demand for training of teachers through correspondence started increasing at a very fast pace. UGC taking into the increased demand and lack of trained teachers at school level expanded the ambit of correspondence courses and allowed teacher training programmes in its universities as through correspondence supported by contact classes named as B.Ed. degree. It was further decided to make both correspondence and regular degrees equivalent to each other (Sharma, 2013, pp.131–132). Table 18.2 has been extracted from the UGC report of the year 1981–1982 which shows the rush in enrollment of students for training through correspondence courses.

The National Commission on Teachers 1983–1985 in its report highlighted the importance of creating a cadre of experts in the field of teacher education through modifications in the existing B.Ed. and M.Ed. curricula, through quality in-service courses and correspondence courses, etc. (NCT, 1985, pp. 95–96). The commission in its report mentioned establishment of State Institutes of Education (SIEs) for training of elementary teachers in the country as a significant move. It welcomed the provision of correspondence courses for in-service training in SIEs and SCERTs (State Councils of Educational Research and Training) in a few states.

The last decade of the twentieth century saw an increasing demand for teacher training programmes especially B.Ed. and M.Ed. Table 18.3 shows the rise in the number of universities/institutes offering such teacher education correspondence courses in India along with students enrolled in the year 1990–1991 alone.

Table 18.2 B.Ed./M.Ed. correspondence courses, UGC Report for the year 1981–1982

S/No	University	Course	Year of starting	Duration of the course	Total students enrolled		
					1979–1980	1980–1981	1981–1982
1	Jammu	B.Ed.	…	14 months	251	348	413
2	Mysore	B.Ed.	1975	18 months	464	492	…
3	Annamalai	B.Ed.	1979	1 year	5445	6000	6000
4	Annamalai	M.Ed.	1980–1981	1 year	…	1546	2193
5	Kashmir	B.Ed.	1977	14 months	241	243	252
6	Himachal Pradesh	M.Ed.	…	1 year	3518	3112	4566
7	Rajasthan	B.Ed.	1976	14 months	240	241	…

Source Extracted from UGC Report for the year 1981–1982, Appendix XXVII, *146–149*

National Curriculum Framework for Teacher Education 2009 was critical about the extreme rise in the number of institutions and enrollment of students in distance mode B.Ed. programmes and highlighted the proliferation of private colleges offering B.Ed. programmes through distance mode during the last many years. It also discusses their profit motives and being triggered by market forces. The framework gave the data of alarming numbers of 14,428 colleges with an intake of 1,096,673 students in the year 2009 (NCTE, 2009, p. 82). While the framework considers ODL as a potential tool for giving professional training to practicing teachers. It also advocated actual social interaction and direct engagement of student-teachers, a core process for initial teacher preparations (NCTE, 2009, p. 17).

Need and Rationale of Teacher Education Through ODL Mode

Historically we have seen in earlier discussions that ODL approach in the field of teacher training and education has evolved out of the unavoidable necessities and advantage over conventional programmes in terms of a number of factors such as large-scale reach, time and cost-effective, access beyond geographical boundaries, and diversified instructional and training strategies.

Potentials to Meet the Global and National Targets of Education for All

Mayes and Burgess (2010) citing the targets of Millennium Development Goals and to meet the commitment of Education for All highlighted the fact that ODL continues

Table 18.3 B.Ed./M.Ed. correspondence courses, UGC Report for the year 1990–1991

S/No	Name of the state	Name of the university/ institutes	Name of the course	Total students enrolled
1	Andhra Pradesh	Andhra	B.Ed.	400
2	Andhra Pradesh	Andhra	M.Ed.	100
3	Andhra Pradesh	Kakatiya	B.Ed.	223
4	Andhra Pradesh	Osmania	B.Ed.	611
5	Andhra Pradesh	Osmania	M.Ed.	101
6	Andhra Pradesh	Sri Venkateshwara	B.Ed.	398
7	Andhra Pradesh	Central Institute of English and Foreign Languages	PG and Cert Diploma in Teach of English	222 + 881
8	Gujarat	Gujrat Vidyapeeth	M.Ed.	140
9	Haryana	Maharshi Dayanand	B.Ed.	21,363
10	Himachal Pradesh	Himachal Pradesh	M.Ed.	2764
11	Jammu and Kashmir	Jammu	B.Ed.	481
12	Jammu and Kashmir	Kashmir	B.Ed.	294
13	Karnataka	Mysore	B.Ed.	500
14	Madhya Pradesh	Barkatullah	B.Ed.	7690
15	Orissa	Berhampur	B.Ed.	728
16	Orissa	Utkal	M.Ed.	1100
17	Punjab	Punjabi	B.Ed.	250
18	Punjab	Punjabi	M.Ed.	300
19	Rajasthan	Kota	B.Ed.	4646
20	Tamil Nadu	Annamalai	B.Ed.	21,417
21	Tamil Nadu	Annamalai	M.Ed.	5554
22	Tamil Nadu	Madras	B.Ed.	5976
23	Tamil Nadu	Madras	M.Ed.	1027
24	Tamil Nadu	Madurai Kamaraj	B.Ed.	1963
25	Tamil Nadu	Madurai Kamaraj	M.Ed.	709

Source Extracted from UGC Report for the year 1990–1991, Appendix XXXI (LXXXIII)

to be the most powerful option for teachers training and education in a time-bound manner. According to UNESCO estimates (2008), about ten million teachers should be recruited and trained in a short span of a decade, with special attention in South Asian and African countries. Danaher and Umar (2010) stressed the need to harness the potentials of distance and open learning which has shown persistent quality to huge numbers at lower costs in many countries (Danaher & Umar, 2010).

UNESCO institute for statistics has set a target to recruit 69 million quality trained and motivated teachers and retain them in normal working conditions if the target of supply of qualified teachers of substantial level is desired by 2030 as has been promised in 2015 as Sustainable Development Goal number four (SDG4) by the United Nations General Assembly. Majority of the countries where such quality teachers are required are backward and developing countries. Giving suitable training to a large number of teachers in normal face-to-face mode with basic human, physical, and material infrastructure is hardly possible.

UGC very recently (2021) in its concept note on learning and teaching through blended mode realised the evolution of the digital learning platforms across the world and highlighted the huge impact of digital learning on educational institutions. Key benefits of blended learning as found in some recent researches include opportunities for learning any time; technology-supported learning at a distance, reducing barriers of location and time, etc.; and also increased interactions in any mode, any language, and any pace.

Suitable to Train Teachers on Large Scales

UGC as early as in 1982 realised the need of ODL in teacher training and claimed it as a new stream of education to that empowered a large number of learners having basic aptitude to achieve additional knowledge and enhance their professional capabilities. Similarly, the National Commission on Teachers (1985) highlighted the fact that many countries across the world were using correspondence-cum-contact courses very effectively and are equally suitable for a country like India which is larger in size and facing a variety of problems. MHRD (1992) claimed that taking into account the numbers involved, running all in-service education programmes through face-to-face mode is not possible.

Extremely Suitable for Continuing Professional Development and Training During Service and Job

Many times, it is not possible for untrained teachers to take long leaves and complete their training and education. Further people in jobs want to pursue teacher education programmes without being jobless and enter into the field of teaching at a later stage.

Further many times many working teachers require enhancement and up-gradation of their knowledge and skills. ODL is the best solution in all such cases. It is suitable for in-service training (NCT, 1985), on-job programmes (Mayes & Burgess, 2010), continuing professional development (NCTE, 2010), and all those who see education as a lifelong activity and want to enhance their skills and knowledge (UGC, 1982).

Resource Crunch in Conventional Face-to-Face Mode

In India and other most of the developing and backward nations, quality infrastructure and logistics is a big challenge. Schools and teacher education programmes have also faced the problems of under-recruitment, pathetic and insufficient basic infrastructure. UGC in its report way back in 1982 mentioned suitability of correspondence courses to all those students who despite necessary and essential qualifications cannot find a seat in regular colleges or universities. NCT (1985) in its report claimed a shortage of science, mathematics, and English teachers in Indian schools. It suggested that well-articulated correspondence lessons and assignments can help in this regard to train the teachers.

Mayes and Burgess (2010) highlighted the issue of poor and under-qualified, untrained and uncertified teachers in many corners of the world which will only result in a lower quality of education for children. He further suggested, on-the-job training through ODL methods for such teachers because pulling such unqualified teachers out for training is a costly affair.

Equity Imperative—Suitable for Scarcely, Remotely Populated, Deprived, and Marginalised Population

Teacher education programmes through ODL have in the past addressed the equity issue in the field of education. Its design and delivery mechanism supported by technological advancements have empowered many including the deprived, the marginalised, the geographically isolated and other vulnerable sections of society by educating and training them. We have discussed in the earlier pages how it proved to be a strong option to train teachers of Palestinian refugee children way back in 1960s. In Eritrea TEP through ODL mode created great opportunities for females and other people particularly from rural background in large numbers who were unable to move away or leave their homes because of religious, cultural, domestic, and economic reasons (Mayes & Burgess, 2010).

UGC in its report (1982) stressed the use of correspondence courses to cater the need of all such students who have left their formal schooling because of one or the other reasons. ODL for teacher training programmes has been largely advocated in India because of huge shortage of untrained teachers in India and particularly

the demand supply gap of women teachers specifically in rural and remote areas (Mangal, 2020).

For Resource Efficiency-Reduced Costs

Many times, affordability and cost-effectiveness play critical role in providing training particularly in developing and backward countries and/or when huge numbers are involved. Teacher education programmes delivered through ODL supported by technological advancement have proved its resource efficiency by overall minimising the cost incurred in training of each teacher on an average. The sharp increase in the number of training programmes and institutions and the high volume of trained teachers through ODL in India and across the world in a sustained way at an affordable cost is a clear evidence of its being resource-efficient. For example, recently MHRD GOI gave chance to all those teachers who are untrained and teaching from class 1 to 8 to clear a course specifically designed for such teachers through ODL mode by NIOS within a very rigid time frame. Surprisingly immediately after the announcement 15 lakh teachers enrolled for the training through NIOS as per a news by NDTV in 2017 (Kunju, 2017). Between 1987 and 1999 about 13 lakh unqualified primary and secondary teachers got training through ODL mode by China Television Teachers College. Similarly in Pakistan during 1995–1996 about 165,000 teachers consisting of women and rural communities mainly got primary teachers training by Allama Iqbal Open University (Mayes & Burgess, 2010).

Optimum Utilisation of Technological Advancement

One of the important and non-comprising criteria of the twenty-first-century teachers is that they should be technically sound and well equipped in information communication technology-enabled teaching and learning. There is hardly any aspect of our life today that doesn't blend with the information communication technologies. Taking this fact into consideration NEP 2020 has a devoted and exclusive chapter titled "Online and Digital Education: Ensuring Equitable Use of Technology" (MHRD, 2020). National Curriculum Framework for Teacher Education 2009 (NCTE, 2010) advocated interactive modes of learning, online support, two-way audio-video communication, and use of independent study material.

ODL-supported teacher training provides extended opportunities and enriched curriculum through strengthening theory and classroom practice by sharing experiences on radio, using real-life teaching on videos (Mayes & Burgess, 2010), integrating learning with ODL materials and live online activities.

Student Centricity—for Greater Flexibility—for Training Anywhere, Anytime, Anyone

UGC in its 1982 report advocated correspondence courses for students who had discontinued their education by lack of motivation or aptitude but who may later on become motivated to continue again. Arguments in favour of designing ODL approach to teacher education and training are given on the ground that it is very flexible for individual teachers and finely integrated to school-focused activities (Mayes & Burgess, 2010).

Extremely Suitable in Case of Natural or Manmade Calamities

The global COVID-19 crisis and the subsequent lockdowns in almost every corner of the world during most of the time in 2020–2021 have influenced all sections of the society in almost all the countries of the world. The conventional face-to-face teaching-learning and training almost come to a standstill situation. The world for the first time experienced the hidden potentialities in information communication technologies in general and online teaching and training in particular. Almost all programmes across the globe and particularly teacher education programmes were running in undeclared ODL mode with the help of mobile, laptops, desktops, and other gadgets. In India too all courses of teacher education across all universities and colleges across all levels have not only been transformed into virtual, online, and distance mode rather had successfully completed one academic year. It is important to mention here that it is not for the first time, rather in many parts of the world ODL mode has been successfully used for teaching and training in case of natural and manmade disasters.

Other Reasons

ODL mode of teacher education has proved many times as the only option to train the huge backlogs of untrained teachers within a stipulated time across the world and in India. It is very suitable when training of huge numbers of teachers is required in a shorter amount of time (Mayes & Burgess, 2010). For example, NIOS trained more than a million untrained teachers who were teaching from class 1 to 8 within a time span of 2 years during 2017–2019. ODL mode has huge potential to access diverse resources whether material (texts, audios, videos, animations, and many more) or human resources in a relatively shorter span of time. ODL-supported teacher education has immense potentialities for **interaction and orientation from**

a larger number of diverse experienced and specialised trainers. Teacher education through ODL mode promotes open-ended dialogue which is considered as the touchstone of legitimate education (NCTE, 2010).

Issues, Concerns, and Challenges of Teacher Education Through ODL Mode

Challenge to Ensure and Sustain Quality Along with Quantity

Teacher education programmes through ODL mode have many advantages over traditional and conventional face-to-face mode, which is evident from the previous discussions. Its unique potentialities particularly in relation to it addressing a comparatively large number of trainees with induced pace and minimum infrastructural requirements, its suitability for remotely and scarcely populated pockets, its reach and accessibility attracted governments not only in India rather across the world which is quite evident from the mushrooming of teacher education programmes through ODL within a time span of 5 decades since its first being introduced. The government started using this mode to achieve their targets of trained teachers without serious consideration and care of the quality issues involved in it. The entry of private players taking into account the commercial factor of its high-volume production with minimum cost involved further led to compromising quality training criteria. Being flexible becomes an easy way to get a certificate and enter into the teaching field without minimum enhancement and development of capabilities and skills required from a teacher. Because of these reasons in recent years the openness for which ODL got recognition is being narrowed down particularly in teacher education programmes specifically in terms of number of institutions offering the courses, number of students pursuing the programmes and entry criteria and qualifications. Stringent steps are being initiated to make ODL mode in teacher education more sophisticated (Mashile, 2008), more selective and dealing with targeted teacher population only.

Challenges Before Teacher Education Through ODL Mode in News: Some Headlines

'Vishwa Vidyalayon men distance mode se B.Ed aur paramparagat vishayon ki padhai band'

Source—Vijay (2021, July 09). Hindustan (Hindi Daily)

Blended Learning Method will destroy Public-funded University system: Teachers' bodies tell UGC

Source—Press Trust of India (2021, Jun 07). News18

Mangalore University stops taking admissions under distance education mode

Source—Kamila (2021, APRIL 19). The Hindu

NIOS D.El.Ed Teachers Ask HRD Ministry to give party for their qualification

Source—Shihabudeen (2019, Dec 13). NDTV

UGC makes NAAC must for HEIs offering open and distance learning courses

Source—Ahmed (2018, March 05). The Times of India

Pvt. schools turn nose up at D El Ed, claim this qualification, made mandatory by Centre, is beneath existing certifications of teachers; educationists seek nuance in sweeping diktat

Source—Ramnani (2017, May 17). Pune Mirror. Updated: Sep 11, 2017, 02:30 IST

Technological Inequality (Digital Divide), Inefficiency, and Lack of Expertise

Most of the ODL mode programmes including teacher training at present heavily depend on communication technologies, including wireless networks, the Internet, cell phones, software, computers, video-conferencing, online/virtual classes, etc. Most of the data is digitally stored, manipulated, accessed, retrieved, and shared. Developing countries like India are facing challenges such as inequality in terms of access, use, and affordability towards these communication technologies. A vast majority of the target population is backward, poor, remotely located, and belongs to one or the other deprived and marginalised sections of the society. ODL mode for them is not perfectly suitable because of the reasons such as network connectivity problems, Internet bandwidth, quality gadget issue, lack of training to use technologies efficiently, and even lack of gadgets itself because of poverty and other reasons. Such inequality is a big hurdle and discrimination among group of learners in a particular Teacher Education Programme (TEP).

Another kind of discrimination which enters into the process of delivery of TEP is concerned with liberties and benefits of doubts being given to the learners and trainers in the name of digital divide resulting in adoption of soft and more loosely defined policies in relation to attendance, examinations and evaluations, promptness, and discipline-related issues leading to reduction in the overall quality of training. Such challenges were deeply and largely felt during COVID-19 lockdown in India during 2020–2021.

Disparity also lies between nations as per their economic developments. Most of the technological-based training and advancement begin in developed nations, being executed in developing countries like India and even backward countries but

fail to provide sufficient funds and appropriate technical infrastructure (Mayes & Burgess, 2010), sufficient number of skilled and trained professionals, etc. Even the technological advancement in the recent decades is changing very fast which many developing nations failed to update from the pace required at mass level leading to digital divide.

Another kind of technological inequality is reported based on being culturally biased (Wright et al., 2009). Many visuals, audios, and texts are said and perceived to be inappropriate on the basis of being a threat towards a particular religion, belief, customs, or cultures. In some African countries, women are not exposed to ICT because of certain cultural barriers. Similarly, an Egyptian teacher (Leach et al., 2005) who worked in Arabic language faced difficulty in English language software.

Unique Features of Time, Cost, and Number Efficiency of ODL Mode Allures Market Forces and Commercialization of TEPs

The National Commission on Teachers in its report (1985) has warned against the mushrooming of B.Ed. correspondence courses and dilution of the standards of the programme. The commission highlights the advantages of distance education as a technique. On one hand while distance education has the edge over conventional mode because of its in-built features which suits countries like India, such as its being cost-effective and cheap, the size and kind of population as well as it demands reduced logistics and infrastructure. At the same time, it warns against the commercial venture of the institutions and universities. It calls them a great disservice to the nation and suggests discontinuing such institutions. Similar concerns were raised by NCTE in its National Curriculum Framework for Teacher Education 2010. The framework highlighted the issue of steep rise in the number of both the students and the institutions pursuing B.Ed. through ODL mode. It clearly mentions the issue of profit motives and the market forces playing a crucial role in the sudden increase in the number of private colleges offering teacher education programmes through ODL mode. It showed surprise over the enrollment of about 11 lakh B.Ed. students in more than 14,000 colleges in a single year 2009. It suggests direct engagement and social interaction of students and teachers as a core element in initial teacher education programmes.

Monotonous and Mechanical in Nature, Lacks Naturalistic Settings and Classroom Dynamics

TEPs through ODL mode have undoubtedly enjoyed and celebrated for its characteristics such as being low cost and a mass market. But despite the number it claims to train within a time-bound manner is huge but peer interaction within and among

the students is proportionately missing. We hardly found much interaction among the trainers as well as among the trainees in ODL mode. High-quality outcomes in teacher education programmes require an individualised approach, which largely depends upon the effectiveness of teachers in the classrooms in naturalistic settings. A close contact between trainee students and tutor/mentors to ensure individualised and focused supervised monitoring and coaching (Mayes & Burgess, 2010) is essential for making teacher education most effective.

At present most of the ODL mode transactions and deliveries are technology supported which includes online interactions, virtual classrooms, and communications from geographically remote and distant places. Such settings lack the feel of naturalistic settings of face-to-face mode classroom. Teachers during their training learn a lot from the surrounding environment, the dynamism of the classrooms, and their peer learners which are badly hampered in ODL mode.

Depends Largely on Conventional Colleges and Lacks Its Own Dedicated Specialised Mentors and Tutors

Tutors and mentors are crucial for any successful teacher education programme (Mayes & Burgess, 2010). The effectiveness of tutors is the key ingredient for quality TEPs. But a general survey of ODL-based TEPs reflects that most of them are mainly dependent on face-to-face or conventional teachers for mentoring, tutoring, counselling, and all internship and practical activities. In many cases, such teachers lack an orientation towards ODL mode of functioning, its peculiar needs, and demands. Many of them have no specific training of ODL mode and they treat and deal with trainees of ODL mode in a similar fashion to that of face-to-face mode.

Problems in Organising School-Based Internship Activities, Practice Teaching and Practicum, etc., Difficult to Ensure Quality Monitoring/Mentorship

School-based practice teaching and internships are inseparable part of any teacher education programme. Quality mentoring of practical activities in real field situations is really challenging from a distance. Trainees are supposed to perform a variety of tasks and activities both inside the classroom and outside within the boundaries of a school under the direct monitoring of school authorities, teachers, and under the supervision of teacher trainers. A minute and detailed observation and feedback of converting theories studied by learners into practical context (Mayes & Burgess, 2010) in the schools is relatively difficult and less efficient through ODL mode as compared to conventional face-to-face mode.

Not Suitable to Organise and Provide Field-Based, Co-curricular, Games, and Physical Activities

Any effective teacher education programmes include a lot of co-curricular programmes, social awareness, and sensitisation programmes. Field-based activities and projects are inseparable parts of effective TEPs. Organising such programmes through ODL is possible but cannot be equally effective and beneficial like that of real ground fields with all physical logistics. Similarly social and motor skill development is not suitable through ODL mode of training. Participation, training, and coaching of activities such as games, sports, and cultural aspects severely lack real feel in ODL mode.

Very Limited Peer Interaction

Students particularly during teaching and training learn a lot from their peers. Classmates are the birds with the same feather and therefore they try to fly together. In ODL mode this interaction is minimal, and therefore a very important development of the personality is missed out. The bonding between classmates who have spent time together in conventional classroom settings cannot be at par with the bonding developed during online and virtual interactions. Many times, teacher educators feel limits in organising activities in which different group activities or the whole class as a group need to work.

Extended Working Hours on Electronic Gadgets as a Necessity of ODL Mode is Hazardous to Health and is Affecting Physical, Psychological, and Social Development

Most of the ODL mode training at present depends upon IT-enabled infrastructure which demands a lot of time working on mobiles/computers/laptops and other electronic gadgets either synchronous or asynchronous in artificial settings away from nature and open environments. Studies are showing that such settings are directly or indirectly affecting our ears, eyes, and other physical organs negatively. They have serious impacts on our social and psychological developments also.

Flexibilities of ODL also Brings with Them Administrative Difficulties

Anytime, anywhere, anyone feature of ODL mode appears to be very attractive, but it encompasses in itself a lot of planning, preparedness, expertise, data storage, recording, and also timely retrieval. Developing countries like India still lag behind sufficient manpower and efficient technological advancement and infrastructure to do so on a pan nation basis. Even today despite all IT advancements still there are teacher education colleges which lack uninterrupted Internet services power supply and proper working quality desktops and laptops.

Not Always Cost-Effective (e.g. Giant Telecom Companies Offering Free Services Earlier Are Now Proving a Costly Affair)

Modern ODL-based teacher education programmes are mostly technology based. These technologies are mainly developed, designed, and marketed by big corporate houses and capitalists across the globe. In the beginning they offer free facilities, open licensing, and easy access to vast numbers of software free of cost. But once dependence of the masses is at its peak these cooperators start making money out of them which proves later a too costly affair. Such cases have been seen in countries like India. A few telecom companies were offering free services a few years back and now they are becoming a costly affair.

Quality Teacher Education Through ODL Mode and the Future Prospects

Hybrid Model of Teacher Education Programme and Due Weightage to Practicum (Blending Teacher Education Programme)

The future of teacher education through ODL lies in a model that is hybrid in nature including a fine blend of conventional face-to-face and distance mode which should include individualised quality teaching performances by the trainees based on one-to-one practicum experiences. Quality training requires good practices and inculcation of quality teaching skills which is context dependent and linked with authentic practical activity (Simpson & Kehrwald, 2010). Report of the National Commission on Teachers 1985 (NCT, 1985) also stressed the importance of the practical aspects during training particularly through ODL mode.

The UGC concept note (2021) titled "Blended Mode of Teaching and Learning" is the latest generation of ODL mode of education. In this note most of the advantages listed come under the purview of ODL mode which distance educators have recited since decades. The most important improvement over earlier generations in BL mode of ODL is that the quantity and quality of face-to-face interactions have been enhanced and reaffirmed. Obviously doing so will improve the quality of delivery of teacher training and education programmes.

Planned Integration Among Complex Stakeholders of Teacher Education and Distance Education

Quality teacher training programmes include stakeholders such as students, teacher educators, policy-makers, good material developers, schools with their entire human and material infrastructure, and many more. Such programmes when delivered through distance mode, the number of stakeholders further increases because of its inevitable technological dependence. All these require proper and very fine integration. The clashes of interests of many stakeholders, the complex nature of school campuses and diverse nature of disciplines being converging together (teacher education, distance education, adults to be trained, and adolescents to deal with) must be addressed in a holistic manner to ensure quality TEPs through ODL mode. It was this very necessity of planned integration that the National Council for Teacher Education (NCTE, 2010) joined hands with Distance Education Council (DEC) for in-service teacher education under the Open and Distance Learning (ODL) mode.

Teacher Education as Central and Technology as Peripherals

The future approaches to TEPs through ODL must keep teacher education at its centre while technology as its peripheral. The primary focus on teacher education should not be shifted with the flooding of online and open resources readily and easily available with enchanted technology (Simpson & Kehrwald, 2010). In crux the teacher education programmes through ODL in future should be driven by the larger aims and objectives of the teaching and learning and not technology driven. The future learning technologies should be based on rationale and choices of teachers and learners and must be careful towards the dangers such as commercialization embedded because of efficiencies in delivery.

Providing Sufficient Time to the Learners for Independent Studies

Both National Curriculum Framework for Teacher Education 2010 and Report of the National Commission on Teachers 1985 stressed the need to permit the students to do independent study. They suggest independent study is an important element of ODL mode and recommend training programmes to be organised in such a way as to ensure sufficient time to learners for independent study of the theoretical courses.

Training and Incentives to Teacher Educators and Mentors

ODL mode trainers need rigorous training in child-centred pedagogies, skilled enough to develop contents having high quality by using the platforms and tools of ICT (MHRD, 2020). Distance mode of TEPs depends heavily on self-learning materials which have in-built characteristics such as self-contained, self-motivating, self-explanatory, self-directed, and self-evaluating. All these require a true blend of research and experiences both from the field of teacher education and distance education. Experts missing any one element will miss half of the effectiveness. Mere teacher educators are therefore not effective enough to ensure quality training through ODL mode. Simultaneously they require sound skills and knowledge of open and distance education and its practices in design, delivery, and development of such programmes. ODL mode teacher educators should also be doubly expert in ensuring learners active engagement with the content and at the same time with each other (MHRD, 2020) among their peer group.

Most Suited for In-Service and Continuous Professional Development of Teachers

National Curriculum Framework for Teacher Education 2010 considers ODL as a sound tool for professional training of practicing teachers (NCTE, 2010). National Education Policy 2020 envisioned professional training of teachers through a number of strategies such as workshops at various levels as well as through teacher training modules which are online, in order to bring self-improvement and acquaintance with latest innovations and advancements in the fields.

Great Potentialities in Online Tools and Teaching Platforms for Teachers

National Education Policy 2020 of the Ministry of Human Resource Development, Government of India has suggested suitable online learning platforms like DIKSHA, SWAYAM, to be extended to facilitate teachers with user-friendly well-framed tools for supervising learners' progress. NCERT position paper on Teacher Education for curriculum renewal (2005) stressed the need of meaningful use of ICT for teachers by creating interesting projects, developing effective learning conditions through problem-solving and virtual exposures, etc.

Quality Training and Development of Virtual Community of Experienced Teachers

Quality delivery of teacher education through distance mode in the days to come will rely heavily on quality training based on actual classroom realities and pedagogical theories (Danaher & Umar, 2010) by well-trained teacher trainers and mentors. By creating a virtual community of experienced practitioners and working teachers in which learning from one another can take place in a highly sophisticated and advanced culture and use of latest and updated ICTs.

Quality Content Creation, Digital Repository, and Dissemination

Future teacher education through ODL can only compete if it develops a digital repository of content as suggested by National Education Policy 2020 such as creation of Learning Games and Simulations, coursework. Efforts should also be made to develop and design content that nurtures dialogues and integrate learning, i.e. learning partnership (Mayes & Burgess, 2010).

Modular Approach in Teacher Education Supplemented with Online Interactive Modes of Learning

National Curriculum Framework for Teacher Education 2010 suggested diffusion of the boundaries between distance mode and direct human engagement as much as possible. It recommended a modular approach in teacher education with focus on interactive modes of learning and independent studies. It suggests use of

ODL mode (which features reducing physical barriers, online two-way audio-video communications) strategically in continuing professional development of teachers.

Addressing the Digital Divide

TEPs through ODL mode can reach the unreached in real sense only when digital divides are addressed directly and inequalities in terms of access and affordability are met out. This requires converting the digital repositories into all Indian languages, mass media such as radio, television, and social media platforms are made available to remote areas and their use is encouraged. Networking- and electricity-related issues are resolved across the country. Robust arrangements are made for monitoring students' practical training in remote or difficult-to-access locations (MHRD, 2020).

Some Success Stories at National and International Level

- The faculty of Education of The Open University of Sri Lanka (OUSL) introduced Master of Arts in Teacher Education (MATE) Programme in the year 2000 for teacher educators completely through distance mode. Later on, taking into account quality improvement, revision of the MATE programme was done in order to make it more practice oriented. In the year 2005 it was renamed as Master of Arts in Teacher Education-International (MATE-I) Programme. Unique features of the programme include collaboration and networking in pedagogical and programme design and implementation as well as among experts of different parts of the world. Other significant features include Scenario-Based Learning (SBL), and working on learning portfolios strengthening reflective learning among the students. The team approach of the programme is extremely effective and innovative in attracting professional experts of local as well as international repute (Karunanayaka, 2007).
- The faculty of Education University of Pretoria, South Africa, established a unit of distance education to offer teacher education programmes through distance mode in the year 2002. In a single year in 2006 approximately 13,000 teachers were enrolled in its one postgraduate and two undergraduate programmes. Considering the financial constraints, University of Pretoria decided not to have independent infrastructure, resources, and processes of the unit of its own. It adopted the professional management approach (Hendrikz, 2007) in which business processes of distance education were functioning within other structures of the university where the distance education unit simultaneously enjoyed the functional authority over the staff members involved. This ensured optimum utilisation of resources and regular monitoring of activities at different levels. The University of Pretoria has made a significant impact in relation to up-gradation of teachers' qualifications in South Africa with the help of this unit.

- The faculty of education of Allama Iqbal Open University (AIOU) Islamabad, Pakistan ever since 1980s offers a number of in-service and pre-service teachers education programmes in ODL mode ranging from bachelor to masters, M.Phil., and Ph.D. through distance mode. Taking into account a significant number of the far flung, tribal, deprived population of the country its teacher education programmes enjoy unparalleled popularity among the people. Distance education is particularly meeting the needs of a huge population that comes from lower strata of society, poor and marginalised and who cannot afford higher education in conventional mode because of one or the other reasons. Technology is being utilised up to its maximum potentialities in all the procedures of the programmes particularly during course development process. Teachers are curious to learn the latest pedagogic techniques and try to visualise curriculum transactions as per the need of the learners. AIOU is particularly concerned about the quality of its course content and therefore is evaluated rigorously by expert appraisal with the help of content specialists and educational technologists (Khan, 2007). The success and popularity of its programme can be estimated with the fact that way back in 1995–1996 AIOU enrolled approximately 165,000 in a single academic year in its primary teacher training programme which mainly serves women and rural population across Pakistan. Similarly, about 12,000 students were enrolled in 2006 in its M.A./M.Ed. level programmes alone.
- The Open University of the United Kingdom has a long successful history of more than five decades (UK, OU, 2021). It is the largest university in the UK with presently more than 175,000 enrolled students. It has already successfully certified more than 2 million learners. The university has consistently brought innovations and new ideas in its practices and is trendsetter across the globe in case of ODL practices. The success story to be discussed here is related to its award-winning Open University-led TESS-India programme (UK, OU, 2018). It was a hugely successful programme for professional development of school teachers in the areas of mathematics, science, languages, communicative skills, etc. The content was developed mainly in Hindi for wide acceptance in India. The programme was implemented in a well-planned manner with a lot of expert discourses and a true blend of technology and real field applications.
- Shanghai Teacher Training Center at SMEC is well known for its quality teacher training particularly in remote and backward areas of China through face-to-face conventional mode. During 2020, considering the sudden breakdown of COVID-19 the earlier planned face-to-face training of the Center at Zunyi, a very poor area in China transformed the whole training into online mode. Despite huge limitations of time the project was redesigned with the help of a variety of online resources to enable self-managed learning. Teaching techniques such as presentations and group discussions were effectively used by the project members. Teachers were encouraged to practice with their own students in order to achieve expected results. Workshops in online mode were organised (UNESCO, 2020). Focus was given to practical reflections based on theoretical and conceptual learning and analysis.

- Taking into account the sudden closing of schools due to COVID-19 pandemic in 23 Caribbean Countries which affected approximately 7 million learners and one million teachers, project "Education response to COVID-19: Strategies for Distance Education and Training in the Caribbean—A UNESCO, Blackboard and UWI Initiative" (UNESCO, 2021) was launched in 2020 in order to develop digital skills, increase access, and create and disseminate quality online resources in a coordinated manner across the Caribbean region among all stakeholders such as teacher educators, teachers, inspectors, and educational community leaders. The interventions include master trainers from 20 Caribbean countries leading the course titled "Blended Learning and Online Strategies". Train the trainer model is planned to be applied regionally to develop training capabilities in all concerned countries. There is a target to train about 10,000 teachers in 20 countries. All efforts will be made to make the programme inclusive by including specially the vulnerable boys, girls, and adolescents.
- "Diploma in Environmental Education" for teachers and educators is a unique and only one of its kind programmes in India offered by the Centre for Environment Education (CEE), Ministry of Environment and Forests, Government of India. This 1-year course is designed to enable teacher-learners to take up environmental issues and concerns and engage their learners in action-oriented, practical Environmental Education (EE) projects and activities (Jain & Menon, 2007). The programme envisioned that a teacher as an environmental educator should integrate environmental concerns into his/her subject, should apply a multidisciplinary perspective into teaching-learning process, and should develop linkages between environmental education and her core subjects. This programme is unique in being skill based, offers pluralistic perspective, is extremely flexible and adaptive, and also cost- and resource-efficient. The best part of the programme is that it is very little technology dependent despite being in distance mode which nicely suits the Indian subcontinent where still there is huge digital divide.
- IGNOU the largest Open University in the world is offering 2-year B.Ed. programme at its school of education through ODL mode for more than three decades. More than 1500 study centres, spread across the country and each year teachers in thousands in number get secondary level training through its study centres which are attached with one or the other conventional teacher education colleges or departments. The course over a period has adopted a number of strategies to make it one of the most efficient TEPs through ODL mode. IGNOU B.Ed. programme has a number of unique and best practices. But here its most unique features of School and Workshop-Based Practice has been highlighted. It aims at preparing professionally competent educators and reflective practitioners to carry out teaching and related activities in the classroom, school, and the community (Menon et al., 2007). The importance being given to School-Based Practice (SBP) and Workshop-based practice (WBP) can be realised with the fact that it consists of 16 (12 + 4) credits which amounts to one-third of the total credits given to the whole programme. The WBP consists of two workshops of 12 days each with four sessions of 90 min each. During SBP trainees teach in their attached school under

the guidance of a mentor. The whole training is based on collaborative reflective practice. The success of the model can be realised with the fact that during WBP and SBP study centres and schools record approximately hundred percent presence and participation. Its acceptance and validity can be recognised by the fact that in later years many universities in India adopted IGNOUs model without even a small modification while starting TEPs through ODL in their universities.

- NIOS 2-year D.El.Ed. Programme was mandated legally for all untrained elementary teachers in the year 2017 in order to fulfil the promise made in RTE Act 2009 of essential professional training as compulsory criteria for being eligible as a school teacher. More than 13 lakh teachers confirmed (TNN, 2019) their enrollment within months in 2017 on NIOS portal for the programme. This ODL programme was unique and first of its kind in many ways. It facilitated teachers to pursue the programme simultaneously along with doing their normal teaching and other activities at schools. The compulsory registration on SWAYAM portal enabled learner-teachers to skill themselves in basic IT capabilities. The SWAYAM is a massive open online platform (NIOS, 2019) which provides learners all instructional materials in nicely designed and developed text, audio and video formats. The video lectures were also broadcasted on Swayam Prabha DTH on Doordarshan Channels. The programme was a fine blend of theory and practice and covered almost all aspects of teachers' personality development. Besides school-based activities and workshop-based activities the course also included comprehensive delivery strategies such as project work, case studies, and portfolio preparations.

Conclusion

ODL mode of teacher education programmes have by and large proved their unparalleled potentialities in supply of teachers in a time-bound manner that too with limited resources and more flexibilities. But it is important to note here that Education for All commitment is incomplete unless it is supported by comprehensive educational and training experience ensuring all quality benchmarks. The world is still facing huge challenges with regard to universal elementary education in general and untrained, under-qualified, and even unqualified teachers in particular. A major transformation is required towards ensuring universal quality education for all. An ODL mode of teacher education with strong inputs of practicum and inclusion of face-to-face mentoring or a hybrid/blended model using latest technological advancement will be the future of teacher education programmes ensuring quality transactions and complete educational experiences. The recent advancements and development in the modes of education have led to a fine convergence in both the extremes which were celebrated in the late 20 s, i.e. the one face-to-face traditional versus distance and correspondence. The new normal in relation to modes of education and teacher training is expected to converge as an ODL mode filled heavily with practicum, field-based, and school-based activities and another blended one in face-to-face mode heavily dependent on the use of ICT and online resources.

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Chapter 19
Essentiality of Special Education and Disability Management as Inclusive Policy in Teacher Education

Ramakrishna Pettala and S. K. Panda

Abstract The "Education for All" (EFA), is an international movement aiming at providing quality basic education to children, youth, and adults worldwide. Even after the commitment agreed upon by various countries, some categories of students are still striving for equality in education; children with disabilities are among one of them. For the past few decades, various educational setups like Segregation, Integration, and Inclusion have been practiced in the context of children with disabilities. Almost all countries are adopting various modes to create the "Schools for All", and various legislations and policies both globally and nationally striving for the equality and inclusive education of children with disabilities. UNCRPD (2006), RPwD Act (2016), and NEP (2020) are very recent initiatives with recommendations for promoting inclusive education practices in India. Even though many teachers in the general schools are working for the benefit of disabled children's education, satisfactory results are yet to be achieved due to the lack of awareness on the issues concerned with the educational aspects of children with disabilities. To attain success in inclusive educational practices all the teachers required ample knowledge about various concerns, needs, strategies, techniques, identification, and interventional techniques of the different disabilities. So, it is possible only when teachers ought to be trained either in pre-service or in-service by inclusive disability management and special education in the curriculum as one of the compulsory core course of teacher training programmes at Diploma, Bachelor, and Master levels like D.El.Ed/ D.T.Ed/ T.T.C, B.Ed, and M.Ed. In this regard, the role of national bodies like the Rehabilitation Council of India (RCI) and National Council for Teacher Education (NCTE) is striving to provide inclusive educational practices in the classrooms and schools for the benefit of children with disabilities by creating necessary curriculum framework in teacher education programmes. NEP's (2020) recommendations are

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also in line with the need of the hour in the context of educational issues of children with disabilities in general schools as inclusive educational practices. So, it is suggested that special education and disability management consisting of inclusive education must be included in the teacher education programmes as compulsory core course to cater to the diverse needs of the children with disabilities in the classrooms and schools to lead a better, productive, and successful life as any other citizen in the country.

Keywords EFA · Schools for all · Inclusive education · Disabilities · Teacher education

Introduction

A global commitment with the movement "Education for All" (EFA) is to make available quality basic education to all children including the disabled, youth, and adults. The EFA movement was launched in 1990 through the World Conference on Education for All, and a goal was set to diminish illiteracy by the end of the decade by universalising primary education. After 2000, several countries reached this goal by various efforts taken by the respective governments and some of the countries are still in the process of achieving it. In this context, the global community assembled again in Dakar, Senegal, and avowed 2015 as the target date for achieving Education for All. Even after that, some countries are yet to achieve Education for All and are in the process of it.

As a multifaceted concept, disability cannot be summarised in a single universal definition. It is not only that definitions differ around the world, but they also change as legal, political, and social discourse evolves. It is estimated that 100 crore people of the global population are disabled in some way. Disability prevalence is higher in developing countries. On average, 15 crores people experience significant disabilities (The World Bank Report, 2020). 2.68 crores people or 2.5% of India's population have one or more disabilities (Special NSSO, 2018). The Constitution of India ensures every resident including persons with disabilities with the right of expression, belief, religion, worship, justice, equal alternative, and standing, in addition to liberty of thought. Under Fundamental Rights from Articles 12–35 (Part III of the Indian Constitution), Cultural and Educational Rights (Article 29–30) assures education for everybody in the nation. 86th amendment in the Indian Constitution Act in 2002; in accordance with Article 21-A of the Constitution of India, all children between the ages of 6 and 14 years are entitled to free and compulsory education as a Fundamental Right. Education of children with disabilities in India is lacking due to many reasons like oraganisational flaws, accessibility concerns, execution, and further relevant contemporary grounds. Availability of the accurate statistics on children with disabilities might be one of the important reasons. Compared to children who belong to a scheduled caste or scheduled tribe, children with disabilities are five times more probable to stay out of school (World Bank Report, 2007). Moreover,

even when children with disabilities do go to school; they seldom finish elementary or primary schooling, which is eventually leading ultimately to lesser opportunities for work, poverty, and dependency.

Education of Disabled Children and Inclusion

In India, the need for special education can be traced back to long back pre-independent India. We can find several examples in Indian history that many people with disabilities had educational opportunities and they overcame the disability. Nothing hindered the learning process for them. However, Indian educators began to look at international models of educational provision for disabled students during colonial times. By attracting various useful approaches, strategies, and ideas followed abroad, many special schools were initiated in the cities by the parents of disabled for their children. As there was no commitment by the government to the education of disabled children, financial aid was sanctioned to many such schools run by various private sector parties. The trend of locating such special (segregated) schools, especially in towns along with boarding and lodging facilities, extended transversely across the nation. Since disabled children could not be provided education together with typically developed children for over a century, and they have attended only special schools for different disabilities based on their requirements. Due to these schools, very few children had access to education but it did not help them to enter the mainstream community to be successful citizens after completing their education. As a means of providing equal opportunity in the name of integrating intellectually and physically disabled people, the Integrated Education concept was introduced and practiced widely across the globe including India starting from Tamil Nadu in South India. Later, the concept of "Inclusive Education" was introduced by including all students in general education classrooms and schools irrespective of caste, colour, religion, region, gender, class, and ability. Inclusive education entails providing meaningful learning opportunities to all students including children with disabilities in the common educational practice. The programme enables educational provisions along with at the nearby schools to all children irrespective of their ability, with auxiliary, individually modified support as per the requirements.

International and National Policies in Promoting Inclusive Education

"Education for All" is the internationally accepted formula. Almost all countries are adopting various modes to create "Schools for All". Children with Special Needs and typically developed students can study together, based on the principle of "Equalisation of Educational Opportunity". The inclusive education concept is not universally

accepted and pertains transversely in all settings. The provision of "Barrier free environment (BFE)" for children with disabilities essentially should be considered in inclusive education. Since, it is one of the desired instructional setups, as detailed in Article 24 of the Convention on the Rights of Persons with Disabilities (CRPD) and many domestic laws, including Rights of Persons with Disability (RPwD) Act in India. Conversely, the comprehensive definition of inclusive education with the meaning of providing education to each and every child irrespective of their capacities, capabilities, and abilities, has been used by various organisations and nations as outlined in Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994). United Nations Convention on the Rights of the Child (1989), World Declaration on Education for All (1990), Salamanca Framework for Action (1994), The Dakar Framework for Action (2000), United Nations Convention on the Rights of Persons with Disabilities (2006) were some important international and Integrated Education for Disabled Children (1974), PIED (1986), IEDSS (2009), RPwD Act (2016) and NEP (2020) were some of the important national policies/ initiatives advocating towards inclusive education in India.

Need and Importance of Special Education and Disability Management in Teacher Education Programmes as Inclusive Practice

The education of children with disabilities has a similar objective as the education of typically developed children, i.e. to encourage children to attainment of their maximum prospective in order to lead fruitful life like any other productive citizen in the society. Regularly, children with disabilities necessitate specific dedicated assistance with support for a better understanding of the subject being taught. Regrettably, students with disabilities are traditionally segregated in separate classrooms and are not engaged in general education classes with their peers. As per the available data, on average, only 5 percent of all students with disabilities are able to complete primary school (Peters, 2003). Even though the students with disabilities attend any school, the curriculum which is being followed in that school wasn't modified in meeting their requirement might connote they do not have the similar access to education comparing to contemporaries do. Additionally, many of the educators might not be aware of the accommodating procedures for students with disabilities, the non-availability of Braille books for students who are visually impaired, and the lack of sign language training to the teachers for the benefit of students with hearing impairment (International Disability & Development Consortium, 2013). Shifting away from segregated education towards inclusion of all the students, irrespective of their abilities and capacities, in regular school classrooms means providing education to all students in these classrooms and schools including the exceptional supports and services required—like an adapted curriculum, teacher assistants, and access to assistive devices—to partake effectively in the classroom like any other child in the

classroom. There is often a substantial shift to inclusive education that will require time, political will, and an understanding of what it means for every student.

The basic purpose of teacher education is to give instruction and skill development about the profession among the teachers (pre-service and in-service) that is stimulating, handling, and channelizing the erudition of learners, and an understanding of the modern teaching–learning practices, which is a critical obligation for considering the thoughts on the purpose of teacher education (Sharma, 2018). A teacher should help his students to develop certain personality traits, values, and teaching skills as a whole. Teachers of today must be concerned with the development of the whole personality and should offer opportunities to interact with the best minds and to develop a disciplined intellect as well as the quality of culture in its various forms. Teachers should be well-equipped with skills, strategies, methodologies, and teaching learning materials to cater to the needs of all children in the classroom. The National Education Policy (2020) laid stress on educationally sound, multidisciplinary, and integrated teacher education programmes which can inculcate the traditions and values of India and the latest ground-breaking advanced technology and pedagogy. Teacher education programmes in India like D.El.Ed/D.T.Ed/T.T.C, B.Ed., and M.Ed. are training teachers to provide the education to prepare future citizens of India. But somewhere else, the problem is persisting to accommodate all types of children in the same classroom by these teachers. Lack of awareness about disability, its causes, classroom management techniques, pedagogy, and other related issues are not trained in the regular teacher education programmes, these are only educated in special education teacher training programmes like D.Ed.Spl.Ed., B.Ed.Spl.Ed., and M.Ed.Spl.Ed in various disability disciplines individually. The National Education Policy (2020) also recognises the significance to craft facilitating means in the light of Children with Special Needs (CWSN), and similar possibilities of getting excellence in education like every child. The NEP (2020) emphasises equal educational prospects at all levels for children with disabilities. The Rights of Persons with Disabilities Act (RPwD), 2016 is the key success for persons with disabilities in the context of inclusive educational practices including the definition of Inclusive education as "the education system which provides equal opportunity for both typically developed and students with disabilities". As part of NEP (2020) recommendations, it aims to ensure equitable practices in public educational environments, availability of accessible infrastructure, arrangement of reasonable accommodations, and the provision of individualised support, along with the practice of Indian Sign Language and Braille in schools. Inclusion of special education and disability management in teacher education programmes, and employment of special educators are the necessities stated in the policy.

Quite a few directions were given in NEP (2020) towards teacher education like pre-service and in-service training, and other necessary related aspects which are concerned with children with disabilities. Some of the important aspects are short-term/crash course disability specialisation courses in order to teach different types of children with disabilities, various modules on methods, techniques, and strategies in handling children with disabilities in the offered training programmes. Additionally, teachers will be able to choose pedagogical tools tailored to their classroom contexts,

and non-teaching duties will no longer be obligatory. Specialised training is planned to be given to teachers in recognizing and identifying children with disabilities. The dearth of teachers in the schools and the load of non-teaching responsibilities for the teacher often thwart from fulfilling the teaching responsibilities towards both children with and without disabilities, which may be avoided in order to provide appropriate educational facilities to children with disabilities.

Quite a few research works acknowledged inclusive classroom transactional aspects of educator concerns with challenges. Educators in India lack the necessary infrastructure, organisational support, and training to be effective practitioners of inclusive education. Policies surrounding inclusive education are often unknown to teachers, who struggle to translate such policies into classroom practice. Nevertheless, policy success depends on the availability of teacher educators. The objectives of inclusion of special education and disability management in teacher education can be fulfilled when all the pupil teachers acquired appropriate skills to accommodate all types of students including children with disabilities in the real classroom along with typically developed students.

Special Education and Disability Management in Teacher Education is a field of academic study concerned with teacher education research and practice related to disability. Specifically, during the past few decades, special education has evolved into a comprehensive academic programme aimed at enhancing the performance of individuals with disabilities through a change in how they are educated and the limitations placed on them. No doubt, teacher education is one of the essential aspects of education to make the educational process successful. Without an effective and trained teacher specially meant for Special Education and Disability Management, the teaching–learning transaction cannot be fruitful. A teacher should care for all the students in the class irrespective of their intellect, socioeconomic status, cultural background, and ability. Teachers should give more attention to the policy of inclusive education by integrating them into the regular classroom setting.

Teacher education institutions should focus on the inclusive education policy by including inclusive education as a compulsory core course in their curriculum. Teacher education should focus on different disabilities in terms of identification of the distinctiveness among students with disabilities and encouraging "best practices" for intervention and remediation procedures (Rice, 2006). Broderick and Lalvani (2017) focused on the significance of teacher education, considering that inclusive practice is an instrument for reasonable, commonly justifiable, equitable, and communal transformation. Teacher educators should develop pedagogies that provide incremental change, unbiased attitude, friendly nature, and complete acceptance while working within an inclusive system.

Role of Special Education and Disability Management in Teacher Education

Teachers are the torchbearers of knowledge in society. In all educational systems, teachers symbolise the most influential resource, and the importance of constantly building their knowledge, capabilities, and skills cannot be overstated. He/she is the only person who can give shape to society as per his ability. The Kothari Commission (1964–66) also said that the destiny of a nation is shaped in its classroom. Therefore, the professional growth of a teacher is most important, especially in the field of inclusive education. A teacher should show positive, friendly, and cooperative behaviour in the classroom so that the disabled students feel confident and motivated. With the help of teachers' instructions and guidance, today disabled children are becoming more confident, successful, and well achieved. A hearing-impaired boy who completed his education at a mainstream school (Inclusive) in Coimbatore, Tamil Nadu, and another Visually impaired girl from Kerala also cracked the Indian Civil Services Exam (UPSC) in the recent past. These are some testimonials for the successful inclusive practices with the efforts of the teachers. Very recently in the 2020 Tokyo Paralympics; a total of 11 medals won by disabled athletes and only 7 medals won by athletes in the Olympics is one of the best examples of the hard work of the teachers and coaches. Gilham and Tompkins (2016) also mentioned in their study that teacher education helps teachers how to look at disability in a completely different way, understand their own experience and prior knowledge of inclusion, change their idea about disabled students, and help them to explore in many ways to handle the situation and to learn about them. Borg et al. (2011) and Forlin (2010) have urged the teacher preparation programme, which must involve the courses to extend the proficiencies, apprehension, and conception along with an inscription of thoughts and endorse teachers' readiness to incorporate each and every student in a standard classroom. Distinct teacher preparation would boost inclusive practice as well as instructors' perceptions of their own efficacy (Glashan et al. 2004). Similarly, Franzkowiak (2009) focused that education on rudimentary courses in inclusive education is now obligatory, inclusive pedagogy and instructional practices are progressively seen as fundamental components in basic teacher preparation programmes. Therefore, from the above studies, we can conclude that the inclusion of teacher education works as the heart of inclusive education. The Rehabilitation Council of India (RCI) and National Council for Teacher Education (NCTE) should work together more closely to assure that all special educators must possess content as well as pedagogical knowledge, it should have both disability-specific pedagogical needs and content for general teachers, according to a recent policy proposal.

Moving from a Segregation to an Inclusive System

In many countries, the focus is now shifting from segregating students with disabilities towards an inclusive model that allows them to receive instruction alongside their peers without disabilities. The inducements for this contemporary revolution vary from nation to nation, while acquiescence with the UNCRPD, it has played a noteworthy position in this remarkable transformation. There is no standardised approach that has been identified on how to shift from segregation to an inclusive system. There are many factors that can impact how a country approaches inclusive education reform, including the current education system, cultural attitudes about disability, socioeconomic strength, and political will. Nevertheless, quite a few models have been supportive of some countries as they are working towards the development of an inclusive education system.

Promoting the Diversification of Skill Sets

In an inclusive education system, UNESCO recommends that there should be a hierarchy of teacher training provisions to handle various types of children based on their capacities and capabilities. All teachers should gain ample experience with inclusive practices, as certainly one of their students will have a disability at any point in their education. All educators (minimum of one teacher in a school) must expand supplementary inclusive proficiency on disability management and special education strategies related to one or more common learning challenges of children with disabilities. These professionals can serve as a bridge between children with disabilities and peer teachers along with that they can act as an on-sight resource and advisor for the administrations and other teachers who are involved in the classroom transaction of children with disabilities. Along with itinerant teachers, some teachers need to develop higher levels of expertise in dealing with the diverse challenges which they frequently encounter in mainstream classrooms by the teachers and serve as a consultant to needy schools and teachers as well (UNESCO, 2003).

Role of National Bodies Towards Inclusive Practices in Teacher Education

The two main national bodies Rehabilitation Council of India (RCI) and National Council for Teacher Education (NCTE) are jointly playing a significant role in the practice of inclusive education in the country. As we are aware that RCI is responsible to standardise the syllabi, regulating and monitoring the training of teachers/teacher educators involved in special education and rehabilitation and needs arising out of disabilities, on the other hand, NCTE is responsible to regulate and monitor the

training of teachers appointed in schools and teacher education institutions; and to determine the minimum qualification of teachers. Both bodies have jointly signed two Memorandum of Understanding (MOU) on 19th January 2005 and 8th April 2015 to achieve the goal of inclusive education. Both are working together in a convergent manner within the purview of their statutory provision by including children with special needs in regular schools to get benefits in an inclusive classroom setting.

Collective objectives set by RCI and NCTE.

1. To develop the minimum standards of teacher education courses with disability-specific specialisation.
2. To develop a course curriculum for the inclusion of special education in general teacher preparation programmes.
3. To constitute a Joint Inspection Committee for quality improvement in special education teacher preparation programmes.
4. To offer a continuing education programme for both teachers (General and Special education) and,
5. To undertake research studies on the progress of inclusive education.

In view of reviewing and evolving the norms and standards and proper functioning of the institutions, a committee called the National Consultative Committee is set by RCI and NCTE. The committee monitors the mechanism of quality for the promotion and sustenance of inclusive education among schools, teacher education institutions, and other related matters of teachers' service conditions.

The New Education Policy (2020) and the Education of Children with Disabilities

The New Education Policy (2020) also stressed that the admission process as well as the curriculum development process should be more inclusive in nature. The institutional buildings and facilities should be wheelchair accessible and disabled friendly, provision of bridge courses for disadvantaged students, socioeconomic and mentoring support for all such students through the counselling and mentoring programs is also very essential to make inclusive education successful and purposeful. National Education Policy (2020) categorically emphasised that the importance of special education and disability management in the field of education in general and teacher education, in particular, are essential. Strategies for identifying and supporting learners' needs, abilities, and interests will be part of teacher preparation programmes. The guiding principles for the edification of children with giftedness will be developed in collaboration with The NCTE and NCERT. A specialisation about educational strategies and other related issues concerned with gifted children may also be included in the B.Ed. programmes. Through in-service mode, various certificate courses will be offered to regular school teachers either part-time/blended courses or full-time at identified universities or multidisciplinary colleges by NCTE and RCI recommended curriculum. Handling various subjects in teaching

children with disabilities through qualified special educators should be ensured by the course curriculum of NCTE and RCI. All B.Ed. programmes will have extensive training in time-tested as well as the most cutting-edge methods of pedagogy, including 3Rs (reading, writing, and arithmetic) foundations, multi-tiered instruction and appraisal, handling children with unique capacities or interests, dealing with children with disabilities, use of educational technology, and learner-centred and collaborative learning. At some identified universities and multidisciplinary colleges, some specialised certificate courses will be made available widely after the B.Ed training programme to those who are willing to cater to diverse areas like teaching children with disabilities, school administration and leadership management, and switching over among the stages such as foundational, preparatory, middle and secondary, etc. Certain children with disabilities may benefit particularly from one-on-one teaching, peer tutoring, open schools, and technological interventions to promote access.

The inclusion of children with disabilities in ECCE and the further school setups, as well as ensuring their equal participation in these systems would be given the utmost preference. A full range of education opportunities will be made available to children with disabilities from the early stages of development through advanced education. Inclusive education definition as a "system of education wherein students with and without disabilities learn together and the system of teaching and learning is suitably adapted to meet the learning needs of different types of students with disabilities" according to the Rights of Persons with Disabilities (RPwD) Act 2016. NEP (2020) is in absolute accordance with the RPwD Act (2016) requirement and it also endorses all the recommendations pertaining to school education. In consultation with all the major National Institutes of DEPwD, NCERT will ensure the preparation of the National Curriculum Framework to cater to the diverse needs of the school children. In order to facilitate integrated education for children with severe and/or multiple disabilities, employ special educators who have experience in cross-disability preparation programme, set up resource hubs either in schools or school complexes, and any other necessary resources will be furnished as per the requirements. In accordance with the RPwD Act, all children with disabilities will have barrier-free access. Children with disabilities fall into different categories, requiring different accommodations. It will be the responsibility of schools and school complexes to provide accommodation and assistive technology to cater to the requirements and make sure their full involvement in all aspects of the classroom transaction for all children with disabilities.

It is important to have essential assistive devices and related technological tools, adequate adapted materials, and language apposite teaching learning materials based on the requirements of needy children like accessible textbooks for the visually impaired in large print and Braille, and sign language to hearing impaired to integrate more easily into inclusive schools and classrooms for the better participation of teachers and peer group children. Arts, vocational education, and sports will be included in the curriculum for all children. To train the teachers and students in Indian Sign Language and other basic core subjects through Indian Sign Language, NIOS is planning to develop high-quality teaching modules in Indian Sign Language. Many such things will be an essential part of all teacher education programmes to

make sure that all children with disabilities have access to instructional approaches that are suitable for them, as well as to augment gender sensitisation and to promote participation from underrepresented groups.

School teachers are shaping the future generation effectively due to the training received at teacher training colleges/universities as Teacher Education preparation, which is very crucial in producing a pool of worthy teachers for the country. Multidisciplinary perspectives and acquaintance, development of character and values, and other required development of practices under the paramount mentors are the major activities under Teacher preparation. All the school teachers must be well-versed in knowledge, languages, Indian values, ethos, and traditions belonging to different parts of India, while also being familiar with the latest innovative practices in education and pedagogy to teach all types of children including children with disabilities. Based on the meagre inclusive practices by the very few schools in different parts of India and as per the recommendations by various international and national legislations and policies including NEP (2020), it feels that there should be a compulsory core component of inclusive practices in teacher education programmes such as D.El.Dd., B.Ed., and M.Ed in order to make inclusive society and to provide better opportunities to persons with disabilities for their productive successful life. So, it is suggested that Inclusive education courses must be included in the teacher education programmes to fulfil the UNCRPD (2006), RPwD ACT (2016), and NEP (2020) recommendations.

Conclusion

Inclusion of Special Education and Disability Management in teacher education programmes is a very essential discipline to maintain equality among every child of the society irrespective of everything and it works as an essential aspect to make the successful and proper implementation of inclusive education to bring equality in the educational services in the society. Teacher education is also very essential for achieving a high-quality and equitable public education system by including special/disabled children in regular classroom settings that are accurately crucial for India's growth and development to advance technologically, culturally, intellectually, and socially; and also to achieve the objectives of that some national bodies, policies, and programmes like RCI, NCTE, SSA, IEDSS (2009), UNCRPD (2006), RPwD Act (2016) and NPE (2020) are playing a vital role to make successful inclusion of Special Education and Disability Management in teacher education to make inclusive education purposeful, successful, effective, and qualitative. So, it is suggested that Inclusive education courses must be included in the teacher education programmes as a compulsory core course in the curriculum of D.El.Dd., B.Ed., and M.Ed. to cater to the needs of the children with disabilities to lead a better, productive, and successful life.

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Chapter 20
Art-Integrated Teaching-Learning

Lovely Puri and Surinder Singh

Abstract Inclusion of art as a subject in faculty curriculum has been rightly recommended by way of NCF 2005. But Arts (visual as well as performing) can also be very effectively used as a pedagogical tool through integrating it with curricular areas. Such an art-incorporated schooling is predicted to enrich the scholars in each of the areas (Arts and other topics) with the help of presenting a total picture of social and environmental phenomena. Such an included training is also likely to make the coaching-studying method more enjoyable for the children and make them more stimulated to study and will result in healthy improvement in their personalities. Art-integrated teaching is is an instructional approach that effortlessly combines artistic standards with core curricula to establish connections and offer captivating context. What is also noticed in these classrooms that students enthusiastically participate in various artistic activities like dance, drama, visuals, story-telling, and roleplaying etc. while they learn different subjects of their curriclula. But that engagement can also be leveraged to boost educational boom and advanced area looks like a mystery that genuinely needs to be revealed. While you see how the children include these classes, hear them telling how art allows them to keep in mind concepts higher, and find out about the upgrades teachers have mentioned in student know-how and retention, it makes you wonder why larger schools are not integrating the art in each class.

Keywords Art · Art-integrated teaching · Achievement · Performance

Introduction

Art-integrated learning ends in extended self-assurance and self-know-how, superior conversation capabilities, and advanced cognition. Art at the centre of the curriculum facilitates in clarifying standards. Artwork-incorporated curriculum can

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offer approach to bridge content of various subjects in logical, learner-centric, and meaningful approaches.

Previously, many commissions have also focused on artwork training to be protected in the college curriculum. There is a strong desire for art incorporated studying according to the goals of training as stated in NCF (2005) and with the paradigm shift from teacher-focused to infant-focused gaining knowledge. Learning takes place through interactions with the surrounding environment, nature, matters and those, both through movements and through language. The physical hobby of moving, exploring, and doing things with the help of self, with one's peers or in the business enterprise of adults, and the use of language to examine, to explicit or ask, to listen and to have interaction are the key processes through which getting to know occurs. The context in which getting to know takes area is accordingly of direct cognitive significance. A great deal of our faculty gets to know is still person based totally though now not individualised. The instructor is visible as transmitting "know-how", and setting up reviews so as to help young research but interaction with instructors, with friends, in addition to people who are older and more youthful can open up many extra rich getting to know possibilities. Mastering within the enterprise of others is a way of interacting with each different and also through the getting to know venture handy. This kind of study is enriched while colleges enrol children from exceptional socio-monetary backgrounds.

With constructivist getting to know scenario, the position of the trainer is translating instructional contents into realistic motion. For this reason, a teacher is anticipated to be a specific type of person, who cares for children and loves to be with them, understand them within social, cultural, and political contexts and treats all children equally (NCF, 2005). Constructivists no longer treat understanding as "given", embedded inside the curriculum and prevalent without query. It perceives young people not as passive recipients of expertise and encourages their ability to construct information.

It discourages rote memorisation and makes learning a completely satisfied, participatory, learner-centred, interest-based, which can be executed through play, projects, discussion, speaking, commentary, visits, and integrating instructional mastering with art and effective work.

We need to take a serious look at curricula and textbooks, contextualise curriculum to healthy local needs; and promote peace-related values such as democratic way of existence, equality, justice, freedom, fraternity, secularism, and zeal for social reconstruction.

NCF (2005) says "art, each visible and appearing, needs to grow to be an essential factor of studying in the curriculum at number one level. Artwork must end up a crucial tool in the coaching getting to know manner".

Art Integrated Learning

The dictionary that means integration is, "the act of combining or adding components to make a unified whole". Hence, artwork integration manner "combining art with the teaching of various curricular regions".

Subjects such as languages, social research, sciences, and arithmetic can be made to correlate with artwork. Once in a while, art can make clear technological know-how concepts without problems. Accordingly, the abstract standards within the topics can be concretised by the use of distinctive art bureaucracy. Learning in this way facilitates to increase information and information of the difficulty location, and additionally fosters a greater appreciation of artwork. This is what is referred to as holistic or whole learning. Artwork gives a language for expression. This expression can be visible or inside the form of a performance.

Integrating artwork paperwork within the coaching mastering transaction is a process of integrating content and abilities of the diverse arts such as dance, song, theatre and the visual art—with other middle subjects so that it will acquire the goals of their curricula in a more effective way. Such integration takes place while there is a continuous blending of the content material and competencies of an art form with those of a curricular and co-curricular concern. Art integration is extremely effective in engaging and motivating college students. It supports the instructional achievement and improves social behaviour of students while enhancing school climate and parental involvement. A rich array of artistic capabilities and intellectual tactics presents more than one access factor for college students to approach content material in other issue areas. Integration of artwork with different problem areas and vice versa ends in a common development of the child's personality.

Art of Integration

Art integration is guidance that integrates content material and talents from the arts—dance, song, theatre and the visible arts—with other central topics. Art integration occurs while there may be an unbroken blending of the content material and abilities of an artwork form with those of a co-curricular difficulty. Art integration is a teaching method in which artwork is incorporated with the non-artwork subjects to deepen students' knowledge of both. In the process of artwork-integrated coaching and gaining knowledge of, students have the possibility to: (1) consider, study, and understand; (2) discover, test, and increase craft; (3) create; (four) replicate, verify, and review, and (five) share their products with others. Through the use of creative procedure students construct and specify their understanding of an area of examination and the art shape, using the broad form of languages and formats that the arts offer.

Art integration is surprisingly powerful in attractive and motivating college students. It helps the educational fulfilment and improves social behaviour of college

students at the same time as improving college weather and parental involvement. A rich array of artwork talents and highbrow processes provide more than one entry factor for students to technical content in other problem regions, while the art guidance is also deepened through integration of content material from the other difficult regions. The artwork gives students more than one modes for demonstrating study and competence. It vivifies the coaching and gaining knowledge of revel in for complete college communities. At its quality, artwork integration is transformative for college children, instructors and communities. The imaginations and creative capacities of instructors and students are nurtured and their aspirations have the funds for many avenues for attention and reputation.

Arts integration is not a new coaching approach. Almost every trainer employs at least a smattering of art integration. College students illustrate tales and poems. They act in skits approximately famous historical occasions. They sing patriotic songs and draw photos of famous people. However, unless the scholars receive meaningful coaching within the artwork, they in all likelihood pass over a crucial part of the experience. Making art, whether it's miles of visual artwork, track, drama or dance, is a system of making informed choices. College students who no longer get hold of education in the art might not be privy to the styles of decisions they can make and hence may not be able to explicit themselves or speak their ideas as they intend. Simply as college students require commands in know-how and the use of words, they want the possibility to examine the language and the factors and concepts of the arts. Then and most then they can actually convey their visible/spatial, musical/rhythmic, kinesthetic, intrapersonal, and interpersonal intelligence to endure on the subject at hand. The innovative method is available to all newcomers. It is very flexible and can be altered and adapted to suit a male or female student's wishes. Students can enter the procedure at one-of-a-kind locations and move inside it at a kind fee and in one-of-a-kind sequences. Even as the creative system is flexible, it is not always unstructured. During the creative technique, college students reveal their progress and make modifications alongside the way to higher reach an intention for example, to create a college that demonstrates the different views approximately an era of history, college students broaden a course of action. Operating within the bendy innovative way, a few college students will research first, some will start through cutting and assembling fabrics, string, and papers, while others may start by sketching the overall composition. The series for growth no longer has to be the same for every scholar. Although students have a not unusual goal, their procedure for achieving the goal is individualised. Due to the fact that the goods college students create are concrete and seen—a dance sequence, a musical composition, a poem, a college, a dramatic improvisation—it is far viable for college children, and instructors too, to examine their development and reflect on what is running well and what needs development.

Dr. Vivek Benegal (2010) stated that art training can motivate dramatic adjustments inside the mind consisting of strengthening the "attention network", which is related to intelligence. If children continue to be open to and interested in some of the art paperwork, then many of these seem to interact with the attention community of the brain. Brain areas worried in track are also active in processing language, auditory belief, interest, memory, and motor control. Arts and humanities schooling

is a much-needed way of selling balanced mental development in these days' understanding—primarily based global.

The philosophy behind artwork-incorporated coaching-learning is to inspire children to enter the academic mainstream, hence, allowing them to learn through the arts. This acts as a medium for children to look for new reviews all the time in each instructional method that may be artwork-included.

Manner back in the twentieth century Mahatma Gandhi stated that "with the help of training, I suggest an all-spherical drawing out of the first class in baby and man—body, thoughts and spirit. I would start the child's schooling by teaching them a beneficial craft and allowing them to provide from the moment they start their training. Every craft must now be studied not merely robotically as is completed today, but scientifically, i.e., the child must recognize the why and why of each procedure".

Rabindranath Tagore, through his experiences, turned into additionally satisfied that freedom in education was very essential. He had realised that the arts had been critical in developing empathy and sensitivity, and the need for an intimate relationship with one's cultural and natural environment. In accordance with his philosophy of education, the aesthetic improvement of the senses was as essential as the intellectual, if not greater so, and tone, literature, artwork, dance, and drama were given splendid prominence within the daily lifestyles of the faculty.

Why Is Art Crucial in Daily Existence?

Artwork is a creative interest that expresses innovative or technical talent. It produces a product, an item. Artwork is a numerous variety of human sports in growing visual, appearing artefacts, and expressing the writer's innovative mind. The made of art is referred to as a work of art, for others to relax in. Art affects society through changing criticisms, instilling values and translating studies throughout area and time. Art on this experience is verbal exchange; it allows people from distinct cultures and exceptional times to communicate with each other through photographs, sounds and tales. Art is often a vehicle for social change. Art surrounds existence, everyone in each region, without us being deprived of it. Given that time immemorial, artwork has existed as long as man has. It is far a massive part of our tradition, which shapes our thoughts, and vice versa, and presents us with a deeper knowledge of emotions, self-recognition, and more.

Many humans fail to recognise how artwork affects their daily lifestyles. Every person makes use of art on a persistent basis. Most people don't know how much of a position art performs of their lives and simply how much we depend on art, in all its paperwork, in our everyday lives. Artwork is everywhere, influencing us on a daily foundation, whether we recognise it or not anymore. And this is the only reason why art is important in our everyday lives. With the art we are surrounded by, whether or not it is a portrait, tone or even films could have a huge impact on our mood and feelings. People assume that science and generation are superior to

artwork. Art makes existence worthwhile. It may not be important now to fulfil our primary wishes, but it does make existence joyful. As we preserve our journey of a fast-paced life with moments of short choices and fragmented thoughts, art allows every moment to be memorable. Knowing our emotions can help us heal, develop, and improve ourselves. Growing our self-awareness through art can cause more achievement individually and professionally, through art, we benefit a better expertise of how events throughout history have shaped us. Artwork also helps improve our self-consciousness. Growing art allows us to slow down and experience a full range of our emotions, even as watching other's art can launch the feelings within us and allow us to discover our own emotions. Art provides a means to express creativity (matter, places, thoughts that are unreal or unknowable) in non-grammatic ways. Unlike phrases, which are available in sequences, each of which has a definite which means, artwork gives a variety of paperwork and logos.

Art Work-Incorporated Curriculum

In artwork-included Curriculum, the arts grow to be the method to teaching and the car for studying. College students meet dual study goals when they interact within the creative procedure to discover connections between an artwork shape and any other difficulty region to benefit more expertise in each. For example, students meet goals in theatre (characterisation, degree composition, movement, expression) and in social research. The experience is at the same time reinforcing—creating a dramatisation offers a real context for college students to research more about the social studies content and as college students dive deeper into it and helps recognise the social phenomena and its effect. Art-integrated Curriculum effects in deep expertise of each the artwork shape and the opposite curriculum areas, it requires that instructors have interaction in expert development to find out about arts requirements and a way to connect the humanities to the curricula they teach.

Characteristics of Arts Integrated Learning

> The strategies of art integration are educatively powerful because they are grounded in deep connections between the arts and cognition, and between learning, social, and emotional development.—Nick Rabkin and Robin Redmond.

Arts Integration and Widespread Design for Studying

The intention of accepted layout for learning (UDL) is to provide equal opportunity for all students to research. The impetus for general design for getting to know has been the belief that for plenty of college students, e.g. students with disabilities, English language novices, get entry to learning has been unequal. With the growing range of college students in school rooms and a deeper know-how of the way students learn, educators were taking a clean have a look at making teaching and studying available to all college students. Artwork integration within the teaching-learning system enables to this goal normal layout of mastering.

Multiple Forms of Representation

Teacher's gift records in one-of-a-kind approaches the use of opportunity mode for the delivery of data. The humanities, of their much paperwork such as dance, drama, track, visual arts, literary arts, and media arts, provide alternative way for representing information. Artwork integration offers a ramification of approaches for teachers to represent content material through multiple mastering modalities—visual, aural, and kinesthetic—and as a final result reach a much broader variety of learners. For example, within the visual arts, teachers use line, form, colour, texture, and shape to symbolise content material. In the track, teachers use rhythm, melody, and sound patterns to symbolise content; and in dance, content material is represented through physical movement with various types of strength in area and time. In drama, teachers use both language and body expression as a method of representing content material.

Multiple Means of Action and Expression

Teachers provide a variety of ways for students to actively construct and demonstrate their understanding (Fig. 20.1).

Artwork integration engages college students in the innovative process that gives a daily pathway to mastering. College students have the possibilities to: (1) consider, study, and understand; (2) explore, test, and increase craft; (3) create; (4) replicate, determine, and revise, and (5) share their products with others. Through those innovative strategies, students construct and explicit their knowledge of a place of taking a look at and the art form the use of the huge style of languages and code that the arts provide. Each art form has a myriad of variations to deal with numerous studying desires.

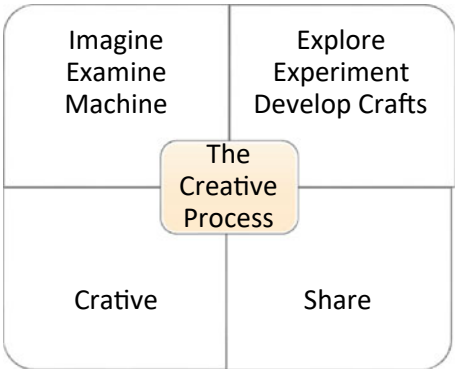

Fig. 20.1 Multiple means of action and expression

More Than One Form of Engagement

Teachers contain college students in gaining knowledge of sports that optimise individual preference and autonomy, are authentic and as a result are motivating and attractive. There is an effective alignment between art integration and those three UDL principles. The arts provide a multitude of methods to symbolise records, more than one method for college students to assemble and show their growing understanding, and more than a way to capture hobby and have interaction students in getting to know.

Benefits of the Art Within the Curriculum

In accordance with Boston public school (2005), an art-incorporated college can have the following traits (Fig. 20.2):

- It recognises that each one of the young is gifted and talented and fulfilment for all is feasible. In recognising various gaining knowledge of patterns students' multiple intelligences and the need to combine head, heart, and hand, an art incorporated college embraces training both in and through the humanities. Its purpose is to evoke a "learning to realise" in all children.
- Its overarching cause is to make sure that once a baby is graduating from excessive school, he or she is influenced to research more about himself and the world.
- It is a faculty where instructors, directors, parents, and college students believe within the fee of the humanities for their own sake, as forms of cognition as well as for their ability to light up different academic topics and as ways to showcase expertise.
- A meaningful part of the faculty day is dedicated to coaching the humanities to all children as simple disciplines with high standards.

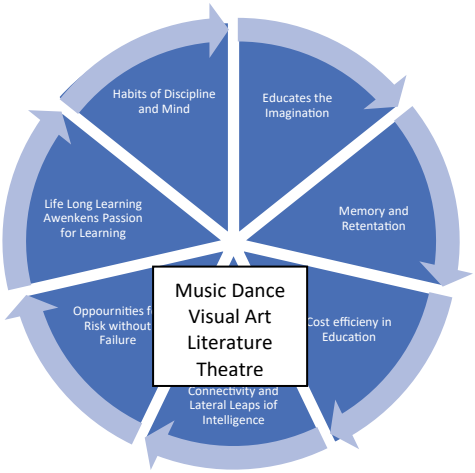

Fig. 20.2 The benefits of art in the curriculum

- Additionally, an art-incorporated college teaches curricular fabric round topics or gadgets where the humanities illuminate different subjects. It allows time for art educators and widespread classroom instructors to paint together to increase and educate an arts-included, undertaking-based totally curriculum.
- An art-incorporated school supports the use of exhibitions that draw on diverse art paperwork, which include theatre, the visible arts, and dance to demonstrate expertise.

Moreover, it has been cited within the National Curriculum Framework for Teacher Education 2009 that a trainer features in the extensive framework of the faculty training machine—its goals, curricula, materials, methods, and expectations from the instructor. An instructor training curriculum framework wishes to be in accordance with the curricular framework for school training. A trainer needs to be organised when it comes to the wishes and demands emerging in the school context, to have interaction with questions of college information, the learner and the mastering system. The expectations of the college device from an instructor trade once in a while, responding to the broader social, monetary and political modifications taking area within society. Education is not always a mechanical hobby of fact transmission and teachers are not records dispensers. Teachers need to be checked out as crucial mediating sellers through whom curriculum is transacted and knowledge is co-constructed along with learners. Textbooks with their help do not help in developing information and expertise. Mastering is not restricted to the four partitions of the lecture room. For this to manifest, there is a desire to attach information to life outside the faculty and improve the curriculum by making it less textbook-targeted.

Pedagogical know-how must continuously undergo variations to satisfy the wishes of various contexts through important reflection with the help of the teacher on his/her practices. Teacher education desires to build capacities within the teacher to build expertise, to address special contexts and to increase the abilities to discern and judge

in moments of uncertainty and fluidity, function of coaching-learning environments. In opposition to this background and preserving in view the imaginative and prescient of teacher schooling as articulated above, the subsequent set of concluding statements relating to a teacher's function, and the philosophy, purpose and exercise of coach schooling can be made:

(i) Teachers need to be prepared to take care of children, engage in being with them, are trying to find understanding, very own duty in the direction of society and work to build a higher global, develop sensitivity to the problems of the newbie's, commitment to justice and zeal for social reconstruction.
(ii) Teachers want to see learners as active individuals in their own getting to know and not as mere recipients of understanding; need to encourage their capacity to construct know-how; make sure to get to know shifts away from rote methods. Learning is to be seen as a look for which means out of personal reviews and expertise technology as a continuously evolving way of reflective gaining knowledge of.
(iii) Teacher training should interact with theory alongside discipline reviews to help trainees view know-how not as outside of the learner but as something that is actively constructed at some stage in learning. Instructor training should integrate instructional expertise and expert study right into a significant whole.
(iv) Instructors want to be taught in setting up learner-focused, entertainment-primarily based, participatory gaining knowledge of stories—play, tasks, discussion, dialogue, commentary, visits, integrating educational learning with productive paintings.

Artwork Integration Makes Contributions to Toddler Studying

According to the case, observe on how art integration supports student mastering, performed via De Moss and Morris et al. (2007), the principal findings stated that "the humanities make contributions to analytically deeper, experientially wider, and psychologically extra rewarding gaining knowledge of". Previous research has determined that "students participating in art integration make terrible profits in social skills, which includes cooperative getting to know and person and peer relationship improvement". Artwork integration "encompasses an emphasis on pupil construction of information through collaboration to make real-world connections to mastering those springs out of past paintings, in addition to on the use of reflection in continuous evaluation of pupil getting to learn". Students become extra concerned in their getting to know and benefit expertise and meaning from their reviews.

Art integration allowed students to "interpret content in ways that are significant to them" consistent with a study by means of Burton et al. (2005), the advantages of art integration make greater beyond students, affecting teachers and faculty as nicely. at the same time as many arts integration modes are currently being carried out in schools, almost all are built on the collaborative efforts of study room instructors and

art professionals (which may additionally include artists in house, touring artists, school-based arts instructors, arts coaches, or some combination of those). Such collaborative relationships contribute to extended trainer pride, hobby, and fulfilment and lead to the improvement of a community experience of exercise within the college. Those instructors are more willing to take risks, each of their curriculum making plans and in front of their college students. They are modern of their coaching, inclined to test, persevere in integrating the arts despite obstacles, and approach their training in a greater child-focused rather than adult-targeted way.

The evaluation examines approaches in which instructors' knowledge and implementation of arts integration strategies have an impact on their pedagogical increase due to collaborating in the CETA software. Instructors' perceptions of the methods that CETA has motivated college lifestyle are analysed. The assessment also looks at college students as beneficiaries of their teachers' CETA professional improvement. Evaluators found approaches in which college students were engaged in art-integrated learning. Scholar understanding of each the arts and the non-arts content is analysed. Facts across all resources for the duration of this 3-year assessment period advise findings in four areas. First off, there was evidence of exchange in instructors' and administrators' attitudes, knowledge, and skills as they relate to recruitment of teachers for the CETA program and how teachers carried out and used arts-integration pedagogy. Second, information indicated that changes in instructors' and administrators' attitudes, expertise, and abilities have affected pupil work through accelerated use of art-included pedagogy that has enabled students to illustrate and explicit know-how and expertise in multiple methods; a ability to reach more students from underrepresented populations; and wonderful college students' tendencies towards getting to know. And thirdly, across all information resources, collaboration, the faculty environment, and increased interest in parental schooling have been most of the major adjustments in college lifestyle.

Fulfilment of College Students in Different Curricular Areas Through Art-Included Education

By Catterall and Waldorf (1999) studied the impact of Chicago Arts Partnerships in schooling (CAPE) on public school rooms, teachers and artists, and on college students. On this observe, student fulfilment on standardised reading and math exams favoured CAPE students over a period of years. During the year 1997–1998, some of the variations have become good size. For the subsequent 1998–1999 look at, CAPE faculty pupil achievement changed into compared to that of college students in all Chicago public colleges. On studying and arithmetic standardised exams, students in CAPE colleges outscored different students on all 52 comparisons. There had been solid differences in sixth grade and slight variations in 0.33 degrees, the use of performance growth over a 6-year span. There were no achievement effects in eighth

grade, while there had been variations favouring CAPE college students in excessive colleges, but the pattern became too small to make considerable comparisons.

How Artwork Improves College Environment

In a have to look at via Ingram and Riedell (2003) on "Arts for educational fulfilment (AAA)", which was completed at Minneapolis Public Schools in partnership with the Perpich centre for humanities education. Unlike arts integration projects that focus on partnerships as a way to repair field-based arts practice to the curriculum, the motive of the arts for instructional achievement challenge was to train and enhance student mastering in non-art regions such as studying and technological know-how. Instead, the undertaking becomes primarily based on the belief that the student benefits from a curriculum that consists of both disciplinary-based practice in the arts and non-art instruction that is superior by way of integrating the arts. An initial assessment carried out in 2002 concerned 21 coaching artists as informants who participated in interviews and recognition companies. This evaluation of the initiative revealed changes in three regions: Artists felt they deepened their sense of project, improved their expert networks, and learned valuable assessment abilities. Teachers, consistent with collaborating artists, expanded their ability to collaborate, grew in their capacity to combine the humanities, and made changes in their exercise. Colleges, according to artist informants, stepped forward in phrases of school climate and the experience of networking due to the art integration paintings.

Karen De Moss and Terry Morris (2009) conducted a have a look at the effects of an Arts primarily based curriculum on educational fulfilment. The sample of children on this take a look at, from a wide variety of socio-economic, age, and success backgrounds, operating in a variety of art paperwork and in an expansion of educational subjects, strongly help the perception that powerful arts integration can, foster elevated getting to know-specifically for decrease-achieving college students. These children served as their very own control group, presenting contrasts and causes for the differences of their study procedures and outcomes in arts and non-art units. The examiner as a result is not situation to the types of choice biases in much correlation research. The styles of mastering that the look at located arts integration to support had been in a few approaches exclusive from what instructors had thought. instructors (previous to the research) had spoken of how the multiplied engagement college students evidenced in arts gadgets considered to help them not forget greater; the information confirmed little evidence of any boom in the quantity of content material information that scholars received from their art gadgets. But, college students' expertise from the arts-integrated devices differed in type from their non-art understanding; it was extra analytical and more oriented closer to conceptual know-how than factual memory; in addition, their affective connections with the content they studied had been generally deeper and vastly greater effective and personal in their art devices than in the non-arts devices. These findings suggest that the arts can play an essential function within the well-known subculture of child's study, providing greater

wonderful and significant connections with educational paintings, connections that may have auxiliary effects on long-term learning motivation.

Position of Art in Educational Fulfilment

Ingram and beach's results that suggest a significant dating among the arts included guidance and improved pupil getting to know in studying. In a few instances, the relationship between artwork integration and scholar fulfilment became more effective for disadvantaged beginners, the institution of students that teachers need to reach to close the fulfilment gap. Benefit scores on the studying test had been higher for 1/3 grade college students whose instructors incorporated the arts into English/reading classes. The connection between art integration and analysing fulfilment was stronger for college children inside the loose- and reduced-rate lunch application and students inside the English-language learner software. Each of these statistically significant relationships is primarily based on a model that also took into account the effect of pupil traits, along with race/ethnicity and unique schooling. For third-grade students, the relationship of arts integration and math success became additionally statistically significant. Advantage scores at the study check were better for fourth-grade students whose English/reading instructor included the arts of their lecture room processes. Advantage rankings at the arithmetic check were higher for fifth-grade students whose instructor included the arts into math lessons. It was no longer the mere presence of art integration but as a substitute for the depth of the initiative that related most without delay to gains in student mastering.

A study was carried out on "results of an artwork-based Curriculum on instructional fulfilment". The result of this assessment study lead to the decision making process as to whether or not attending an arts—primarily based centre school considered to definitely effect scholar's academic fulfilment as measured with the help of standardised fulfilment checks. If you want to decide whether patterns of advanced educational success were discernible following attendance at a 4–12 months art—primary-based middle faculty, success facts from grade 4 and grade 8 Tennessee. The complete evaluation software (TCAP) and the grade 9–12 Gateway take a look at have been examined. The look at tested variations between rating traits, differences between ratings for students from an art-based curriculum versus those from a preferred curricular; especially differences among the three standardised dependent measures of (a) language arts scores, (b) mathematics scores and (c) technological know-how rankings. The study found that the humanity-based curriculum institution had better grade 8 and grades 9–12 universal standardised rankings than the usual curricular organisation.

Summary

Integrating artwork paperwork in the teaching-mastering transaction is a system of integrating the content and capabilities of the humanities—dance, music, theatre, and the visual arts—with different middle topics for you to gain the goals in their curricula in a greater effective way. Such integration occurs while there may be an unbroken blending of the content and competencies of an artwork form with those of a curricular and co-curricular difficulty. Arts integration is extremely powerful in attracting and motivating college students. It supports the educational achievement and step forward social behaviour of students while improving school climate and parental involvement. A rich array of artwork capabilities and intellectual approaches offers multiple entry points for college students to method content material in different difficulty regions, while the humanities practice is also deepened through integration of content material with the opposite situation regions, thus main to an overall improvement of the child's persona. It results in ordinary improvement of children, i.e. social-mental-emotional improvement as each pupil is actively engaged in studying in his/her personal way and is attached to the school and wider community. While students analyse through art integration, they take part in carefully planned experiences that move them from being spectators to being active members in their gaining knowledge of. Moreover, through artwork incorporated learning the arts emerge as the approach to coaching and the automobile for gaining knowledge of different areas in their curriculum. College students meet twin mastering goals after they have interaction within the innovative procedure to explore connections between an art form and any other difficulty region to benefit more understanding represent content material through more than one gaining knowledge of modalities—visible, aural and kinesthetic—and as a final result reach a wider range of beginners for that reason incorporating objectives of the National Curriculum Framework for Teacher Education 2009 in accordance with which a teacher wishes to be organised on the subject of the wishes and demands arising within the school context, to have interaction with questions of faculty know-how, the learner and the mastering method and art included mastering can provide a large platform in achieving those objectives.

The importance of artwork education has been highlighted in some of the studies carried out for the duration of the arena because the exceptional way to find out about any way of life is through the humanities. The arts are the accepted language spoken and understood through each person. They blur the boundaries between individuals from unique cultural, monetary and educational backgrounds. However, those goals can be done extra correctly while taking a look at art is included with different college topics, e.g. integration of social technology and humanities can allow the child to get a much greater comprehensive concept about a tradition and more successfully acquire the goals of art education and social technology training. Through art each issue can be introduced to existence since it has the capacity to turn abstract concepts into concrete fact. As a consequence, gaining knowledge of through the humanities can result in more academic achievement.

Artwork integration is not a brand-new coaching strategy. Almost every trainer employs at least a smattering of art integration. College students illustrate stories and poems. They act in sketches about well-known ancient activities. They sing patriotic songs and draw pictures of well-known human beings. However, unless the students receive significant commands within the arts, they likely pass over an important part of the revel. Making artwork, whether it is visual art, song, drama, or dance, is a technique of making informed alternatives. College students who do not receive preparation in the arts might not be privy to the types of choices they are able to make and thus may not be able to express them or communicate their ideas as they intend. Then and most effectively then they can clearly carry their visual/spatial, musical/rhythmic, kinesthetic, intrapersonal, and interpersonal intelligence to carry on the subject to hand. A study of symmetries and styles through diverse art forms enables a baby to visualise symmetry in nature.

Art integration also involves college students in ongoing reflection and self-evaluation. Because the products college students create are concrete and seen, e.g. a dance series, a musical composition, a poem, a collage, or a dramatic improvisation, it is far possible for college children as well as instructors to take a look at their development and replicate on what is working properly and what wants development.

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