Dara Tafazoli
Michelle Picard *Editors*

Handbook of CALL Teacher Education and Professional Development

Voices from Under-Represented Contexts

Springer

Handbook of CALL Teacher Education and Professional Development

"This edited collection on CALL is most impressive in its reach and ambition. Whereas most CALL texts limit their purview to the relatively small domain of countries that are technologically well-resourced, this work seeks out those regions where circumstances are more challenging. The findings of the many qualitative research studies herein provide an authenticity and depth that are highly informative, and of great practical value. That these ideas, pointers and solutions may be shared through this text amounts to a very significant contribution. I heartily recommend this collection to all those working in the area of CALL".

—Mike Levy *Honorary Professor of Second Language Studies, The University of Queensland, Australia*

"Few teachers can afford to neglect the potential of computers and technology in their teaching today: whether experienced or a novice, this book is for you. We can all learn from listening to others' experiences, bursting out of our own filter bubble. Though the history of CALL spans several decades, this book is especially relevant following the covid pandemic when much teaching around the world relied on computer technology for teaching and learning, changing the centuries-old confines of the indoor classroom. To caricature: researchers don't listen to teachers and teachers don't listen to researchers; each relies on their own experiences and those of a narrow circle. This book provides the opportunity to break down the walls of the classroom or the ivory tower to listen to others. This is an unusual but very overdue book, giving voice to the usually voiceless on many dimensions—geographic, professional and individual. We also hear from countries underrepresented on the international stage, from Cambodia to Indonesia, Algeria to Palestine."

—Alex Boulton *Professor of English and Applied Linguistics, Université de Lorraine, France*

"This edited volume provides a fresh perspective on teacher education and offers a much-needed resource and response to online teaching during and after the onset of COVID-19 for language teachers worldwide. From teacher training to professional development to online strategies and resources, the chapters creatively weave together teachers' voices and stories from Taiwan, Australia, Turkey, Cyprus, USA, Indonesia, Italy, Hong Kong, Spain, Iraq, Palestine, Iran, Canada, Romania, Thailand, Vietnam, Oman, Lebanon, Algeria and the UK. These chapters help to establish a holistic and international view of teacher education through underrepresented voices in the literature: pre-service teachers, in-service teachers, teacher educators and course designers, and researchers and research."

—Lara Lomicka *(Professor of French and Applied Linguistics, The University of South Carolina, USA)*

"Innovation is local. So it is vital that we hear from as many voices from as many contexts as possible. This impressive collection gives us a uniquely inclusive insight into professional learning around the world."

—Hayo Reinders *TESOL Professor, Anaheim University, USA*

"This handbook offers a cohesive set of international perspectives—historical, theoretical and empirical—on underrepresented contexts for computer assisted language learning. The authors elevate the voices of students, pre-service teachers, and school and university educators to: grapple with ongoing tensions in the field; highlight modes of innovation; and provide timely insights into how the Covid-19 pandemic continues to shape the digital delivery of language learning. It is a fascinating read."

—Erica Southgate *Associate Professor of Emerging Technologies for Education, The University of Newcastle, Australia*

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For all the brave women and men who battle with the dark days.

Foreword

According to Google, only 16% of the world's population lives in "high-income countries," yet these regions are often the ones studied in research on educational technology. It is refreshing to see a volume like this dedicated to "under-represented contexts." Note that these "under-represented contexts," however, may also include "high-income" areas where there are under-served segments in the population, such as rural areas or immigrants.

As will be evident from the chapters in this volume, no two contexts are alike. There are myriad factors that can vary, some of which I list below. The articles often pertain to a specific subcontext, which challenges the reader to determine how well it might apply to, for example, other educational levels. Please consider these issues when reading each chapter. What factors relevant to the context are mentioned? Are there any that are not, which might alter the picture provided by the authors?

(1) Many teachers, due to COVID, had been forced to go online despite insufficient training in online teaching. Now with declining concern about COVID, are teachers still employing more ICT to enhance their students' learning, or are they returning to the "old normal"?
(2) Internet use by teachers for discovering, adapting, or displaying material to students is, naturally, much more common than direct student hands-on practice, although, from a pedagogical standpoint, direct practice, particular practice that involves meaning-focused input or output (Nation, 2007), is probably more effective. How much actual practice do the students receive as opposed to direct language study?
(3) Connectivity: How much cellular connectivity is available? Many developing countries skipped the "wired" stage going directly to cellular, but often it is only available in the main population centers. Do most schools have LAN connections?
(4) Cost: There can be a significant variation in how much cellular connectivity costs, thus in some regions students may rely on Wi-Fi connectivity at schools, cafés, and other shops. Does it appear that most schools and their students have suitable access?

(5) Is a device available in students' homes? In many regions, devices need to be shared among all family members which limits the amount of time students have for practice and exploration.
(6) Do classes take advantage of apps like WhatsApp, Facebook Messenger, or WeChat? Such apps can provide great practice opportunities for students in all 4 skills if used creatively.
(7) Screen size: If the majority of students are using their mobile phones for study, this limits the kinds of information that they can easily read, and what they can respond to.
(8) Prevalence of projectors in classrooms: Are most classes equipped with projectors, or is there a specific room that needs to be reserved in advance?
(9) Computer labs: Does the school have an open lab that students can use in their free time, or is it locked and only available when being used for a class?
(10) Has ICT been systematically introduced in pre-service teacher programs? Are there systematic opportunities for professional development for in-service teachers?

Whether your interest is to reflect and improve on your own teaching, to better understand the pedagogical contexts where you teach, or to find inspiration for your own future research, I am sure that you will find the articles in this volume a useful companion.

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Robb, T. (2022). The relevance of Nation's "four strands model" to online teaching. *International Journal of TESOL Studies, 4*(3), 6–14. https://doi.org/10.46451/ijts.2022.03.02.

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Preface

Background

Many works have decried the lack of visibility of research from what is referred to as the "global south" and highlighted reasons for this gap in the field. For example, Demeter (2020) suggests that even when issues impacting countries in the "global south" specifically are addressed, there is an over-representation of "global north" scholars. This has also been our observation in the language learning and teaching literature in general (e.g., Rose et al., 2021) as well as more specifically in the Computer-Assisted Language Learning (CALL) literature.

Our observation, however, is that under-representation stretches beyond the north/south dichotomy to all non-English speaking countries, probably because of the dominance of English language journals in language teaching and the dominance of journals based in English-speaking countries. This was highlighted by Guo et al. in their 2021 review of papers in the renowned language teaching journal *System* where they found that despite purporting to disseminate papers representing all languages, the publication only managed to include 15% of papers that were not focused on English (Guo et al., 2021). The CALL literature likewise appears to strongly emphasize literature based in English-speaking countries and literature focused on the teaching of English rather than other languages.

Our review of the literature has identified that under-representation also has another source, which is the lack of equity in access to technology which has also affected the representation of diverse contexts in the CALL literature. Although many of the contexts previously under-represented are in poorer countries in what is termed the global south, many "global north" language teaching contexts have also not had access to technologies. This could be due to a lack of equipment or Internet access, a lack of professional development, or even an epistemological belief among the teachers that language teaching should be done face-to-face. Some topics are more under-represented in some contexts than others. For example, Zou and Thomas (2019), in their review of CALL and technology-assisted language learning prior to the COVID-19 global pandemic, emphasized that fully online and hybrid

language teaching were under-represented topics in most contexts beyond a few highly resourced contexts, mainly in English-speaking "global south" countries and with a focus on English teaching. However, as noted by Hazaea et al. (2021), with the advent of COVID-19 and the rapid shift to emergency remote teaching, under-resourced contexts and/or contexts where teachers and students had not implemented CALL or not implemented it beyond limited use for drills or grammar exercises were suddenly thrust into needing to integrate CALL into their learning and teaching or fail to teach at all. The CALL literature, likewise as emphasized by Zou and Thomas (2019), has under-represented contexts other than universities. Therefore, to address all the issues raised above, this book moves beyond geographical under-representation and addresses all the rich contexts which the CALL professional development literature has failed to explore fully to date. In the following, the structure of the book is presented.

The Structure of the Volume

Considering the significance of various language education stakeholders' voices in all contexts, particularly under-represented contexts which is the target of this book, the volume is structured into five parts. Part I: "*Principles of CALL Teacher Education and Professional Development*," is composed of two chapters. **Hubbard** (Chap. 1) reviews the history of teacher training in CALL, introduces the TESOL Technology Standards for Teachers (TTST), and finally explains the TTST as a guide and its implications. In the Chap. 2, we, **Tafazoli** and **Picard,** identify the key contextual challenges related to CALL teacher education and professional development in under-represented contexts.

Part II of the book attempts to raise the "*Voices of Pre-service Teachers*" in under-represented contexts through six distinguished chapters. **Liu** and **Kleinsasser** (Chap. 3) report a case study on pre-service foreign language teachers in a blended CALL preparation program offering face-to-face and online professional learning opportunities in a Taiwan teacher education context. **Lian**, **Lay**, and **Lian** (Chap. 4) share their team's reflections on a collaborative project between Australia and Cambodia that involves the use of CALL-based systems with pre-service secondary teachers of English in Cambodia in an online environment. **Kara** and **Mede** (Chap. 5) explore the effects of online education on digital literacy and autonomy readiness in a Turkish pre-service teacher education program. **Savvidou** (Chap. 6) investigates the lived experiences of TESOL teachers participating in a distance learning Teacher Education course in Cyprus. **Kusuma** (Chap. 7) discovers the issues faced by Indonesian student teachers and how they solved them during online teaching practicums due to the COVID-19 pandemic. **Tekin** (Chap. 8) investigates how pre-service teachers' CALL competencies are developed in the teaching English to young learners (TEYL) module in Turkey.

Fifteen chapters of Part III discover the "*Voices of In-Service Teachers*" in various contexts. **Meskill**, **Kusumastuti**, **Guo**, **Wang**, and **Ramos** (Chap. 9) determine how

EFL educators' pedagogical knowledge and actions shaped their migration to online teaching in Brazil, China, and Indonesia. **Albers** (Chap. 10) examines professional development in arts and design technologies with the aim to support the transformation of a critical mass of teachers in an urban primary school. **Torsani** (Chap. 11) reports on a case study about how language teachers in Italy use mobile technology in their classrooms and how contextual factors influence their work. **Wu**, **Ma**, **Shi**, and **Tong** (Chap. 12) present a novel study of CALL lecturers' emotions and well-being while coping with emergency remote teaching at a community college in Hong Kong during the COVID-19 pandemic. **Huertas-Abril** and **Haikal** (Chap. 13) scrutinize teachers' beliefs toward emergency remote English language teaching in early childhood education in Indonesia. **Ene** and **Şerban** (Chap. 14) focus on teachers' perceptions of the benefits and applications of CALL PD in Romania. **Kaoropthai** and **Boonmoh** (Chap. 15) explore the challenges of CALL instructors and how they adapt themselves to those challenges in Thailand. **Elhawa** (Chap. 16) offers research-based information on developing CALL teacher education programs in Palestine. **Kohnke** and **Foung** (Chap. 17) explore the microlearning experience of English as a second language teachers at a Hong Kong university as a form of teacher professional development to prepare them for the transition to OBL during the COVID-19 pandemic. **Kaçar**, **Karakuş**, **Baltacı**, and **Altun** (Chap. 18) investigate English as a Foreign Language pre-service teachers' experiences regarding the online flipped task design for the pre-class and in-class phases and their task design challenges. **Esfandiari** and **Meihami** (Chap. 19) examine the Iranian EFL teachers' challenges with computer-assisted assessment and their solutions to such challenges. **Tran-Thanh**, **Nguyen**, and **Le** (Chap. 20) explore Vietnamese ESOL teachers' professional identities as they navigated through the technology integration. **Shafiee Rad** (Chap. 21) investigates EFL teachers' professional identities in flipped learning classrooms through accountability-focused evaluations. **Schneider** and **Ene** (Chap. 22) describe the professional development experienced by an English literature professor in Romania. **Ranjbaran**, **Al-Abri,** and **Al-Hashmi** (Chap. 23) explore the determinants that influence the behavioral intention of teachers to continue using technology in Oman's higher education and identify teachers' needs during the process of incorporating technology into their classes through the use of the Technology Acceptance Model and Theory of Reasoned Action.

The focus of Part IV is on "*Voices of Teacher Educators and Course Designers*" **Sabieh** (Chap. 24) describes an intervention where Education graduates were mentored to use technology, emergency education strategies, and problem-based learning to address the needs of emergency online teaching. **Nguyen**, **Vo**, and **Tran** (Chap. 25) investigate how CALL teacher trainers adapted their practices for delivering training planning in the CALL teacher training and development programs in Vietnam. **Assassi** and **Chenini** (Chap. 26) concentrate on eliciting the difficulties faced by Algerian EFL course designers in developing online materials for a multilingual platform called EL@N.

The last part of the volume, Part V, "*Voices of Researchers and Research*", consists of four chapters. **Moore**, **Nguyen**, and **Nguyen** (Chap. 27) provide an in-depth analysis of Vietnam's aspirational educational, language, and technology

policy frameworks. **Nami** (Chap. 28) reports a systematic literature review of CALL teacher education research conducted in under-represented geographical contexts. **McCallum** (Chap. 29) revisits the role of theory in published CALL studies that focus on improving learners' writing. In the final chapter, **Ngo** and **Nguyen** (Chap. 30) investigate how Vietnamese EFL teachers utilize Facebook to create their online communities of practice for professional development.

The 30 chapters in this volume draw attention to various voices in language education: pre-service teachers, in-service teachers, teacher educators, course designers, and researchers in under-represented contexts. Overall, this edited volume provides an overview of current trends in CALL teacher education and professional development across the globe, presents both the positive and negative experiences of CALL teacher education and professional development in under-represented contexts, highlights theories and practices in CALL teacher education and professional development from stakeholders' perspectives, and sheds light on various challenges for current and prospective language teachers in under-represented contexts. We hope the volume also raises multiple meaningful questions about challenges in individual contexts and good practices and promotes wider discussions with CALL communities worldwide.

Callaghan, Australia — Dara Tafazoli
Bedford Park, Australia — Michelle Picard
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Abbreviations

AALI	(Alphabetization and Learning in the Italian Language (It. Alfabetizzazione e Apprendimento della Lingua Italiana)
AEC	ASEAN Economic Community
ARN	Academic Research Network
ASEAN	Association of Southeast Asian Nations
ATCTS	Assessment and Teaching of 21st Century Skills
AWE	Automated Writing Evaluation
BL	Blended Learning
CAA	Computer-Assisted Assessment
CAI	Computer-Assisted Instruction
CALICO	Computer-Assisted Language Instruction Consortium
CALL	Computer-Assisted Language Learning
CALL PD	Computer-Assisted Language Learning Professional Development
CDU	Charles Darwin University
CEFR	Common European Framework of References
CFL	Chinese Foreign Language
CGT	Constructivist Grounded Theory
CHE	Council of Higher Education
CK	Content Knowledge
CLC	Chinese Language Center
CLE	Constructivist Learning Environment
CMC	Computer-Mediated Communication
CoP	Community of Practice
CPIA	Provincial Centres for Adult Education (It. Centri Provinciali per l'Istruzione degli Adulti)
CPT	Permanent Territorial Centres (It. Centri Territoriali Permanenti),
CTE	CALL Teacher Education
DA	Dynamic Assessment
DL	Digital Literacy; Distance Learning
DLS	Digital Literacy Scale
DLTDF	Digital Language Teacher Development Framework

DynEd	Dynamic Education
EA	Emergency Adjustment
ECCR	Exploration, Communication, Collaboration, and Reflection
ECE	Early Childhood Education
EFL	English as a Foreign Language
EHEA	European Higher Education Area
ELSE	Ecological Learning and Simulation Environments
ELT	English Language Teaching
ERLT	Emergency Remote Language Teaching
ERT	Emergency Remote Teaching
ERTL	Emergency Remote Teaching and Learning
ESL	English as a Second Language
F2F	Face-to-Face
FIP	Flipped Impact
FL	Foreign Languages; Flipped Learning
GOC	Global Online Course
ICT	Information and Communication Technology
ICT4LT	Information and Communication Technologies for Language Teachers
IET	Institute for Educational Technologies
IMF	International Monetary Fund
IPA	Interpretative Phenomenological Analysis
ISTE	International Society for Technology in Education
IT	Information Technology
ITE	Initial Teacher Education
IWB	Interactive Whiteboard
LAN	Local Area Network
LARQ	Learner Autonomy Readiness Questionnaire
MALL	Mobile-Assisted Language Learning
MENA	The Middle East and North Africa
MOE	Ministry of Education
MOET	Ministry of Education and Training
MoEYS	Ministry of Education, Youth and Sports

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Part I
Principles of CALL Teacher Education and Professional Development

Chapter 1
Contextualizing and Adapting Teacher Education and Professional Development

Philip Hubbard

Abstract In the past two decades, the influence of computer-assisted language learning (CALL) in language teaching has significantly expanded. In parallel with this trend, the preparation and professional development of teachers in the domain of CALL knowledge and skills have similarly grown. As with so many other areas of language teaching, this growth has been most visible in mainstream literature centered on settings in the US, the UK, and a few other developed countries. In line with the theme of this book, I provide a foundation for shifting that focus toward the teaching and learning contexts of the broader world, the under-represented contexts, to support the adaptation and creation of locally appropriate teacher education and professional development initiatives. I begin with a brief review of the history of teacher training in CALL, focusing on useful concepts and frameworks. I then introduce the TESOL Technology Standards for Teachers (TTST) as a target for language teachers (TESOL, 2008; Healey et al., 2011). Importantly, the TTST were designed from the onset to be relevant internationally and flexible enough to be applied to low, mid, and high-technology resource environments. I will argue that by using the TTST as a guide, teacher educators can localize them to align with the curricular goals, teaching realities, and technologies available to teachers and their students. I conclude with an example of how I adapted one aspect of the TTST to fit the specific context of my own CALL course. Overall, the goal is to set the stage for readers of the rest of this volume to find inspiration there in the voices of pre-service and in-service teachers, teacher educators, and researchers that resonate with their own contexts and experiences.

Keywords Teacher education · Standards · Professional development · CALL · TESOL Technology Standards

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1 Introduction

Teacher education in using technology for language learning is not a recent phenomenon. In 1982, I arrived at Ohio University to begin what would be a 4-year experience teaching in the Linguistics Department and the Ohio Program of Intensive English. I was surprised to discover that a professor there, Marmo Soemarmo, was already offering a graduate-level three-course sequence which he referred to as computational linguistics for research and teaching, incorporating much of what others were beginning to call computer-assisted language learning (CALL). These classes focused heavily on programming skills for teacher candidates as there was little in the way of commercial software available at that time. Inspired by that idea, and with some mentoring from Soemarmo, I began my own journey into the CALL world, leveraging programming skills from a 1980 computer science class I had taken in the last term of my linguistics PhD program. I programmed reading and vocabulary exercises in BASIC for my ESL students in the intensive English program using an Apple II computer.

I did not realize until later how lucky I had been to be at Ohio University at just that time. There were not many other institutions where a dedicated technology course for language teachers was offered, although some training was beginning to become available. Curtin and Shinall (1985), for example, offered a rationale and guidelines for a two-week computer-assisted instruction (CAI) workshop for high school and university foreign language teachers they conducted. However, beyond these relatively rare settings, there was little in the way of systematic technology education available to language teachers that actually focused on teaching languages. Writing about the 1980s, Chapelle (2006) noted that the best many teacher training programs could do then was to "…advise interested students to take a general educational technology course. Twenty years ago, this was a tenable solution, but language teachers today need to be able to choose, use, and in some cases refuse technology for their students" (p. vii).

Despite such offerings continuing to be sporadic, in the 1990s, whole degree programs devoted to the field began to appear. Partridge (2006) reports on an MA program in Applied Language Studies: Computing at the University of Kent, which ran from 1993 to 2002, and there were a few other degree or certificate programs related to CALL scattered throughout the US, the UK, and elsewhere. 1999 saw the beginning of an important project to bring learning materials to support technology in language teacher education and professional development, the website Information and Communication Technologies for Language Teachers—www.ICT4LT.org (Davies, 2012). The website contained a number of modules useful for self-study or for teacher educators to integrate into their courses. During this time, it was not unusual to find individual teacher educators describing their CALL course experiences at conferences and in publications, but there was little in the way of widespread recognition of the importance of teacher education in CALL and no formal community of practice.

As the title of this chapter suggests, it covers the development of technology skills and knowledge in both formal teacher education settings (typically classrooms) and professional development. The former is often connected to pre-service training and the latter to in-service, but the boundaries are often not that clear. Classes can sometimes be a mix of pre-service and in-service teachers, and even the pre-service teachers may have some informal teaching or tutoring experience that they bring to their coursework. Thus, professional development may include formal coursework, but is commonly some mixture of workshops, webinars, conference presentations, and independent learning, ideally accompanied by relevant readings. For the purposes of this chapter, we consider professional development from the perspective of the provider rather than the teacher receiving it. See Hubbard (2018) for a short overview of the technology and professional development that discusses options for teachers pursuing professional development on their own.

In the remainder of this introductory chapter, I first describe how CALL teacher education moved from its beginnings as independent initiatives by language teacher educators to becoming a recognized sub-field of CALL. I then trace the development of a coherent set of targets for language teacher education, the TESOL Technology Standards. Finally, I provide an example of how I integrated these standards into a CALL course and then modified a significant element of them to fit the student characteristics of the course.

2 Development of Teacher Training as a Sub-field of CALL

The birth of technology and teacher education as an acknowledged sub-field of CALL can perhaps be traced to 2002, when a leading journal, *Language Learning & Technology*, published the first special issue of five papers devoted to the topic. Highlights included a comparative study of expert and novice teachers by Meskill et al. (2002), who found that "those novice teachers who had received 'state of the art' training in classroom technologies use were far less comfortable in their implementations than the more experienced teacher who had no formal training with computers but a great deal of classroom experience" (p. 54). A study by Egbert et al. (2002) following a technology and teacher education course similarly determined that those who had prior technology experience were much more likely to continue integrating technology in their courses after the training.

In terms of edited volumes of relevance in these nascent years for CALL teacher education, Lomicka and Cooke-Plagwitz (2004), while focusing mainly on working with learners and technology, included four chapters clearly related to language teacher education. Two of these, Avendaño (2004) and Cooke-Plagwitz (2004), interestingly involved placing teachers in the role of learners. This is a concept worth considering in any CALL teacher education course. 2006 saw the publication of the first volume dedicated solely to the present topic, *Teacher Education in CALL* (Hubbard & Levy, 2006a). In the first chapter, the editors offered a framework for the field based on *functional* and *institutional* roles. Functional roles recognized that

the teacher could be not only a practitioner but also a developer, researcher, and trainer. Institutional roles included pre-service teachers, in-service teachers, CALL specialists—who focus on using technology for a particular area, like writing or pronunciation—and CALL professionals, who have CALL as their primary career focus (Hubbard & Levy, 2006b). The other 19 chapters included case studies showing a wide range of approaches to teacher education, including several in the types of under-represented contexts highlighted in the present volume. A notable example was Olesova and Meloni (2006), who studied training teachers through collaborative Internet projects in Siberia.

The point of providing this background is to draw attention to the fact that while circumstances have changed, there is value in knowing that educating language teachers to integrate technology effectively has been an ongoing struggle. In the 2020s, teachers—and students—are much more likely to be comfortable with technology for personal and social uses now than they were in earlier days. While there have been some creative and effective solutions for the specific contexts studied, barriers to resolving many of the challenges remain.

In Hubbard (2008), I noted seven of those barriers, reasons why teacher education programs and language programs were often failing in providing teachers with the requisite competencies for integrating technology into their language teaching. Some 15 years later, despite progress in both research and practice, these challenges remain in many parts of the world.

- ***Inertia***. There is a tendency to keep doing what has worked in the past without realizing how the world has changed. Teachers tend to teach in the ways they were taught. And even if they are trained to teach differently, once they start teaching and feel successful, they are less likely to be open to change. This is, unfortunately, a very human position and one which is likely to remain a problem for many teachers—and teacher educators—in future decades. Experiences that place teachers in the role of language learners using technology may be particularly helpful in overcoming this inertia (Kolaitis et al., 2006).
- ***Ignorance***. One form of ignorance is simply a lack of awareness of the technological options available. Another is the assumption that the proper technology itself will do all the work. A third form, documented in Moore et al. (this volume), is the tendency to direct education through top-down curricula and policies that ignore the realities of the local contexts.
- ***Insufficient time***. This is an ongoing issue. More and more content is being thrust into teacher education programs as our understanding of second language acquisition increases, and once free of their degree programs, teachers have little time for professional development (PD) on their own. Fixing the first problem means making technology integration a priority in teacher education or increasing time spent on coursework. Fixing the second involves school and language program administrators providing more support for PD and/or finding innovative solutions such as the microlearning units described in Kohnke and Foung (this volume).
- ***Insufficient infrastructure***. Technology may seem ubiquitous, but we have also become more aware of inequities in the quality and availability of smartphones,

tablets, computers, and the networks that link them to one another and to online resources. The COVID crisis made this digital divide even more apparent (Williams et al., 2021). This is an issue particularly relevant to the types of contexts this volume is dedicated to.

- ***Insufficient standards***. A major challenge in teacher education and professional development is having clear objectives. The same year this list was generated, 2008, TESOL published a set of standards for language teachers and learners: these are discussed in detail in the next section with an emphasis on their adaptability (TESOL, 2008).
- ***Lack of established methodology***. A major question in teacher preparation is whether a preparatory technology course or courses should be separate, perhaps at the beginning rather than the end of a program (Hegelheimer, 2006) or whether technology instruction should be integrated as relevant throughout the program. Beyond timing, some general processes for teacher development include lecture, demonstration, project-based, situated learning, reflective learning, portfolio-based, mentor-based, communities of practice, and self-directed learning. To this list, we could add various types of collaborative learning, including teacher education through virtual exchange (Loranc et al., 2021). Although arguably there is no one ideal methodology for CALL teacher education, it has become increasingly clear that lecture and demonstration alone are insufficient. This is one area that has improved markedly since 2008. A teacher educator developing a class or workshop or teachers themselves pursuing independent professional development can readily find valuable resources online: see the appendix of Hubbard (2021b) for some examples.
- ***Lack of experienced, knowledgeable educators***. There are certainly more technology-competent teacher educators now than 15 years ago, but the shift to emergency online teaching in 2020 made it clear that *all* language teachers have to be able to teach with and through technology. There remains a need for ongoing "train the trainer" programs (Rickard et al., 2006) so that teacher educators can build a foundation and maintain it through their own ongoing professional development.

Facing up to these challenges, as technology in teacher education became more common, the field made additional strides toward its professionalization. Teacher educators formed special interest groups devoted to technology and language teaching in CALICO in 2004 and EUROCALL in 2009, often sponsoring panels at their respective conferences. CALICO published an edited volume on the topic (Kassen et al., 2007) that included three chapters on the use of digital portfolios. In 2015, *Language Learning & Technology* released a second special issue on technology and teacher education. Articles in that issue showed how the field had expanded beyond a technology competency focus. For example, Shin (2015) reported on providing teachers with an understanding of ethical and legal issues, while Liu and Kleinsasser (2015) explored the use of the TPACK model (technological pedagogical content knowledge; Koehler & Mishra, 2009) for in-service teaching. A number of articles describing CALL teacher education around the world appeared in other

journals and as chapters in edited volumes. An edited volume by Son and Windeatt (2017) devoted solely to the topic offers a particularly useful sample of nine case studies by established teacher educators across a range of contexts.

Besides research and development studies, several theoretical frameworks and models from the past decade are worth noting. Torsani (2016) published an important monograph devoted to technology and language teacher education, which includes a proposed theory of CALL curriculum and course design. Schmid's (2017) monograph introduces a Teacher Education in CALL (TECALL) model grounded in sociocultural theory. Son has developed two models that interconnect. The first is based on exploration, communication, collaboration, and reflection, or ECCR (Son, 2018). These four components interact in an ongoing process of technology-competent teacher development. In Son (2020), he embeds this model in a broader Digital Language Teacher Development Framework, or DLTDF that recognizes a teacher's growth process through beginner, intermediate, and expert stages.

Interestingly, the present volume includes several additional models that have emerged primarily from the localized context in which teacher education is occurring. As noted above, Kohnke and Foung (this volume) show how teacher educators can use a microlearning model to engage teachers in professional development in a more motivating and situated manner than with the usual conference presentations, workshops, and webinars. Ngo and Nguyen (this volume) describe a model they created that synthesized elements of communities of practice, TPACK, and the British Council's continuous professional development framework. Moore et al. (this volume) have created a mixed model to address the all-too-common conflict between national top-down curricular mandates involving technology and the reality of teaching in the local context. Finally, McCallum (this volume) reviews theories used for CALL in under-represented research contexts and offers suggestions for future directions in theory application.

3 TESOL Technology Standards

There have been a variety of standards proposed for technology and education over the years, notably several versions from the International Society for Technology in Education (https://iste.org) and UNESCO's (2018) ICT Competency Framework for Teachers. Although such sources provide guidance for education in all subject areas, they are not specific to language teaching and learning. Arguably, the TESOL Technology Standards for Learners and Teachers represents the most significant undertaking to date in technology integration by a professional organization that is specifically focused on this domain.

In early 2006, TESOL appointed six CALL scholars, including me, to the Technology Standards Writing Team chaired by Deborah Healey. Our task was to produce separate sets of standards for classroom teachers and language learners. The group had several meetings in person and online to collaborate in drafting tentative sets of the Standards, which were then presented at US and international conferences and

on a dedicated website for public feedback and discussion. Taking those insights into account, a second draft was completed, and the TESOL Standards Committee selected a team of international experts to provide a peer review and make recommendations leading to the finalized version. Introductory material motivating the need for the Standards and providing a rationale for the choices made in producing them were added. The resulting document was published as the *TESOL Technology Standards Framework* (TESOL, 2008) and became TESOL's first ebook. In that document, the Standards were accompanied by a set of performance indicators to help teachers and teacher educators interpret them and sample vignettes, realistic scenarios showing how a given standard could be implemented in an English language class. In Healey et al. (2011), the writing team expanded the offering to a full set of vignettes covering all of the teacher and learner standards. Importantly, each standard had separate vignettes for high, mid, and low technology resource contexts. The importance of acknowledging this low-resource category is reflected in some of the under-represented contexts noted in this volume, such as those by Meskill et al. in rural areas of Brazil, China, and Indonesia during the emergency online teaching and learning of the COVID crisis. Other features of interest in the 2011 volume are separate chapters covering the theory and research basis of the Standards, their concordance with ISTE and UNESCO standards, language program administrators, online teaching, and teacher educators, the last echoing many of the points discussed above.

Although the TESOL Standards for Learners are an important element of the overall project, here, we focus solely on the TESOL Technology Standards for Teaching, or TTST. In all, there are 14 teacher standards, divided across four high-level goals. As an example, the first standard states "Language teachers demonstrate knowledge and skills in basic technological concepts and operational competence, meeting or exceeding TESOL Technology Standards for students in whatever situation they teach." To save space and avoid the full detail of the standards language, I describe them here in simpler terms than the original (see TESOL (2008) for the exact wording of all goals and standards). The four goals concern (1) technological skills and knowledge; (2) technology-pedagogy integration; (3) technology in record-keeping, feedback, and assessment; (4) technology for communication, collaboration, and efficiency. The simplified description of each standard appears in Table 1.

The standards themselves are obviously very general, even in their original form. In order to provide more precise learning targets, the framework in TESOL (2008) included a set of performance indicators (PIs). For example, Goal 1, Standard 3 (Evaluate, adopt, and adapt new technologies throughout teaching career) had the following PIs:

- Language teachers utilize technology tools to expand upon a conventional activity.
- Language teachers keep up with information through a variety of sources (e.g., books, journals, mailing lists, and conventions).
- Language teachers participate in a relevant community of practice.

Table 1 Simplified TESOL Technology Standards for Teachers. G = Goal; S = Standard

G1S1	Have basic technological competence at least equal to that required for students
G1S2	Understand a wide range of relevant technology supports and options for use
G1S3	Evaluate, adopt, and adapt new technologies throughout teaching career
G1S4	Use technology in socially and culturally appropriate legal and ethical ways
G2S1	Identify and evaluate technological resources for suitability to teaching context
G2S2	Coherently integrate technology and pedagogical approach
G2S3	Design and manage technology-mediated activities and tasks to meet curricular goals
G2S4	Use relevant research findings to inform technology use in activities and tasks
G3S1	Evaluate and implement technology for assessment
G3S2	Use technology to collect and analyze data to enhance language learning
G3S3	Evaluate student uses of technology to support their language learning
G4S1	Use technology to communicate and collaborate with peers, students, and other stakeholders
G4S2	Regularly reflect on the intersection of professional practice and technology
G4S3	Apply technology to improve efficiency

- Language teachers explore the possibilities inherent in emerging technologies with a critical eye.

These PIs represent targets for a basic level of teacher technology competence. The 2008 framework also included PIs for the "expert level" so that a more enhanced knowledge base and skill set could be recognized. In Healey et al. (2011), the PIs from the framework document were expanded into a set of 160 "can do" statements for easier self-evaluation and tracking of individual teacher development. I discuss these further below.

Although the TESOL Technology Standards were first published in 2008, they have proven to be remarkably flexible and enduring despite the enormous shifts in technology. A Google Scholar search for the exact match "TESOL Technology Standards" and limited to those since 2018 yielded 221 publications, showing that the standards are still being regularly referenced in academic literature. Hubbard (2021a) provides examples of how the standards have been incorporated into research, course design, and even the development of a full MA curriculum. For readers of the present volume, the TESOL Standards provide an important resource because of their combination of relative comprehensiveness and flexibility to specific contexts. As an example of that flexibility, in the remainder of this section, I describe how I first integrated the Standards into a CALL course and then adapted a particular element to fit the context I was teaching in. By doing so, I hope to demonstrate that the Standards remain a relevant resource for CALL teacher education. Much of what follows is described in more detail in Hubbard (2021a).

In 1998, I first offered a CALL "mini course" as an optional 1-unit seminar attached to my SLA and teaching methodology course titled "Linguistics and the

Teaching of English as a Second/Foreign Language" at Stanford University. It was a mini course because it only met once a week for an hour or so for 6–8 weeks. The goal was to provide students with a broad but shallow overview of the range of technology applications for language teaching and learning. In most years, I had 4–10 students, so there was a lot of room for individualizing. Some of my students were undergraduates planning to go abroad to teach English for a year or two following graduation; others were MA or PhD students in language or technology areas of the Graduate School of Education. I also often had teachers who were visiting the Language Center for a year teaching their native language at Stanford before returning to places like Egypt, Turkey, or the Philippines to teach English afterward.

As a member of the writing team, I had been involved with the Standards since 2006, but I did not begin formally integrating them into my class until 2012. That year, I had students fill out the "can do" statements from Healey et al. (2011) at the end of the course. Here is an example of two such statements from Goal 2, Standard 3 (Coherently integrate technology and pedagogical approach):

> I teach students how to evaluate online resources
> I clearly explain the pedagogical purpose of the technologies I use and that I ask students to use

In each case, individuals would rate themselves as meeting the statement target very well, adequately, not so well, not at all, or NA (not applicable).

By the time students filled out the forms in the final week of the course, we knew each other well, and I typically set up meetings so that we could review areas of weakness to see whether they needed to keep working on these on their own, depending on their immediate teaching plans. Then, in 2019, I made what I thought was a minor change.

I decided to shift the filling out of the forms from the last to the first week of the course, reasoning that this would give students a clearer understanding of what they might need to learn *during* the course. All but one of the six students in the 2019 cohort were truly pre-service, with no formal teaching experience. At the next class meeting when we discussed the forms, I was faced with a number of student concerns along the following lines:

- The can-do says "I teach students how to evaluate online resources," but I don't have students [the can-do statements are generally presented in that form].
- The can-do statements include expert level ones—these aren't relevant for a beginning course.
- The number of statements (160) is too large.

Following discussions with students about the incompatibility of the statements with their experiences, I decided to make some adjustments for 2020:

(1) Go back to the original performance indicators (PIs) from TESOL (2008)—95 instead of 160.
(2) Eliminate the "expert level" ones—65 instead of 95.

(3) Revise the third-person 65 PIs to first-person can-do statements but change the wording so that it really says what they *can* do rather than what they *actually* do.

For example, for Goal 1, Standard 3 (Evaluate, adopt, and adapt new technologies throughout teaching career), the PI "Language teachers participate in a relevant community of practice" became "I know how to find and participate in a relevant community of practice" (indeed, this is a point we discuss later in the course). The 2020 class of four students had a positive response to the revised set (especially when told the old set had 160 items). I had originally planned to follow up with all of them, but due to the onset of COVID-19 protocols in March 2020, the last class meeting was canceled and in the ensuing upheaval only one student got back to me with data on how she had improved in select areas as a result of the class: see Hubbard (2021a) for details. For those interested, the full set of the 65 revised can-do statements can be found at https://web.stanford.edu/~efs/TTS-CDs.pdf, and the CALL course notes are available as a free ebook, Hubbard (2021b).

Readers who have not had a chance to see the TESOL Technology Standards are encouraged to do so through the link provided in the references under TESOL (2008). For anyone using or planning to use the TESOL Technology Standards as part of their coursework, I encourage considering adaptations such as the one I describe above. I suspect that in a number of under-represented contexts, the TTST will need some pruning, shaping, and even augmentation to make them fit appropriately.

4 Conclusion

In this opening chapter, I first provided an overview of the history and development of technology and language teacher education, highlighting the range of options and challenges in this domain with an eye toward relevance to this volume's theme of under-represented contexts. I then introduced the TESOL Technology Standards for Teachers and showed how I first integrated them into my CALL course and then adapted one element of them, the "can do" statements, to fit the realities of the generally inexperienced students. In the remainder of this volume, readers looking for ideas that will help them with the CALL teacher training or professional development will see an array of alternatives to using the TTST, providing a rich set of options to draw from that may best fit their own context.

In the past few years, we have experienced rapid changes in digital technologies developed or adapted for language teaching and learning purposes. We can expect the rate of that change to continue to accelerate. However it is attained, teachers need a knowledge and skill base that will accommodate that change, but they also need the competence and confidence to incorporate those changes reflectively in their teaching contexts. This book provides language teacher educators and teachers seeking professional development with a critically needed set of case studies to help meet this challenge.

As a final note, in preparing this chapter it once again brought to mind the fact that there are no standards that I am aware of for language teacher educators themselves. The "Coach" role of the ISTE Standards has some overlap, but that role seems to be closely tied to being the technology expert (across fields) for a school, school district, or other institution: see a description at https://www.iste.org/standards/iste-standards-for-coaches. Perhaps a place to start would be to rephrase the TTST to apply to teacher educators rather than teachers. For example, Goal 1, Standard 1 could be transformed to "Language teacher educators demonstrate knowledge and skills in basic technological concepts and operational competence, meeting or exceeding TESOL technology standards for teachers in whatever situation they teach." It is likely that similar adjustments could be made for other standards with requisite shifts in wording. If, in fact, *all* teacher educators (not just those teaching CALL courses) were to meet such targets in a given teacher education program, I suspect the result would be a much more digitally literate and effective graduating class of language teachers.

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Chapter 2
CALL Teacher Education and Professional Development: Contextual Challenges in Under-Represented Contexts

Dara Tafazoli and Michelle Picard

Abstract This chapter aimed to identify the key literature on the contextual challenges in under-represented contexts related to CALL teacher education and professional development. A literature review was conducted of the leading CALL journals and emergent themes were identified. The literature demonstrated that there were major technical, sociocultural, strategic, and economic issues that needed to be addressed in order to support the CALL teacher education and professional development of language teachers in under-represented contexts. This chapter is significant because a widespread discovery of complexities in CALL teacher education and professional development in under-represented contexts can clarify language teachers' needs.

Keywords Computer-Assisted Language Learning (CALL) · CALL teacher education · CALL professional development · Contextual challenges · Under-represented contexts

1 Introduction

The success of any initiative in language education, like the integration of technology, which is commonly referred to as Computer-Assisted Language Learning (CALL), largely depends on how well teachers can accept, adopt, and implement technology in their formal and informal teaching. In this integration, teachers' key role in shaping the futures of language learners is unavoidable (Freeman, 2014). Nevertheless, with the emergence of new skills, literacies, and pedagogies, the unique role of CALL teachers is still much unknown in light of the constant development.

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Some seminal CALL researchers (see, e.g., Cutrim Schmidt, 2011; El Shaban & Egbert, 2018; Hubbard, 2008, 2009, 2021; Kessler, 2007; Levy, 1996; Meskill et al., 2020; Meskill & Sadykova, 2011; Motteram, 2014; Stockwell, 2009; Torsani, 2015) highlight the significance of CALL teacher education and professional development for pre-service and in-service language teachers. Among them, for example, Levy (1996), Stockwell (2009), and Cutrim Schmidt (2011) focused on the importance of CALL theories. Levy (1996) emphasized on a more holistic view to grapple with the connection between CALL and professional development. He notes that if language teachers understand the fundamental theories in technology integration, they would be able to adopt technologies and develop their skills emanating from their needs. As Stockwell (2009) puts it:

> this attention is indicative of greater recognition of the importance of CALL practitioners having sufficient grounding in CALL theory and practice, as well as knowledge of what technologies are available to them in order to be able to effectively implement CALL in their specific language learning environments (p. 99).

While CALL has been flourishing over the last two decades (see, for example, Lomicka & Lord, 2019; Meskill & Anthony, 2015), the pace of CALL teacher education and professional development has not met the language teachers' needs. This might be due to the fact that the majority of CALL teacher education and professional development literature has concentrated on the advancement of CALL tools and teaching methodologies because of the vast integration of new technologies in various contexts worldwide. However, in line with CALL researchers, we have an idea that although the CALL tools are essential in teaching, the focus only on their technical integration is inappropriate. CALL teacher education and professional development should encompass an overarching plan which is able to address teachers' negative affective factors, such as negative attitudes (Kessler, 2007), reconstruct teachers' teaching philosophies (Yurkofsky et al., 2019), uplift teachers' creativity (Thomas & Schneider, 2020), empower teachers with classroom managerial skills (Crosthwaite et al., 2021), expand teachers' assessment literacy (Park & Son, 2022), upskill teachers' technological, pedagogical, and content competencies (Tafazoli, 2021), and inspire teachers to utilize and redesign tools and materials based on their needs (Hanson-Smith, 2018).

Regardless of its importance, researchers suggest that CALL is complex, and teachers encounter many barriers to integration (e.g., Ertmer, 1999; Hedayati & Marandi, 2014; Hong, 2010; Park & Ertmer, 2007; Teo, 2009; Yeh & Swinehart, 2019) due to various factors, such as individual and contextual factors. Among them, Hong (2010) proposed the following specified categories of CALL integration barriers: (a) CALL teacher education, (b) individual teacher factors, and (c) contextual factors. However, one of the pitfalls of Hong's model is that he gave less prominence to contextual factors. In other words, he proposes that contextual barriers should be viewed somewhat independently of CALL teacher education, whereas the literature has revealed that all the influential factors in CALL integration are nested within context, underscoring the significance of context.

In this chapter, we review the contextual challenges of CALL teacher education and professional development in under-represented contexts. For the sake of clarity, we have no geographical division of over-represented or under-represented contexts. However, in this chapter, an under-represented context is a context whose CALL scholarship is not always accessible in the CALL community. We believe that addressing this issue is significant to create a more diverse, inclusive, and equitable community for all CALL researchers. Moreover, we have an idea that CALL teacher education and professional development challenges are similar to CALL integration. El Shaban and Egbert (2018) also reflect this assumption by featuring the role of context in a compelling CALL teacher education and professional development course, which should be "well planned, implemented, and supported" (p. 234).

In what follows, we attempt to address the main themes regarding the contextual complexities of CALL teacher education and professional development in a time span from 2010 until 2022. The selected articles have been published in the following leading CALL journals, *Computer Assisted Language Learning Journal*, *ReCALL*, *System*, *Language Learning & Technology*, *CALICO*, *The JALT CALL*, *CALL-EJ*, and *Teaching English with Technology*. These journals were selected as they are all classified as Quartile 1 in Scopus with a specific focus on CALL. Out of 142 articles that focused on the challenges of CALL teacher education and professional development, we selected 69 articles from Algeria, Azerbaijan, Chile, Colombia, Ethiopia, Hong Kong, Indonesia, Iran, Jordan, Libya, Macao, Malaysia, Oman, Poland, Saudi Arabia, Taiwan, Thailand, Tunisia, Turkey, South Africa, Vietnam, and Yemen.

2 Lessons Learned

The review of the leading CALL journals showed that contextual challenges in CALL integration in general and teacher education and professional development in under-represented contexts are rooted in technical, resource, strategic, and socio-economic challenges.

2.1 Technical Challenges

The first theme which emerged from the review is technical challenges. Technical challenges are mechanical and physical issues with the tools and facilities (Kuru Gönen, 2019; Mendieta & Barkhuizen, 2020; Shak et al., 2022; Sun, 2014; Taghizadeh & Ejtehadi, 2021; Thang et al., 2014), inadequate technical support (Maftoon & Shahini, 2012; Pham et al., 2019; Taghizadeh & Ejtehadi, 2021; Thang et al., 2014; Yang, 2014), privacy issues and e-safety (Liu & Kleinsasser, 2015; Xue & Churchill, 2020), and lack of guidelines or instructions to use CALL tools (Han et al., 2018). Among them, Maftoon and Shahini (2012) suggested the substantial role of

technical support by mentioning that teachers need on-call technical support when they face technology glitches.

2.2 Resource Challenges

It is worth mentioning that, in this chapter, resource refers to CALL materials. We decided to use resources instead of materials due to a wide range of available CALL materials, including academic websites (Atai & Dashtestani, 2013), technology-enhanced materials (Taghizadeh & Hasani Yourdshahi, 2020), computer-based materials (Son et al., 2011), and electronic content (Tafazoli, 2021). Regarding the resource challenges, CALL researchers highlighted teachers' difficulty in finding appropriate technology-enhanced materials (Rachmawati et al., 2022; Taghizadeh & Hasani Yourdshahi, 2020), lack of computer-based materials (Sardegna & Yu, 2015; Son et al., 2011), and lack of up-to-date and ready-made content for online teaching (Tafazoli, 2021).

Chien (2013), in a study on teachers' perception and practice of e-portfolios, indicated that Taiwanese pre-service English teachers have difficulties regularly maintaining their blogs. This is due to the fact that available blogs are commercialized and not education-friendly by their nature. So, it would be challenging for language teachers to use them for educational purposes. In addition, the resource challenges, such as low access to major academic sites in Iran, as mentioned by Atai and Dashtestani (2013), are due to political and economic sanctions against Iran by the U.S., which is beyond the educational stakeholders' decision and control. In other words, it would be impossible for universities to pay for access to those publishers and content providers. A lack of access to resources was also emphasized by Lyu and Lai (2022) in the Thai context. Crawford et al. (2020), in their review of higher education responses to COVID-19 across 20 countries, emphasized the challenges of accessing paid resources due to cost and a lack of open-access resources. In contrast, they also emphasized the challenge of accessing free resources in countries with Internet restrictions.

2.3 Strategic Challenges

In this chapter, strategic challenges are concerned with policies (Gruba & Chau Nguyen, 2019; Novita et al., 2022), educational authorities and decision-makers (Atai & Dashtestani, 2013; Dashtestani, 2019; Dashtestani & Hojatpanah, 2022; Gruba & Chau Nguyen, 2019; Hedayati & Marandi, 2014; Pham et al., 2019; Rachmawati et al., 2022), syllabus and curricula (Dashtestani, 2014; Gruba & Chau Nguyen, 2019; Meihami, 2021; Novita et al., 2022; Rachmawati et al., 2022; Sardegna & Yu, 2015; Son et al., 2011), and school climate and culture (Prasojo et al., 2018; Raygan & Moradkhani, 2020; Sardegna & Yu, 2015; Silviyanti & Yusuf,

2015; Son et al., 2011; Yu et al., 2010). The review revealed that the successful CALL integration requires the attention of various educational stakeholders, such as policymakers (Dashtestani & Hojatpanah, 2022), course designers (Dashtestani, 2019), curriculum developers (Gruba & Chau Nguyen, 2019), managers (Shahrokni & Sadeqjoola, 2015), and administrators (Liu & Kleinsasser, 2015). For example, Atai and Dashtestani (2013) identified that educational authorities of Iran have low attention to Internet use for educational purposes, and there is a kind of attitudinal resistance to the Internet (Atai & Dashtestani, 2013).

Through a document analysis in Vietnam, Gruba and Chau Nguyen (2019) revealed that there are no official policies and directives for CALL integration in higher education. Also, the language curriculum requires no technology integration in teaching and learning. The researchers suggest that higher order decisions greatly negatively influence teachers' enthusiasm to apply CALL. Furthermore, they conducted interviews with Vietnamese administrators; and the findings revealed a new complexity in which multiple personnel involved in technology integration with various levels of influence on the process through which some of the administrators expressed that they have no power or ability in decision-making due to a top-down process. Also, in Indonesia, focusing on English for Specific Purposes (ESP) and online formative assessment, Rachmawati et al. (2022) showed that CALL did not integrate into the ESP curriculum. Also, there is no specific policy, guidelines, or standard of professional development regarding assessment. The same challenges were reported in Iran, and Dashtestani (2014) proposed that a flexible and compatible curriculum could be a way to enhance CALL integration by teachers.

2.4 Sociocultural Challenges

Sociocultural challenges are the least cited challenges by the CALL researchers. However, we surmise that they are significant to be mentioned due to contextual importance. To clarify it further, many researchers in Iran acknowledged the cultural challenges. For instance, Atai and Dashtestani (2013), Dashtestani (2014) and Tafazoli (2021) conclude that there is cultural resistance to the use of technology by teachers. Also, Fatemi Jahromi and Salimi (2013) expressed that teachers prefer to deploy technologies that better suit Iranian culture and identity.

This is not only limited to Iran. Hsu (2013) conducted a study in Taiwan, and the findings showed that pre-service language teachers received Mobile-Assisted Language Learning (MALL) differently based on their cultural backgrounds; therefore, special attention is needed to accommodate teachers' cultural reactions to MALL. Likewise, in the Malaysian context, Shak et al. (2021) note that academic efficacies in developing online content were affected by their identities as either technology adapters or technophobes, which were in turn affected by their age, academic status (e.g., ongoing or sessional staff), and whether they hailed from rural or city contexts. A negative teacher identity around technologies was also highlighted

by Truong and Murray (2020) as contributing to a lack of uptake of CALL in the Vietnamese context.

Another cultural impact on the uptake of CALL and CALL professional development was the effect of institutional or disciplinary culture. Rachmawati et al. (2022) note how certain institutions in Indonesia facilitated the networking of staff and professional learning in relation to CALL, whereas others did not encourage such professional learning. Bilki et al. (2022) also noted in their research that language teachers were generally more resistant to using online technologies during the COVID-19 shutdowns than other subjects which had been more accustomed to online learning prior to COVID.

2.5 Economic Challenges

Economic challenges are the widest category in this review, which contains many challenges regarding infrastructure, technological tools and facilities, and financial issues. Although some scholars labeled them as socio-institutional level barriers (see, e.g., Demir & Kayaoğlu, 2021) or facility constraints (see, e.g., Hedayati & Marandi, 2014), we categorized all these issues as economic challenges since we believe that the main source is the high cost of equipment and facilities. Many CALL researchers highlighted the lack of appropriate infrastructure (Aydin, 2013; Demir & Kayaoğlu, 2021; Han et al., 2018; Hazaea et al., 2021; Shahrokni & Sadeqjoola, 2015; Silviyanti & Yusuf, 2015), inadequate technological facilities, and access to tools (Boonmoh et al., 2021; Boonmoh et al., 2022; Celik, 2013; Dashtestani, 2013, 2014, 2019; Dashtestani & Hojatpanah, 2022; Fageeh, 2011; Fatemi Jahromi & Salimi, 2013; Kruk, 2017; Muslem et al., 2018; Pham, 2020; Pham et al., 2019; Sardegna & Yu, 2015; Son et al., 2011; Tafazoli, 2021; Taghizadeh & Hasani Yourdshahi, 2020; Vo et al., 2020; Wong & Moorhouse, 2021).

Focusing on online language teaching, teachers had and still have many issues with the Internet. These issues are slow or poor speed of the Internet (Atai & Dashtestani, 2013; Liou, 2012; Muslem et al., 2018; Shak et al., 2022; Silviyanti & Yusuf, 2015), unstable and narrow bandwidths (Atai & Dashtestani, 2013; Liou, 2012; Tai & Ting, 2011; Yu, 2018), and connection and access problems (Boersma & Getu, 2016; Budianto & Arifani, 2021; Ebrahimi & Faghih, 2017; Gufron & Rosli, 2021; Liou, 2012; Mulyadi et al., 2020; Sardegna & Yu, 2015; Shahrokni & Sadeqjoola, 2015; Son et al., 2011; Thang et al., 2012). The forced transition to online teaching due to the COVID-19 pandemic, along with the lack of suitable software and hardware for distance learning, has made language teaching a demanding task for language teachers (Monjezi et al., 2021). Finally, Dashtestani (2014) and Muslem et al. (2018) complained about the lack of enough funds to support CALL teachers. Figure 1 illustrates the contextual challenges of CALL teacher education and professional development in the under-represented contexts based on the published papers in the CALL leading journals.

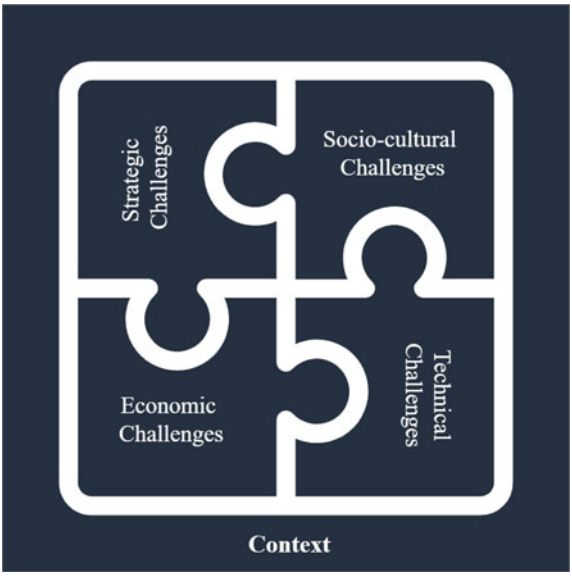

Fig. 1 Contextual challenges of CALL teacher education and professional development in under-represented contexts

3 Discussion

Besides the issues highlighted in the previous section, inequitable access to tools, facilities, and support remains the most significant contextual challenge. Interestingly, there is a significant gap in the literature highlighting inequitable access to tools, facilities, and support in the major CALL journals between the early 2000s and 2020. Back in 2004, Egbert and Yang (2004, p. 282) highlighted that there was a major "digital divide" between "those who have technology and those who don't" as well as those who had the appropriate technological resources for their teaching needs and those who did not and that this divide was based on "political, economic, philosophical, and other influences." The literature at the time showed that while some staff and students had access to the latest technologies as well as professional development to use them and technical support in case of glitches, other staff were entirely reliant on their personal resources and patchy access to computer laboratories.

Our review of the literature in the major CALL journals between 2010 and 2022 finds very limited reference on the digital divide, and most studies refer to individual personality factors influencing the uptake of technologies and professional development on the technical aspects of CALL. Perhaps this is because those institutions and individuals who had promoted CALL had obtained the necessary technical resources, while the remainder of language teachers had remained focused on using CALL only for drills or gaining students' attention at the beginning of the class and concentrated instead on face-to-face instruction which is also highlighted in Egbert and Yang' study (2004).

The worldwide shutdowns and rapid move to emergency remote teaching changed the nature of uptake, with all language teachers suddenly expected to move into online teaching and, consequently, CALL. As noted by Rachmawati et al. (2022), in the Indonesian context, major contextual issues and a huge digital rift were revealed with some areas lacking the most basic Internet infrastructure and having extremely low bandwidth. Large number of students and even teachers had no Internet access at home or lacked the devices to access the Internet. While in a number of contexts, teachers were provided with devices and data to teach online from home, students did not necessarily have access to the same resources. In addition, professional development in using technologies was limited, if not entirely missing. For example, in a news report in 2020, Lee (2020) highlighted that in the Indonesian context, 90% of teachers received Internet and device allowances, but only 20% of teachers received professional development in using those devices.

Correspondingly, with the sudden need to teach online from 2020 to 2022, the CALL literature again emphasizes contextual issues due to access in multiple contexts, and like Egbert and Yang back in 2004, the literature again reveals inequalities both in terms of basic access and quality of access. There are technological inequalities between countries (e.g., Hazaea et al., 2021), wealthier and poorer students and staff (e.g., Hazaea et al., 2021), regions within a country (e.g., Back et al., 2022; Slaughter et al., 2019), rural and city locations (e.g., Back et al., 2022; Slaughter et al., 2019), type of institution (e.g., Rachmawati et al., 2022), and even between different academic staff and discipline areas within an institution (e.g., Rachmawati et al., 2022; Shak et al., 2022). The movement of all learning and teaching online during the COVID-19 shutdowns was particularly challenging for language teachers due to the interactive nature of the content and technical limitations versus other subject areas (e.g., Bilki et al., 2022).

The nature of contextual challenges differed from context to context. For example, Christiansen and Els (2021) reveal the challenges Zulu teachers have in developing resources using an application due to their lack of technological skills and bandwidth, while students were challenged in using the application due to their lack of digital knowledge and access. This was also the case in the Malaysian context, where teachers struggled with the introduction of gamified learning due to their own lack of professional development and the challenges of teaching the students how to use the application (Shak et al., 2022). In contrast with these issues related to the quality of technology use, in low-tech socially disadvantaged contexts, teachers were not able to access technologies at all. For example, Lyu and Lai (2022), in the Thai context, suggested that low-tech contexts rely on traditional media such as radio and television rather than CALL due to extreme inequalities of technical access.

This chapter is significant due to the fact that a widespread and all-encompassing discovery of complexities in CALL teacher education and professional development in under-represented contexts can clarify language teachers' needs. Therefore, language education stakeholders and policymakers can benefit from this chapter by improving their understanding of the available contextual barriers, especially in the current situation of enforced online teaching.

4 Conclusion

For almost twenty years, the literature on CALL teacher education and professional development has emphasized teacher-related factors rather than contextual factors. However, with the advent of COVID-19 and the rapid move to emergency remote teaching, contexts where staff previously did not engage significantly with CALL have suddenly required urgent training in CALL. This chapter has revealed the emergence of a body of literature on CALL professional development in under-represented contexts. In some cases, the contexts are geographically under-represented in the CALL literature, but in many others, contexts where teachers previously did not need or were not willing to engage in CALL. This chapter demonstrates that there are significant technical, resource, strategic, sociocultural, and economic issues that need to be addressed in order to ensure that teachers in all contexts are provided with appropriate CALL teacher education and professional development.

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Part II
Voices of Pre-service Teachers

Chapter 3
Pre-service Chinese Foreign Language Teachers in Blended CALL Preparation Program: Case Study in Taiwan

Mei-hui Liu and Robert C. Kleinsasser

Abstract This chapter reports on participants in a blended CALL preparation program offering face-to-face and online professional learning opportunities in a Taiwan teacher education context. Eighteen pre-service foreign language teachers participated in a 10-month internship offered by a Chinese Language Center affiliated with a private university and sponsored by the Taiwan government during the School Year 2019–2020. Five practicum mentors supervised these prospective teachers to design and deliver technology-enriched instruction to authentic students on a synchronous learning platform. Multiple qualitative data sources offered evidence documenting the process and growth of these pre-service teachers' learning as they explore, communicate, collaborate, and reflect during their CALL professional development experiences. This case study also revealed the potential factors that may facilitate or hinder participating pre-service teachers' learning to teach with technology. We present relevant CALL research issues and encourage further investigations of understudied participants in an understudied online context based on the case study's findings and implications.

Keywords Computer-Assisted Language Learning (CALL) · CALL professional development · Blended teacher training · Chinese language teacher education · Pre-service teachers

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1 Introduction

CALL teacher preparation where practitioners aim effectively to infuse technology into in-person or web-based classroom instruction gains increasing attention (Son, 2018; Tafazoli, 2021; Torsani, 2016). The case study in this chapter from an under-represented context and understudied pre-service (language) teachers (PTs) echoes recent researchers targeting blended learning (BL) in CALL teacher education and development to meet teaching and learning needs in a digital era (e.g., McNeil, 2016; Oliver & Stallings, 2014; Vaughan, 2019). There has been sparse documentation in the wider literature concerning pedagogical and empirical foundations of blended learning which is seen by some as a shifting paradigm in teacher education, particularly during the COVID-19 pandemic period (see e.g., Kim et al., 2019; Lockee, 2021). Lockee further acknowledged that emerging research aims to "feature the stories of teachers' rapid shift to digital and related efforts to prepare them to effectively design, develop, and implement [online and blended learning] instruction" (p. 18). The research project reported here from Taiwan explored the effectiveness of blended teacher training from an under-represented CALL teacher preparation context with an understudied subgroup of pre-service Chinese foreign language (CFL) teachers. The two research questions included: (1) How effective is BL training program on pre-service CFL teachers' CALL professional development? (2) What factors, if any, facilitate or hinder these pre-service CFL teachers' learning to teach with technology?

2 Voices Already Heard

Philipsen et al. (2019) alerted that most relevant online and blended research studies were previously conducted in western regions, while McNeil (2016) and Chien (2022) further argued that there continues to be very limited research examining BL in language teacher education where language teachers involve themselves in BL and infuse relevant experiences into digital classroom instruction. A vast majority of studies solely focused on language teachers' acceptance or awareness of using technologies (e.g., Shin & Son, 2007; Sun & Zhang, 2021; Taopan & Siregar, 2021; among others) or perceived effectiveness of technology training courses/workshops (e.g., Hsu & Lin, 2020; McNeil, 2013; Morales et al., 2019). This bank of research may offer implications for teacher educators designing CALL-related training courses; nonetheless, it fails to keep track of how language practitioners apply technologies to authentic classroom practices. Additionally, the studies usually relied upon English language teaching and learning examples (ESL, EFL, TESOL, etc.) and rarely utilized other languages in contexts outside of western English language dominance. The particular aspect of a burgeoning Chinese as a foreign language teacher education landscape has the potential to consider similarities and differences between English and Chinese language acquisition and teacher education

findings, conundrums, and possibilities. The following literature review briefly highlights understudied contexts utilizing both English and other languages (including Chinese) examples to highlight trends and themes in the recently published literature concerning the application of technology in language learning environments (online, face-to-face [f2f], and blended). We first entertain a group of such understudied contexts and then specifically highlight Taiwan as a burgeoning understudied context because our case study focuses on Taiwan.

2.1 CALL Teacher Preparation Studies in Under-Represented Contexts

Some pioneering studies reported the extent to which pre-service or in-service language teachers applied what they learned from relevant coursework/workshops to teaching students in classroom contexts. For example, Son (2014) investigated in-service foreign language teachers' classroom instruction after they finished graduate-level CALL coursework in Australia. These in-service teachers, representing various Asian countries, valued their coursework, refreshed their perceptions of CALL education, and enhanced their confidence in technology integration into teaching different languages. Yet, several contextual or personal factors hindered some teachers from using computer-mediated instruction—noting a lack of time and students' access to computer facilities, limited support from institutions, and teachers' attitudes toward and confidence/competence in/with CALL. Syafryadin et al. (2021) reported pre-service English as a foreign language (EFL) teachers' experience with various CALL applications for teaching four English skills in Indonedia. The PTs enrolled in a micro-teaching course upon completion of their English pedagogy subjects. These PTs delivered technology-enriched instruction to senior high students and used diverse CALL tools in each classroom; however, their students reported that the listening and speaking skills taught with computers were not successful. Participants expressed hindrances during their CALL implementation including challenges with internet connections, understanding materials, technology application procedures, student learning style/assessment, and classroom discipline.

Kılıçkaya and Seferoğlu (2013) observed PTs in Turkey enrolled in an elective CALL course utilizing classrooms from different institutions. These PTs infused various CALL-based materials and internet tools into English instruction that helped their students practice grammar, listening, and writing skills inside and outside classrooms. Kılıçkaya and Seferoğlu attributed the positive impact of teacher preparation training to enhance their PTs' theoretical concepts and software- and web-based applications. Yet, in another Turkey context, Merç (2015) reported limitations of how facility and internet connections influenced PTs' technology application practice after completing a short-term practicum. Although these PTs acknowledged CALL language instruction affordances and challenges, they also reported limited use of technologies, insufficient teacher training, lack of facilities in the practicum schools,

and perceived un-readiness for CALL education. These PTs, in particular, were eager for cooperating teachers to offer support as role modeling mentors. Kılıçkaya (2019) described in-service EFL teachers taking a series of training workshops focused on web-based tools and digital teaching materials. These participants utilized technological devices and infused digital tools into their English instruction. Yet, their intentions weakened primarily due to unreliable technological devices and high-stake exam pressures in Turkey.

2.2 CALL Teacher Preparation Studies in Taiwan

There has been a developing interest in investigating the effectiveness of CALL teacher training coursework, programs, and/or workshops in Taiwan during the twenty-first century. When designing CALL training components or evaluating learning outcomes, a vast number of researchers utilized the theoretical framework of technological pedagogical content knowledge (TPACK; Mishra & Koehler, 2006). In the pre-service training field, for instance, Tseng et al. (2019) adopted a design thinking approach to document how pre-service EFL teachers enacted TPACK when engaged in web conferencing teaching practices with real students. Cheng (2018) also used TPACK to examine pre-service Chinese as a foreign language (CFL) teachers' technology infusion with pedagogies and content when delivering online short-term instruction to overseas foreign students. Cheng found that the design of online practicum curriculum, the involvement of intern advisors, and peer cooperation contributed to the PTs' TPACK development. In a semester-long course, Tseng and Yeh (2019) recruited EFL PTs to participate in a project-based learning program. The TPACK components' analysis demonstrated participants' progress in developing CALL competences.

A few authors did not situate their studies within the TPACK framework. For instance, Lan et al. (2012) prepared prospective CFL teachers' technology professional development via online simulation teaching practices. The findings showed that PTs perceived progress in using online tools for student-centered activities during their synchronous teaching experiences. Yang and Kuo (2020) provided graduate-level PTs with three online learning systems from which these teacher trainees chose one platform for their future intern teaching. These PTs observed in-service teachers' language teaching on these systems and learned relevant CALL theories in relation to online platform designs. These experiential, hands-on learning and teaching practices fostered how these PTs re-conceptualized pedagogical CALL concepts. PTs further generated new teaching strategies during collaborative dialogs with experienced teachers, peer teachers, and system engineers to solve CALL teaching problems.

Some studies appeared unable to document language teachers' CALL applications in real teaching contexts during short-term in-service teachers' training workshops or courses. For example, Tseng and his colleagues reported EFL teachers' perceptions, common knowledge, and/or reflective thinking of applying technologies to teaching sequences and instructional strategies after completing CALL workshops (Tseng, 2012; Tseng et al., 2011). In a summer graduate-level course, Chao (2015) trained EFL teachers on how to integrate language learning content, learner-centered pedagogy, and Web 2.0 multimedia. This study reported how teachers acquired TPACK knowledge by means of a teaching presentation at the end of this training course.

A few studies investigated the effectiveness of CALL training components on teachers' classroom instruction. Tai (2015) examined how EFL teachers integrated technology tools into their instructional practice at six elementary schools after receiving TPACK-in-Action CALL workshops. According to the non-participant observations in English classes, these participating teachers overall could apply 12 out of 18 tools learned with appropriate pedagogy and meet a variety of teaching objectives. Tseng et al. (2016) reported the relationship between CFL teachers' use of web conferencing technology and their TPACK development via a teacher support group. The collaboration among group members inspired teachers to follow peers' innovative teaching ideas, helped them cope with technical difficulties or instructional problems, and overcame the drawbacks of online teaching practices. This learning mechanism played an instrumental role in developing these teachers' TPACK via web-based instruction. Tseng (2019) investigated how EFL teachers enacted their TPACK while transforming their previous teaching with mobile technology. These teachers created and incorporated iPad-based teaching materials into instructional activities and tasks after receiving an introduction to TPACK concepts and mobile-assisted language teaching. While these teachers enhanced their technology professional development, their access to technical facilities and the support they received when utilizing iPad functions appeared to influence these teachers' TPACK classroom enactments.

Chien (2022) stressed a limited amount of research incorporating f2f and online teacher learning opportunities in language education, as previously noted. The addition of blended training modules to enhance CALL teacher development remains relatively current, especially in under-represented contexts (including Taiwan). The design and findings of this chapter's case study may shed light on what PTs could learn during a blended training program and how PTs reflected on and strived for enhancing CALL competencies and applications, if at all.

3 The Case Study

3.1 Situating e-Learning and Teacher Training in Taiwan

The Taiwan Ministry of Education (MOE) has, since the 1980s, endeavored to promote e-learning research and development (MOE, 2021a). Kong et al. (2014) reviewed stages of government investment: (1) national plan of e-learning (1997–2002), (2) national science and technology program on e-Learning research (2003–2008), and (3) task force on digital literacy and national programs on mobile learning and school-based e-learning (2009–2014). Over the past decade, the Taiwan government has offered financial sponsorship to researchers and school administrations for professional development programs motivating teachers to change previous pedagogical approaches and integrate information and communication technology (ICT) into daily instruction. From 2017 to 2020, the MOE continued to promote the use of official Cloud learning platforms established in 2012 at all school levels (MOE, 2021a). The MOE promulgated a policy in 2021 to equip K-12 teachers with the abilities in technology and multimedia application to meet the implementation of 12-Year Basic Education Curricula starting from 2019 (MOE, 2021b, 2021c).

The 10-month teacher education and professional development program serving as the context for this chapter's case study was sponsored by the Taiwan government during the 2019–2020 School Year and offered by the Chinese Language Center (CLC) affiliated with a private Taiwan university. The current pre-service training program under investigation aligns with Vaughan's (2019) idea of a blended training module with "the intentional integration of classroom and field-based learning experiences through the use of digital technologies" (p. 2). The CALL teacher preparation project promoted infusing in-class and online training with more flexible, active, and self-directed learning opportunities among teachers (Kennedy, 2021), cultivating collegial interactions and collaborations among practitioners (Kim et al., 2019; Trust & Horrocks, 2017), and fostering creativity and effectiveness in technology-enriched instruction (Arifani et al., 2019; Lockee, 2021).

3.2 Participants

All participants were recruited based on their willingness and availability in accordance with ethical guidelines. Eighteen PTs participated in this internship program for teacher trainees, including undergraduate students taking CFL teacher training courses in the Fall of 2018 or those who completed relevant training beforehand. These trainees (14 females and 4 males, ages 22–45) aimed to develop their careers as Chinese language teachers due to the demand for CFL education in overseas countries and the new trend of Chinese distance education in recent years. Based

on screening test outcomes, these participants' general English proficiency is intermediate high level or above, which shows their potential competence in teaching Chinese to foreigners in English, if needed.

Three university faculty and two online teaching supervisors (all females, ages 32–45) served as practicum mentors providing CFL teacher trainees with professional development and integrating technology into speech act instruction during this study. The former included three experienced instructors who have taught Chinese to foreign students for more than eight years at a CLC and have experience with online instruction. These mentors, respectively, supervised two groups of trainees' speech act instruction and pragmatic theories in f2f and online training workshops. The latter were two CALL teacher trainers working at the *JoinNet* company (https://blog.joinnet.tw/) in partnership with a charity association offering online remote tutoring to remote area underprivileged students. The *JoinNet* staff has supervised college students' online instruction for more than 3 and 5 years. Individually, each fostered three groups of trainees' learning to teach with technology. Further, all five mentors joined an asynchronous discussion forum to assist CFL teacher trainees' online speech act instruction.

3.3 Blended CALL Training Program

The blended CALL training program incorporated both f2f and online professional development components: (1) f2f technology training sessions, (2) f2f instructional design workshops, (3) online pre-teaching practice, (4) online speech act instruction, (5) f2f or online post-teaching discussion, and (6) asynchronous discussion forum. The essence of the designed components is based on the ECCR model (exploration, communication, collaboration, reflection) of CALL teacher development (Son, 2018). Figure 1 displays the implementation procedures and overview of teacher training activities.

3.4 Data Collection and Analysis

Multiple data sources documented the PTs' CALL teacher development (see Table 1). The PTs reported their perceived process of technology professional development during online interviews and reflection journals, including guiding prompts for PTs collected via Google Forms. Mentors made comments on these PTs' learning to teach with technology and the teacher-researcher (the first author) collected available online discussion messages and digital artifacts, and made field notes throughout the study.

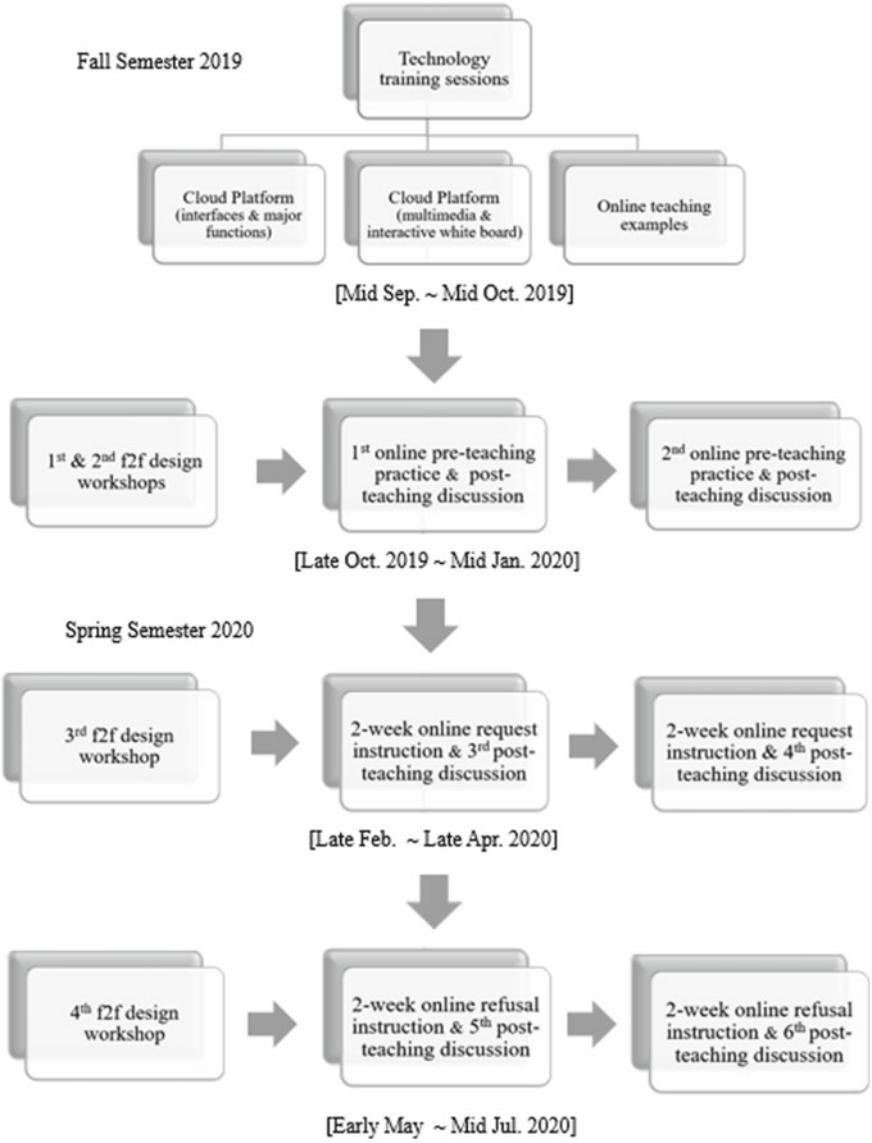

Fig. 1 Implementation procedures of teacher training activities. *Note.* Each workshop and post-teaching discussion lasted for 2 h and per-teaching practice 1.5 h. PTs in groups ($n = 3$) delivered speech instruction to students ($n = 4$ or 5) during 8 weeks (2 sessions per week; 1.5 h/per). The participants joined discussion forums when they were available

Table 1 Data collection methods

Participants	Data	Reference sources
PTs	2 interviews (mid Jan./Jul. 2020)	Son (2014), Tondeur et al. (2017)
	2 reflection journals (late Jan./Jul. 2020)	Eslami (2011), van Compernolle and Henery (2015)
Mentors	2 interviews (late Jan./Jul. 2020)	Son and Windeatt (2017)
Teacher-researcher	Discussion messages; artifacts; fieldnotes (study's duration)	–

Data collection and analysis were initially situated within the ECCR (exploration, communication, collaboration, reflection) model (Son, 2018) that utilizes constructivism, social constructivism, situated learning, and reflective practice in relation to CALL teacher development. Thematic analysis (Clarke et al., 2015) then ensued and further guided the qualitative data analysis and case study presentation. The interview transcriptions, reflection journals, online posting messages, and field notes were continuously compared and contrasted and assisted in data organization with particular themes and issues.

4 Lessons Learned

We utilize the two research questions as headings to begin responding with the evidence as findings for this particular case study. The first research question has four subsections, including exploration, communication, collaboration, and reflection (ECCR), to share the CALL teacher development of our understudied participants in an understudied context. The second research question has two subsections focusing on factors that facilitated and hindered overall CALL teacher development for this particular case study.

4.1 How Effective is the BL Training Program on Pre-service CFL Teachers' CALL Professional Development?

4.1.1 Exploration

Most PTs reported active engagement and strong motivation when collecting their perceptions of technology-enhanced instruction in the first interview. Their exploration experiences started from personal adventure and within-group discussions to mutual sharing among groups during f2f and online training components. In the first reflection entries, they noted "amazing findings of Cloud technologies" or "great

group work on exploring online teaching pedagogies." The field notes recorded "Group 4 and 6 were working together on finding multimedia games (e.g., jackpot, maze, or word cloud) and matching them to next peer teaching practice" during the second lesson plan workshop. Additionally, the PTs attempted to seek CALL information from various online learning sources recommended by practicum mentors. For example, one mentor described in her second interview, "They are quite good at following the Facebook 'Chinese Treasure Box' and sort out the easier way to adapt a few online activities from the famous WordWall platform." The most challenging but fruitful exploration phase was when the PTs engaged themselves in teaching real students on the Cloud platform. They shared in the final interview that they explored and revisited their perceptions of online teaching pedagogy after interacting with students. For example, "When we found silence from students, we realized online teaching is not just playing ppt slides relating to refusals. We have to figure out how to help with students' learning, such as playing videos or online interactive activities."

Despite the active engagement described above, half of the PTs confessed their uncertainty about exploring and selecting the most appropriate technology tools for online instruction in the second interview. This seemed primarily due to their recognition that "to know technology-enriched instruction is one thing, to put it into practice is another" as prevalently reported in online discussion messages throughout this project. One PT typically confessed in the first reflection entry, "The great varieties of digital devices we could find online did make me blind in determining the top option to be used." According to mentors' comments in the first interview, online instruction is new to these trainees, so "it's easier to find technology tools, but it's challenging for [PTs] to make them best fit into classroom teaching."

4.1.2 Communication

All of the PTs revealed their awareness and perceived knowledge in building both f2f and/or digital communication with various stakeholders (i.e., peers, mentors, technology professionals, and students) in the first interview. These PTs tried to maintain communication channels via social media (i.e., Line or Facebook) and the *JoinNet* platform in addition to f2f learning opportunities. One PT stressed, "Our group has been trying to build up connections with mentors and students via online communication channels. It's very convenient and efficient." Individual group's communication with assigned students via the Line platform helped most PTs understand "how to have interactions with students more interesting and natural during the online instruction." As exemplified in the field notes, "In the second f2f design workshop, Group 6 kept discussing with mentors and other groups about how to create a conversation context based on traffic jams and then assign students to complete a request-refusal task." Furthermore, the mentors recommended PTs to consult other professionals on designing technology-enriched lesson units. As reported in the second interview, "I did ask [PTs] to subscribe to several technology professionals' YouTube channels and consult them on how to use the updated tools in online language teaching."

Seemingly, not all of these teacher candidates were very active and/or successful communicators during this project. When interviewed near the end of this practicum, the mentors commented that most PTs had difficulties using nonverbal communication skills online (e.g., facial expressions via the webcam or online marking functions) to promote teacher-student interaction or turn-taking among students. They also highlighted that a few PTs blocked themselves from communicating with students when adhering to teacher-dominated language instruction in the digital environment. For instance, "Two PTs in Group 4 kept talking and lecturing without giving students enough opportunities to communicate with them or among peers." Moreover, these mentors also observed that a few PTs always kept quiet or passive in communication with other community members, perhaps because "they had heavy part-time jobs and limited time to get involved" or "they didn't have any teaching experience and felt timid during f2f or online discussion." The aforementioned findings may result in why more than half of these PTs regarded themselves as unskillful in facilitating teacher-student interactions and cooperative learning among students in the final reflection journal.

4.1.3 Collaboration

These PTs' involvement in exploration and communication, as previously revealed, appeared to determine their work with peers for collective teaching tasks and management of online collaboration among students. In the first interview, all the mentors complimented PTs' peer collaboration in "sharing teaching materials, digital gadgets or tools, and also solving technology application problems among groups" which gradually assisted in developing a professional learning community. In the final interview, a majority of PTs reported their high-performing collaboration with group members during their practicum preparation and online instructional practice. They described dynamic behavior in cooperating with others, such as "frequent online meetings and discussions to settle down the teaching flow and content" or "extra visits to the practicum mentor on campus in order to do teaching rehearsals beforehand."

By contrast, a few community members found limited collaboration with others citing three major reasons. First, several PTs expressed their hatred toward free riders during the first interview, stating "[t]hey seldom contributed themselves to teaching preparation and just waited for us to do everything." Second, according to the mentors' comments in the second interview, PTs in the same group may have different teaching philosophies toward online instruction, which in turn "caused an inharmonious learning atmosphere among group members." Third, as shown in the second reflection entry, several PTs with part-time jobs confessed to participating less in teamwork, mainly due to time conflicts and infrequent connections to peers when their group was designing or implementing collaborative tasks.

These PTs reported having mostly limited skills in reading professionals' expectations when it comes to facilitating and supporting learner collaboration to co-construct knowledge. The mentors pinpointed the issue of classroom or time management challenges in their second interviews. "[PTs] sometimes could not manage

students' quietness or excitement in online learning, so they didn't stir up the cooperation atmosphere among students very well." "They are not familiar with teaching and it's hard for them to manage their time. So, they got to rush and finish several teaching sessions without allowing students to work as a group." In accordance with the mentors' earlier comments on some PTs' teacher-dominated communication with students, such one-way delivery approaches made it difficult to promote cooperative learning within a web-based learning environment. Some PTs reflected in final journal entries: "I often taught too much and didn't allow students to work together." "We got to finish the teaching content, so we didn't keep much time left for students to discuss with each other."

4.1.4 Reflection

These PTs experienced ongoing reflections when they explored CALL education by communicating and collaborating to achieve teaching and learning goals. A majority of PTs assessed themselves as having the knowledge and ability to select, evaluate, and integrate online materials into teaching practices when reflecting on using digital resources they explored. In the final interview, one concluded: "Practice makes perfect. There is no doubt that we do make it after this practicum experience." Peer discussion and mentor guidance encouraged the PTs to continue self-evaluation and engage in critical reflection concerning online teaching practices. As shown in the final journal entry, they enhanced self-introspection in realizing "we got to keep what benefited student learning and avoid online activities irrelevant to teaching content." The field notes recorded PTs' constructive reflections, for example, in the fifth post-teaching discussion meeting. "Group 2 and 3 members took turns to comment on their own and peers' teaching practices. They identified that several sessions of speech act instruction need improvement, particularly in relation to teaching the differences between eastern and western cultural norms." At the end of this study, more than two-thirds of PTs underscored their positive learning experience in the interview, for instance, stating: "The more we reflected on our teaching practice, the better our teaching could be improved." They achieved their goals to "build self-confidence in becoming an online Chinese instructor."

Meanwhile, more than half of these PTs self-monitored what may hinder CALL teacher development in individual groups, as revealed in final interviews and journals. They mainly included (1) limited person-power to prepare self-made teaching materials, (2) time-consuming rehearsals on applying online gadgets into teaching, and (3) hesitation to try novel digital tools recommended by professionals. Seemingly, "they were aware of catching up with something new in this digital era, yet sometimes playing it safe might be the reality for new teachers" as commented by one mentor at the end of this project. This may explain why a few PTs admitted that they felt incompetent as CALL teachers and further highlighted their preference for in-person classroom practice after finishing this particular online practicum. When interviewed, they typically confessed: "I am a bit slow in learning hi-tech stuff, although I have

done my best to try it." Several remarks in reflection entries described "To be honest, it would be easier for me to teach Chinese to foreigners in classrooms on campus."

4.2 What Factors, if Any, Facilitate or Hinder These Pre-service CFL Teachers' Learning to Teach with Technology?

4.2.1 Factors Facilitating CALL Teacher Development

The participants revealed positive factors contributing to these PTs' CALL teacher development, mainly including (1) flexible professional learning contexts, (2) professional's mentoring and guidance, (3) peer collaboration and mutual support, and (4) students' engagement in online instruction.

The PTs appreciated their participation in this blended training program in both interviews, stating "it's very flexible and convenient for our learning" or "our group members could gather together either f2f or online when everybody was available." The mentors also reached an agreement in the second interview, concluding "this blended teacher training fostered PTs to learn together in f2f and online contexts…not to be confined in either context."

The continuous mentoring available assisted most of these PTs to explore and apply the technology-enriched instructional practice. These PTs reiterated in final interviews that "we could not make it during this online practicum without CLC teachers' and technology supervisor's guidance." According to the teacher-researcher observation, "PTs in five groups kept asking mentors various questions right before their first week of online teaching. Obviously, they needed professionals' confirmation about their teaching preparation."

Peer collaboration and mutual support facilitated the majority of PTs' technology-enriched teaching practice. As noted in the first interviews, they cherished working experiences with peers "who have various educational backgrounds and majors. This stimulated the whole group to evaluate language teaching practice from different angles." Although PTs should make efforts to regularly maintain group cooperation and cohesion, in the final journal entries, they regarded working in groups with colleagues as "a meaningful learning process to discuss and negotiate teaching ideas among group members, even if we sometimes may espouse different opinions and had heated debate over several details."

PTs found their students' engagement in online instruction an encouraging reward when preparing and delivering CALL online instruction. When first interviewed, PTs reported "our group did learn a lot from students' feedback to our previous instruction. When students told us what's wrong with our teaching presentation, that means they really care about this learning experience." At the same time, the mentors also observed how much "[PTs] care about student engagement in their online teaching because this is the best judgment on their performance."

4.2.2 Factors Hindering CALL Teacher Development

Three major concerns seemed to impede the participating PTs' improvement or performance in online instructional practice. They are (1) unfamiliarity with integrating technology and teaching pedagogy, (2) uncertain professional identity as online instructors, and (3) disagreement or conflicts during peer cooperation.

All mentors maintained most PTs encountered difficulties in choosing appropriate technology tools to match online pedagogy at the early stage of this practicum because "to know how to use technology is one thing for [PTs], yet to put it together with teaching is another." Similarly, some PTs revealed their concern in the first reflection journal, such as describing "I felt guilty when giving up teaching refusal usages via the WordWall activities we designed in the lesson plan [for the pre-teaching practice]. I didn't have time to get well-prepared." The field notes recorded the same dilemma these PTs faced at the beginning of the online practicum. For example, in the third post-teaching discussion meeting "Two Group 5 members confessed why they gave up using treasure hunting game in the second week. It's because they were not good at presenting various sentence structures of making a request via the online interface."

Almost half of the PTs revealed their uncertainty to become online Chinese teachers in the first interview. For example, "I am not quite sure whether I would choose to be an online teacher. So, I just pick up what I could learn from this practicum experience." Near the end of 8-week practices, one-third of these trainees were still not certain of their professional identity as online instructors, as typically reflected in the journal. "After this online practicum, I realize it's more demanding and time-consuming to teach a language online. I may choose to teach Chinese in f2f classrooms where I only need to use a few technology stuff."

Less than half of the PTs regarded disagreement or conflicts during peer cooperation as a serious problem throughout this project. As reflected in the first journal, "Sometimes our group got stuck in teaching preparation because one picky member always had different opinions of using specific online tools the others mentioned." When asked to describe group cohesion among PTs, two mentors portrayed what occurred to three groups at the end of pre-teaching practice; for example, "[some PTs] may delay their lesson preparation and influence teaching performance due to conflicting viewpoints in determining teaching activities or procedures."

5 Discussion and Conclusion

The process and growth of these PTs' CALL and technology professional development depicted how they explored and reflected on the application of digital resources, technology tools, and web-based pedagogies. At the same time, they had ongoing communication with peers and practicum mentors when conducting collaborative instruction online. The participants further shared factors facilitating and hindering their overall CALL teacher development, uncovering difficulties and concerns PTs encountered while engaging ECCR learning components (which are not necessarily

mutually exclusive). We briefly examine some of the convergent and divergent findings in the following paragraphs.

The case study findings support employing blended learning modules in CALL teacher development (see also McNeil, 2016; Vaughan, 2019). PTs within this particular BL training module found their experiences provided opportunities to develop, learn, and implement digital practices in f2f and online contexts. The PTs, with the assistance of faculty and supervisors, created a support community sharing CALL knowledge and practices. The participants attended to context-specific technology-related strategies through mentor guidance, peer collaboration, and PTs' and students' learning engagement, among other salient issues considering the affordances and challenges these PTs encountered in their digital platform and f2f environments (see also, e.g., Arifani et al., 2019; Dorner & Kumar, 2016; Moore, 2014; Tseng et al., 2016; Tseng & Yeh, 2019; Yang & Kuo, 2020).

Yet, the participants also highlighted some conundrums, if not divergent findings, within their BL learning professional development experiences. Around half of the PTs relayed uncertainty about applying various technology devices they explored and few applications appeared between and among other cohort members. For some of these PTs, their novice skills and developing self-efficacy limited some student interactions and restrained, at times, learners from co-constructing language knowledge on the teaching platform. Some PTs further mentioned several free riders and group members with different teaching philosophies negatively confounded teamwork during their experiences. Finally, a few PTs regarded themselves as incompetent CALL teachers and expressed their preferences for f2f class delivery. These and other challenges such as cooperative behavior, team cohesiveness, and varying technology skills, among others noticed in the literature, require further, if not continuing interrogation and investigation (e.g., Bravo et al., 2019; Cheng, 2018; McConnell et al., 2019; Tseng, 2018). These divergent, if not inconsistent or confounding variables corroborate Paesani's (2020) wider argument to give continuing attention to relationships between teachers' professional learning experiences and their intentions when engaging with online language education—online, blended, and/or f2f.

We encourage further investigations of understudied contexts and participants. This case study has shared important insights that have similarities within the wider literature and future studies need more acute attention to in-depth comparisons between research findings in more typically studied environments and those in understudied ones. As the details within this particular volume are codified, questions can eventually address, among others: What variables are unique to particular situations and contexts? What affordances and challenges do various stakeholders in these situations and contexts encounter? What are the aggregate variables (similarities and differences) understudied contexts and people offer to the burgeoning CALL teacher education literature? These and other questions require longitudinal research, larger-scale sets of participants (including pre-service language teachers and mentors, among others), and enduring attention to all kinds of professional development CALL training programs. The threads weave a more complete tapestry

of understanding how current teachers (both pre- and in-service) shifting from traditional f2f teaching to online or blended digital instruction are just beginning to offer texture, nuance, and colors (e.g., Lockee, 2021).

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Chapter 4
Secondary Pre-service English Teachers' Response to CALL Innovation in Cambodia

Ania Lian, Neary Lay, and Andrew Lian

Abstract Lian (2021) outlined arguments for international collaboration in teacher education in Southeast Asia. In the same paper, Lian also identified technology-based systems that have shown to be successful in already completed projects with pre-service teachers in Indonesia. However, no method guarantees success as each teaching context presents new challenges and new opportunities for reflection. In this paper, the authors share their team's reflections on a project that involved the use of CALL-based systems with pre-service secondary teachers of English in Cambodia in an online only environment. In every way, this was a new experience for the participating students. The project engaged collaborators from Cambodia and Australia. The present paper describes the context of this collaboration and presents the data that illustrate how pre-service teachers in Cambodia responded to the innovation. For projects of this kind to have an impact beyond their immediate context, it is necessary for educators to involve project reference groups in an ongoing evaluation of the programs and the factor that affect student engagement. This time, the funding was limited, which in turn affected the reference group's engagement and commitment to the project. Furthermore, the study demonstrated that online only environments are not suitable in contexts that depend on reliable and quick internet and that present a steep learning curve for the students.

Keywords Computer-assisted language learning (CALL) in Cambodia · English teacher education · International collaboration

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1 Introduction

The development of Asia in the twenty-first century is marked by a number of challenges, including the need to enhance people's employability skills, economy and infrastructure development, and breaking away from the reliance on the traditional technologies of farming and agriculture (Peou, 2017). The establishment of the Association of Southeast Asian Nations (ASEAN) community was motivated to support the region in these goals (Koty, 2016). Education plays a significant role in this process of change. The adoption of English as the "working language" of the ASEAN was a key policy decision aiming to build connections between the member countries and the rest of the world to advance the region's economic and educational developments (ASEAN, 2009, p. 28). In support of this decision, the Ministry of Education, Youth and Sports (MoEYS) in Cambodia issued a directive for all primary and secondary students to learn English, starting in grade four. To support the introduction of English in schools Cambodia developed a new national curriculum (Kingdom of Cambodia, 2015), designed new textbooks, and formulated the national Teacher Professional Standards (MoEYS, 2010 cited in MoEYS, 2019). These steps aimed to guide teacher education and professional development as well as teaching practice.

The national curriculum of Cambodia (Kingdom of Cambodia, 2015) reflects the general trend of modern international curricula which locate students in the community, both local and broader, and focuses education on forms of participation that support lifelong learning and citizen empowerment. Hence, the new national curriculum marks a clear shift away from the teaching traditions, which remove students from community dialogs and contexts which give learning both meaning and relevance. Nonetheless, implementing the new curriculum policy is not without its problems. Vira Neau, Director of the National Institute of Education (NIE), already in 2003, said that the nature of change from the traditional to the new curriculum objectives requires not only a pedagogical reorientation, but also a conceptual and cultural one. There are many challenges impacting the implementation of the curriculum. For example, the country struggles with equitable access to education services and high dropout rates of students in lower and upper secondary schools (MoEYS, 2019), teacher qualifications (MoEYS, 2019), outdated teaching methods (Ogisu, 2018), and adequate resourcing (Pov et al., 2019).

In their 2018 publication, Lian and Sussex argue that despite high levels of investment in English in Southeast Asia, English language proficiency levels are not improving. In their view, educational systems may need to re-think their teaching practices, "'Doing more of the same' in the current educational systems has not brought about the substantial improvements that are needed. Clearly new educational solutions will be necessary to achieve equality between the different countries" (p. 39). The English Proficiency Index (2018) data show a wide disparity in proficiency levels in the ASEAN countries, "with Singapore ranked 6/72 in the world (Very High Proficiency Country) in 2016, and Laos ranked 70/72 (Very Low Proficiency Country" (p. 39). In 2019, Singapore (5/100 in 2019) is again ranked high (Very High Proficiency Country) and Myanmar is listed 86/100 (Very Low

Proficiency Country). Notably, according to the Education First (EF) Proficiency Index (2019), out of 100, countries like Vietnam (52/100), Japan (53/100), Thailand (74/100), Cambodia (94/100) and Indonesia (61/100) also are ranked as Low or Very Low Proficiency countries. Furthermore, new data show that this trend continues, with Southeast Asian countries lagging behind the rest of the world.

Developing and implementing English as a foreign language (EFL) curricula that support national education policies is challenging. As indicated by King (2018) and Ogisu (2018), professional development for in-service EFL teachers reinforces Cambodia's traditional hierarchical culture and models a pedagogy of transmission, not transformation. Ogisu (2018, p. 780). Professional development workshops model the culture of classrooms, where information is presented top-down and modern education policies of student empowerment are traded for traditional goals and methods of practice. As reported by Igawa (2008, p. 364), objectives, such as supporting student agency and their critical participation in Cambodian society, teachers find confronting. Teachers feel challenged by the local culture of "shyness" and "passivity", dictated by the roles traditionally attributed to and expected from the school and educators: "Because … Cambodian students, most of them are a little bit shy. According to our culture, we don't really show off a lot. And to study English, they need people to socialize, be talkative … show their opinions. And it's very hard to get the students to communicate in English" (Igawa, 2008, p. 364). As observed by Needham (2003, p. 27), Cambodian classes, therefore, make use of passive educational techniques, in particular, choral recitation and rote memorization. Changing these techniques is to counter the social order that schools are meant to propagate and cultivate.

Needham (2003, p. 29) highlights that the notion that students could study by exercising their agency seems foreign in Cambodia, where the objective is to learn to depend on the existing social order and how things are done. As noted by Ogisu (2018, p. 15), "teachers do not really understand *why* the authorities ask them to adopt active pedagogical methods that are centred on the child …While they tended to welcome the educational policies relating to hygiene and health, they resisted the global promotion of democratic educational and children's empowerment values. According to King (2018) and Ogisu (2018), learning and teacher education thus continue to revolve around arbitrarily constructed scales of progression and the transformative objectives of the new national education policies are compromised. It is hence clear that the new education reforms have challenged both teachers and teacher educators in Cambodia. As Lor's (2021) study showed, EFL research in Cambodia does not provide the field with convincing answers or strategies. Most of this research focuses on higher education. Very few studies take an interest in schools and teacher education and those that do, e.g., Keuk and Monh (2021), do so without directly linking teacher training to both the national curriculum (Kingdom of Cambodia, 2015) and the Teacher Professional Standards (MoEYS, 2010 cited in MoEYS, 2019). This is a major weakness. As Lor (pp. 194–195) concluded, without a strong research arm, the implications of the new education policies and reforms remain vague to all concerned and teachers feel left alone in their struggle to respond

appropriately. Lor called for greater collaboration between the different education sectors in Cambodia, not excluding collaboration with international partners.

2 The Present Study

To assist the process of teacher development, Charles Darwin University, Australia, funded two studies to investigate the context of English language education in Cambodia with a special focus on teacher education. The initial study was conducted by Lor (2021), mentioned previously. The study understood the complex heritage of the country and its losses, and that to regain the nation's place in the regional and global economies, it is necessary for Cambodia to restore its capacity to mobilize its talents and expertise to address the pertinent issues that affect the country's education system, and this includes the teaching of English. The study by Lor revealed major gaps in teacher education and confirmed that appropriate integration of education into the broader community, adequate resourcing, and equitable access to education services for all continue to be a challenge. The study findings demonstrated that English language education stakeholders in Cambodia do not work as a community and pointed to a lack of leadership from the English language research community. Vagueness and inability to address specific aspects of education reforms permeated all comments of stakeholders engaged in the study. The findings showed that the decades of internal political turmoil have left Cambodia not only with diminished cultural capital, but also affected its capacity to rebuild, i.e., its social capital.

The study by Lor (2021, p. 136) showed that EFL researchers do not directly engage with schoolteachers for mutual learning and that the system lacks interaction conduits between the research/training community and the schools to enable better communication and understanding of the new education reforms and their implications for teaching/learning of English. Senior stakeholders in the study rarely addressed the role of research in progressing the new English language policies. Teachers and school principals understood that their professional training limited them to following the textbook provided by the MoEYS. The research was understood by them as something they have to do themselves, although they did feel that collaboration with expert scholars would help build a professional community that builds on research and practice. Lor recommended that small-scale projects are needed in Cambodia to inform policy, research, and practice.

The second study that Charles Darwin University supported developed from the above recommendation. The study engaged education experts from Cambodia and Australia specializing in English language and English literacy education. The overall objective of the study was to explicitly address the transformative objectives of the new national curriculum of Cambodia (Kingdom of Cambodia, 2015) and to translate these into a unit of work that would both support pre-service secondary English teachers in learning English, as well as a role model, a curriculum, and a method of learning that would align with the values and objectives of the new national curriculum.

2.1 Framing the Present Project

In order to progress the plan for international collaboration between Australia and Cambodia, the authors consulted a reference group that consisted of expert educators in key education institutions in Cambodia. A set of workshops was designed for the collaborators to agree on common goals and visions of the project. Subsequently, a curriculum was developed and discussed with the expert team of the project with a view to supporting the learning experiences of pre-service teachers that engender lifelong learning capacity. To this end, it was necessary that the curriculum-linked learning with the broader community and did so with the help of assessment tasks and learning strategies that placed the student inside of their communities. The learning objective in such a curriculum presented individual as situated and constructed learning as a process by which students increase their capacity to act in diverse contexts while considering the personal, local, and global factors that impact their condition. This focus on a student in his or her context signified a break with the goals and objectives of traditional English pedagogies which centered on language or content. In this new curriculum, students were confronted with the task to engage with others using communication techniques that help enhance the impact of such engagements.

On the other hand, in traditional models, students tend to be asked to cover thematically organized content often organized according to arbitrarily identified levels of linguistic difficulty. In traditional methods, the difficult content is left for "later", while in the curriculum devised by this project, the "difficult" was identified by the student and confronted for their communication engagements to be effective. This perspective on the curriculum is not new. Its tradition goes back to the 1980s, when the concept of microsimulation was developed by Professor Andrew Lian (Lian & Mestre, 1985) and his colleagues to support, what back then, was referred to as authentic engagement with language. In the US, the concept of education as engagement with the stakeholder community was put into practice through community-based learning initiatives that were developed to counter students' disengagement from learning Melaville et al. (2006). In the early 2000s, community-based learning principles were further developed into education objectives that were defined twenty-first century education vision (The Partnership for twenty-first Century Skills, P21). At the heart of these objectives was the understanding that making the connection between learning and the real world is imperative for student success. The key skills that the Partnership saw important for education to cultivate included creativity and innovation, critical thinking and problem-solving, communication and collaboration, information, media, and technology skills, and life and career skills. Language literacy was seen as a multiplicity of skills that develop in the context of students participating effectively in civic life through knowing how to stay informed and understanding governmental processes, exercising the rights and obligations of citizenship at local, state, national, and global levels, and understanding the local and global implications of civic decisions (P21, p. 2). The learning objectives identified

by the Partnership for twenty-first Century Skills were used by countries worldwide as a basis for the development of national curricula.

However, for the students to respond positively to the learning objectives of modern curricula, they need support. In the present project, CALL-based systems and learning stimulating techniques were utilized that were hypothesized to address students' individual needs that their respective projects may engender. To this end, a multi-sensory learning approach was utilized (Lian, 2021) and CALL systems that were developed especially to address the multi-sensory nature of learning.

As described by Lian (2021), multi-sensory learning approach makes use of Ramachandran's (1996) hypothesis, developed in the context of research with patients with paralyzed brains, that stipulates differences in the ways in which, typically, the human brain processes information. As Lian (2021) explains, at the heart of the multi-sensory approach to learning is the understanding that the human brain is multi-sensory. Modalities, such as rhythm, are holistic systems processed largely in the right hemisphere. Orienting students' attention to such holistic systems is hypothesized to stimulate "hypothesis building" (Peterson, 2017) in the right hemisphere. Focusing on the right hemisphere and helping the brain to bypass, at least to some degree, the left hemisphere is important. The left hemisphere is hypothesized to interfere with learning as it provides the learner with its expert information while, in fact, there is a need for change. Techniques that make it possible to bypass the left hemisphere are considered to have a "load reduction" function. Load reduction is important as it allows students to reduce the interference of competing information-processing demands, which generate interfering conflicts in perception, attention, thinking, and memory system (Grachev et al., 2001), thus making more attentional space available. Initial evidence that this load reduction is taking place was published by Lian et al. (2020) in the context of students learning English pronunciation. Other than rhythm, holistic systems that the project utilized included emotions (Damasio, 1994) and aesthetics (Ramachandran & Hirstein, 1999). The quality of multi-sensory strategies depends on the extent to which they can trigger the right hemisphere and stimulate hypothesis building to effect the desired change. The exact tools used in the context of this project are described by Lian (2021).

3 Methods

Cambodian pre-service high-school teachers of English were introduced to the teaching plan presented to them by the international team that was to teach them over the period of one semester, or 16 weeks. The plan was placed on the website (CDU-Cambodia Project, 2021), which was created for the purpose of the project, and which stored all tutorials for asynchronous access and links to online CALL resources that the students agreed to use on a weekly basis. The class schedule included weekly class meetings, every two hours, and 5 h of "homework".

The learning plan for the semester was structured around three assessment tasks. Assessment 1 involved the development of a personal website and a multimedia

story that students would see as worth communicating on their website. Assessment 2 involved students in designing a multimedia advertisement of their favored educational institution for their website. Assessment 3 requested students to design a presentation on any topic that they wanted to share with their local community. The students were also asked to translate these presentations into Khmer and offer a presentation to their local community. The idea behind this task was for students to create links between their understanding of the literacy rules of English and Khmer. Due to COVID, it was agreed that the students would give these presentations to their teacher education institution.

While the students worked on their individual websites and presentations, they were requested to work in groups of three to support and learn collaboration and teamwork. Besides teamwork, other learning outcomes included learning to utilize multimedia to enhance technical skills and creativity; demonstrating clarity in writing; understanding and using a range of genres effectively; fluency of speech; and demonstrating the capacity to approach and describe issues critically. Students were assessed on these tasks by their local teacher trainer.

To assess the impact of the project on the students' capacity to write in English, experimental and control groups were created. Each group produced compositions on the same topic in the pre-test and post-test stages of the project to be evaluated by independent raters. The experimental group was also asked to complete an online questionnaire to evaluate their own participation in the unit. The present report focuses on the questionnaire data and specifically on the extent to which the students engaged with online CALL systems to support their learning.

4 Lessons Learned

Thirty-nine students responded to the questionnaire out of the forty-four participating in the project. The project website provided students with access to all class recordings and links to pronunciation exercises stored on Moodle. The exercises had been used in previous projects by Ania Lian and Andrew Lian to support both speech fluency and writing skills. Students were introduced to Moodle with pronunciation activities and committed to completing these activities weekly to ensure that the project can test the combined impact of all resources that were provided to the students on their writing skills. The website also included free literacy and grammar activities available online. Their inclusion was to help students explore any gaps in their knowledge of grammar or literacy and also to entertain, as the activities were interactive and in the game form. The following sections summarize information obtained from the students.

4.1 General Comments

Over the course of the unit, 82% of the student cohort said they had access to the internet. However, the students could also use libraries and the resources of their institution. 94.9% of the students paid for the internet themselves. 92% of the students were aware of the website and its ICT resources. 61.5% said that they accessed the video recordings of online class meetings. Indeed, video analytics confirm that some of the videos were accessed asynchronously by the students. As one student said, "I only searched for resources when I did not understand something … there are a lot of supporting tools to find resources online these days. So, I do not [rely on any single] resource". Another student relied solely on Zoom meetings, "I clicked on the link that she uploaded in telegram and join every session". 69% of students said that they accessed Moodle-based pronunciation exercises that they committed early on to complete on a weekly basis. Some students had access issues, "I couldn't study [with others] cos I changed my new room, so the internet [was] switched off. [In] my new room [there was] internet [that I could] use only at night-time … using Zoom and Google Meet". A different student commented on the challenging nature of Zoom and how demotivating it was to his or her learning, "I learned from Dr Ania Lian class so little, since [I was largely absent from] class[es] and … exercises were missed. It would be better, if I [had a] chance to [meet] student.. physically, that would be more effective".

4.2 Moodle-Based Pronunciation Exercises

The rhythm and intonation exercises consisted of 15 weeks of lessons, delivered once a week; each lesson consisted of five sentences to be worked with. At the end of the 15 weeks, the students would have been exposed to 75 sentences in total. Exercises required 1 h of work per week. The same sentences were used in another study (Sudimantara, 2021, pp. 67–94) and consisted of academic written English. Sudimantara's study also provides a lengthy rationale for the method used here referred to as verbalism. Exercises followed the same patterns. At first, a sentence was presented in filtered form (low pass filter set 320 Hz) to stimulate processing in the right hemisphere. The sentence was then presented in the unfiltered form. Students were simply required to listen and mentally repeat what they heard, hum or even move to the rhythm of what they heard. On completion, a written transcription of the sentence became visible. Now, they could listen to a single repetition of either filtered or unfiltered versions of the sentence. Next, the record button would show up and the students could record themselves and compare their versions with the original. The report which follows is a sample of student involvement at three points in the course. One at the beginning, one in the middle, and one at the end.

There were 44 students enrolled in the class.

Sample 1: Lesson 02 Sentence 01

No attempts: 13

Attempts: 31. Ten students did the lesson two times; five students did the lesson three times, and one student did the lesson six times. This may be due not so much to the fact that they were keen to do the lesson but that they were experiencing difficulties with the system.

Sample 1: Lesson 08 Sentence 01

No attempts: 33

Attempts: 11. One student did the lesson two times, and one student did the lesson three times.

Sample 1: Lesson 15 Sentence 01

No attempts: 38

Attempts: 6. Of these, one student did the lesson three times.

Progressively fewer and fewer students engaged in the exercises. Students commented on the value of the exercises, "I have learned about how to listen [using] Moodle …", and "I have learned the sound of … words", but also on some challenges, "not everything went smoothly, I usually had problems doing the task. Sometimes, I did the tasks but due to the internet for some reason, it didn't load to the next part the way it should. I think partly because of the internet maybe. It's really frustrating. It takes a lot of time to complete each lesson. I find it quite full sometimes, so then I sort of gave up altogether". Most students commented on the workload that the exercises required, although they only added 1 h of work to the total of seven hours per week. However, problems with the internet may have added extra time and may have made the work seem harder than it was planned.

Other students commented on the instructions that the lessons required to follow. It needs to be said that the students were taught how to use the resource and the tutorial was recorded and made available to students for viewing in case they get confused. A student wrote, "The instructions and design are complicated". Other comments related to the structure of the exercises, "It was exciting, but not much different from one lesson to another". Based on the experience from previous studies, this may have been overcome if the students did these exercises using headphones but in class. This is what Sudimantara (2021) and other researchers did, possibly concerned that students may get bored or lose focus. Doing exercises together made them also feel like fun. However, in the present study, this was rather not possible because the contact hours were limited, and Zoom was not exactly an environment that would make much difference to the nature of the exercise.

Writing techniques using emotion and aesthetics as modalities triggering reflection. Students were also learning writing techniques using a method invented by Lian (2017, Sudimantara, 2021). As described above, the method relied on techniques that triggered students' reflection. Patterns that emerged from these exercises were then summarized to offer students references that would guide their reading and writing.

These sessions were taught by Ania Lian, while the local teacher trainer was present to assist communication between the students and the international expert. However, for many reasons, not all students were present at each session. Nonetheless, when asked about the relevance of these meetings to their learning, most students were positive and drew on the learning objectives of the unit. This was not too difficult as assessment tasks were described in terms of these outcomes. However, no student made the connection between the learning outcomes and the national curriculum of Cambodia (Kingdom of Cambodia, 2015). In other words, students' responses lacked the formality that reflective learning requires when evaluating one's own practice or those of others.

How much the students took out of these sessions will be clearer once students' pre- and post-tests are assessed. From the comments, the following can be deduced. Some students felt that they knew some of it already, "I did learn a lot from Dr Ania Lian's class although those lessons were something I already knew how to do and got familiar with. What I learnt most was the theory and the proper format of constructing something such as how to create stories and how to do advertisement. […] creating a website and a few other things were something I already knew how to do, yet I reckoned that most of my classmates had never learnt that before as they told me". Another student wrote in the same vein, "Learning from Dr Ania's lets me hav[e] an opportunity to get to know more about different writing structures and how to apply [them]. I've learned that all writing has its own message, argument, and so on". Websites and genres were often mentioned by the students, "I have learned creating websites, describing NIE, and making a presentation"; "Created [a] website"; "I have learnt a lot like how to create [a] website, how to create [a] poster for advertisement and how to [make a] presentation. I got some knowledge about how to create [a] website, story", "I have learned about website creation and educationally make it as a tool for sharing and advertis[ing]".

As was hoped by the project designers, some students identified the links between what they did in class and what they may do once they are in schools, "I believe that what has been taught does play a significant role in my future job and life as it is quite relevant. Knowing how to create a website, for example, is very crucial for [my] future job. We never know that maybe one day we might run a business, so we will need a website to advertise our products. What's more, those lessons also provide knowledge and build a strong foundation for my career as well. I will indeed transfer that knowledge to my students to better their learning and life skills"; "We can apply these lessons or strategies to help each other or the students.

I learnt how to create [a] website"; "Designing websites will help me know how to design an interesting website once I f[i]nd a school in the future"; "I learned and how to read … texts [and] upload video into the website"; "I [now] know how to create websites, can use Google form and Google classrooms, and make short stories. I can use all of them in my job"; "I learn[ed] that technology is very important for English teachers nowadays"; "I have learned from Dr Ania Lian about how to research any sources from the internet or book[s] to improve our skill[s]. More than this, I have learned lessons about my career in the future thought out motivating to be a professional teacher". Another student summarized, "I really [got] new idea[s] or

knowledge from them and I can use anything from those classes in my future job or my life. Thank you so much my teacher lovely!". Another student made connections with professional learning "Actually we can share knowledge or experience on the internet, and the learners can study or research by themselves also". Another comment, "I've learn[ed] a lot from this class such as … how to create a website by including the advertisement, presentation, poster, etc. … It's important for me as a teacher. I can use it in my real class and deliver what I've learned to my students".

The next comment summarizes the general message that emerged from the questionnaire, "I have learned a lot of things from Dr Ania Lian's class. I'm glad that first she taught me how to create [a] website, write stories on the website, especially the ideas that give… morals and social values to readers who read the story on my personal website. Secondly, she taught me how to create posters to promote the school as well as the importan[ce] of education. Last but not least, she introduced more [on] how to write our text on slides and prepare to present to the audience. She integrated various techniques on how to explain the main point in the slides to catch the audience's attention and make them interested in what I will share [with] them. As a future teacher, I will use this knowledge that I got from her to apply in my classroom in order to help my students. [This will assist me in] respond[ing] to the national policy and [help students to] be good people prepared for [the] college.

5 Discussion

The data from the questionnaire reveal that the collaboration between the international scholars and their institutions to support students' learning enabled a fresh approach to the teacher education program, with students and their local educators learning not only new things and approaches, but also about each other, their respective expectations of each other, and how to communicate for the best outcome. The teaching was preceded by a rather lengthy period of workshops where each party, including local expert educators, shared their knowledge about their context, achievements, and the general vision that frames teacher education in Cambodia.

Regarding the online environment, the message is clear that new learning experiences can be best integrated into a face-to-face context where students have direct access to the teacher and each other to gain confidence in the use of new ICT systems. Furthermore, institutions nowadays tend to have their own language laboratories and the internet. This would also help overcome some internet speed challenges reported by the students, a factor, that impacted their motivation to continue with rhythm and pronunciation exercises that proved very effective in environments where face-to-face contact was actually available. Internet issues also interfered with students' teamwork, which was one of the learning outcomes of the unit. Furthermore, limited contact hours and online only environment prevented the teaching team to illustrate to the students the benefits of using ICT resources included on the project website but not directly used by the project. Extra face-to-face contact hours would help to model the explorative use of online resources, a skill that is still new in Cambodia

and that needs special attention if pre-service teachers are to use it and also teach to build their own and their students' lifelong learning capacities.

A success of a project depends on its connections with the local expert community. At the end of the project, the reference group was invited to comment on the course, its design, resources, and the method of teaching. Collaboration of this kind is critical if the project is to impact stakeholders beyond the immediate teaching team. Yet, when requested to comment, the scholars had little time to engage. Only one expert commented but his or her responses were brief, mostly a sentence long. The brevity did not permit the scholar to relate his or her comments to a broader intellectual framework or national policies. The comments were more technical, such as, the expert observed that not many students were using camera during the Zoom meetings and that the use of transcript would have been beneficial. It needs to be said that all videos from Zoom classes are stored on YouTube, which provides its own transcript for each tutorial. Transcribing each of the 2-h meetings would have been beyond the project's capacities. Also, all tutorials were guided by PowerPoint presentations, which offered written texts to minimize confusion.

It is difficult to speculate about the causes of this limited engagement by the local scholar community at the end of the project. In future, it is necessary that projects of this kind engage expert teams more intensely, with the aim to affect the knowledge base of all involved. Some strategies may involve agreed processes that include in-class observations and comments on many aspects of the teaching process as it develops. This needs to be budgeted for. The present project failed to integrate well this communication process. This was a major shortcoming.

6 Conclusion

The present study reported on a project that was recently completed in Cambodia and that sought to utilize international collaboration in order to assist a teacher education institution in supporting its students with language and pedagogic skills to prepare them for future job challenges. It was agreed between the respective teams that such a collaboration would be beneficial as it would introduce to Cambodia pedagogic thinking that is based on the most recent scholarly evidence and that utilizes innovative online tools that proved so important during the COVID lockdowns.

The project was designed to begin a pedagogic discussion between scholars from Australia and Cambodia and was supported by funds from Charles Darwin University, Darwin, Australia. The teacher education program in Cambodia served as a context of this exchange for each party to communicate, observe, and explore the limitations in their own beliefs and practice to gain a better understanding of how such bilateral projects can be best organized for everyone to benefit. The project revealed a lot of positives, especially from the perspective of the students, who were exposed to ways of learning English language that connected them more to the community and less to textbooks. This connection is required by the national curriculum of Cambodia (Kingdom of Cambodia, 2015) and yet it proves to be most difficult to

integrate into practice as reported in Lor's (2021, pp. 137–139) study. As Lor noted, internationalization of English language curricula was seen mainly to mean "that courses are comparable with the courses at other universities overseas" (p. 138). However, the practical implications of this objective were not developed by Lor's interviewees. At the same time, teachers felt that they needed help with practical solutions from other teachers and education experts, "Teachers would like to see a Telegram-like group managed by an expert leader, maybe from MOEYS, to create a PLC [Professional Learning Community] for teachers to share work. Meeting like-minded teachers once a year would be a help" (p. 139). Quite possibly, the present project helped trigger the process of such expert community building. However, as noted, for greater impact, future projects need to better plan this collaboration and budget it with the understanding in mind that their ideas and practices frequently are very foreign to their collaborators and a true innovation requires time on task and commitment, both intellectual and financial, for best results.

The data from the student questionnaire showed that the project was well received by the students, however, a blended environment with face-to-face sessions would have been better suited, for students to be introduced to skills and competencies required to meet the learning objectives of modern curricula. This may be less of an issue in countries where students come already prepared by the school or their initial degree studies. However, in the present project, the expectation that the internet "would work" all the time, that students can trust the process, even when it seems monotonous at times, and that students can utilize extracurricular resources to build their language skills were unrealistic. Future projects should take account of these concerns and plan their pedagogic activities accordingly. The study also undermined the assumption that everything can be done online only. We are social animals and, even if the internet had never failed, students still would have felt the need for direct contact with each other to calibrate their feelings and expectations as they go about their learning process. This is especially the case when the learning process involves forms of innovation that are far from the learners' direct experience, as this was the case in the present project.

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Chapter 5
Fostering Digital Literacy and Learner Autonomy Readiness Among Pre-service Teachers in Online Education

Kadir Anıl Kara and Enisa Mede

Abstract This chapter aims to investigate the effects of online education on digital literacy and autonomy readiness in a Turkish pre-service teacher education program. The study also examines the relationship between digital literacy and learner autonomy readiness and explores the perceptions of pre-service teachers (PTs) about digital literacy and autonomy. The participants were 49 PTs enrolled in the freshmen program of the Department of English Language Teaching (ELT) at a private university in Istanbul. Data were collected through pre- and post-test results of the Digital Literacy Scale (DLS) and Learner Autonomy Readiness Questionnaire (LARQ), and semi-structured interviews. The results reported an increase in digital literacy and learner autonomy readiness after online education. However, there was a non-significant correlation between digital literacy and learner autonomy readiness. The interviews supported the findings that revealed positive attitudes toward technology and autonomous learning. The results revealed pedagogical implications and suggestions for promoting digital literacy and autonomy among PTs in online education.

Keywords Digital literacy · Learner autonomy · Pre-service teachers · Online education

1 Under-represented Context

Changes to instructional methods are always challenging to adapt for both learners and teachers, and with the rise of technology and new applications of technology in education, teachers have found diverse ways to promote learning (Chew & Cerbin, 2021). The role of teachers also changed dramatically in line with this transformation

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as students became more independent and self-managers in their learning (Tulay, 2019), and this challenged both curriculum designers and teachers alike. To promote independence, as well as integrate technology into the classrooms, especially during the pandemic where online education is becoming the new norm, educators need to approach these issues from a different lens. Digital literacy and autonomy are crucial factors to examine so that learners can become independent learners who are proficient in ICT and can adapt to the needs of the twenty-first century.

Due to the COVID-19 pandemic, most countries shifted to online education. Considering the Turkish educational context, the universities (both state and private) went through a sudden change from face-to-face to online education. All courses (undergraduate and graduate) were offered online either synchronously or asynchronously. Due to this change, the present study aimed to investigate the effects of online education on digital literacy and autonomy level among pre-service teachers enrolled in the undergraduate program of the English Language Teaching Department at a private university in Istanbul. Considering the participants of this study, online education is another factor to examine in this situation as it is the current preferred method of instruction in Turkey.

2 CALL Teacher Education/Professional Development Concerns

Learners always have been required to acquire the necessary skills to function in society after completing their education. While these required skills differed on the conditions of specific times, they were always in line with the necessary abilities to succeed in business life and contribute to society. One of the main differences in the twenty-first century is how interconnected and global our society has become, not only in terms of international companies and countries, but also on an individual level (List et al., 2020). Therefore, most educational institutions started shifting their focus on incorporating these skills into their curriculums.

Together with the evolving needs of the new generation, language teachers themselves are putting more emphasis on improving their proficiency in twenty-first century literacy skills (List et al., 2020). Since current teenagers and young adults are considered digital natives (Rothman, 2016), digital literacy is one of the crucial skills that both pre- and in-service teachers are suggested to possess. In the digital era, the relevance of the teacher professional development program has become critical in the areas of Computer Assisted Language Learning (CALL).

The majority of language classrooms today are technologically advanced, thus teachers must have the necessary digital skills and knowledge to give their students meaningful digital learning experiences. Language teachers who employ online learning technology today face difficulties because of unfamiliarity and a lack of digital literacy (Anas et al., 2022). Online instructional tools consist of different learning platforms (e.g., Blackboard or Canvas) which include a variety of learning

materials, video recordings, tasks, and assessment practices to support student-centered learning and promote active learning. While it has been determined that online learning platforms influence learning (Chu & Chu, 2010), factors that affect learning and learning behavior did not gain as much attention. Autonomy and digital literacy are two factors that have been associated with each other (Prior et al., 2016; Ting, 2015). Prensky (2001) argued that pre-service teachers' digital literacy will help them become proficient educators in terms of integrating ICT in their classrooms and also understanding the needs of their students better. Autonomous pre-service teachers will be able to integrate digital systems or activities so that their learners can be more independent (Ozden, 2018). All these factors signify the importance of research in this field, especially in the faculties of education where prospective teachers are educated.

3 Voices Already Heard

3.1 Digital Literacy

It is obvious to see that digital literacy is required in all areas of professional activity as progress necessitates a different level of competencies from a modern individual (Korableva et al., 2019). The widespread use of the internet in all business sectors and the prevalence of the internet in our private lives is a testament to this need (Ata & Yıldırım, 2019). The awareness of the significance of twenty-first century skills for instructors is important as they convey these skills to their students (Alcalde-Peñalver & Santamaría-Urbieta, 2021).

Digital literacy in teacher education and professional development is a recent topic investigated in international contexts (Dedebali, 2020; Gill et al., 2015; Liza & Andriyanti, 2020). Dedebali (2020) analyzed the digital literacy of pre-service teachers and their metaphors for the definition of digital literacy. A sample size of 297 teacher candidates showed that their digital literacy varied in terms of device ownership and grade. The definitions the participants made about digital literacy were under the headings "vitality," "integrity," "guidance," "complexity", and "eternity". Gill et al. (2015) investigated pre-service teachers' preparedness to use ICT development through their degree programs. The findings showed that early in their education, the participants realized their shortcomings but lacked deeper reflection to link the ideas with their personal experiences. Another point to note was that some participants had high ICT skills but had trouble with the practical applications in the classroom. Liza and Andriyanti (2020) also examined the digital literacy readiness and perceptions of 54 ELT graduates through a mixed-method study. The overall perceptions of the participants toward digital literacy were reported as very positive. However, the results revealed that perception, digital literacy readiness, and the ability to apply technological devices in the classroom were not always in line and related. Cote and Milliner's (2017) study with 42 Japanese EFL teachers reported

similar findings. The teachers expressed having high digital literacy levels and positive perceptions but struggled at applying certain tools in their lessons due to limited experience and lack of familiarity with tools for video conferencing, blogging, and online discussion tools.

3.2 Learner Autonomy

Various studies investigated learner autonomy in pre-service teachers (Alkan & Arslan, 2019), perceptions about learner autonomy (Putra & Iswara, 2019), and how to foster it (Öztürk, 2019). Putra and Iswara (2019) surveyed 25 PTs on their perception of learner autonomy. The participants reported that it was important to learn to pass exams and that the failure of students would be the teacher's fault. Their views on autonomy lingered on a teacher-centered model, and they had low levels of autonomy due to their lack of understanding of what learner autonomy is Cubukcu (2016) examined the correlation between teacher trainers' and pre-service teachers' perceptions of learner autonomy. The results showed a correlation between their perceptions, yet PTs and their teachers had different perspectives on autonomy. In all items, PTs preferred the teacher to have more responsibility, such as in selecting topics, tasks, and activities, whereas in-service teachers favored the idea to give learners more responsibilities. Lastly, in a study by Öztürk (2019), 25 PTs' learner autonomy levels were investigated. After taking a course specifically designed to improve learner autonomy, the autonomy levels were higher compared to the pre-test before the course was taken. The participants also expressed a positive perspective change toward the notion of autonomous learning.

3.3 Theoretical Voices

Improvements and progress in technology and science have caused fundamental changes in our society. Individuals are required to have certain knowledge on different subjects and acquire new skills, which are called twenty-first century skills (Ciğerci, 2020). While twenty-first century skills have been defined by various organizations, such as Partnership for twenty-first Century Learning (P21), EnGauge, Organisation for Economic Co-operation and Development (OECD), International Society for Technology in Education (ISTE), and Assessment and Teaching of twenty-first Century Skills (ATCTS), the reports suggest that twenty-first century skills can be outlined as cognitive skills, sociocultural skills, self-efficacy skills, and technology skills. Creativity, critical thinking, and motivation are included under cognitive skills, while collaboration, communication, and working with different groups are classified under sociocultural skills. Technology skills include information, media, and technological literacy (Ciğerci, 2020). In Table 1, a comparison between six frameworks is displayed.

Table 1 Comparison of six frameworks and twenty-first century skills (Voogt & Roblin, 2010)

Mentioned in all frameworks	Mentioned in most frameworks (P21, EnGauge, ATCS, and NETS/ISTE	Mentioned in a few frameworks	Mentioned only in one framework
Collaboration Communication ICT literacy Social and/or cultural skills; citizenship	Creativity Critical thinking Problem-solving Develop quality products/Productivity (except in ATCS)	Learning to learn (ATCS, EU) Self-direction (P21, En Gauge, OECD) Planning (En Gauge, OECD) Flexibility and adaptability (P21, EnGauge)	– Risk-taking (En Gauge)—Manage and solve conflicts (OECD) – Sense of initiative and entrepreneurship (EU)

As shown in Table 1, the frameworks differ from each other in terms of which skills are included. While skills such as flexibility, planning, adaptability, core subjects (math, science, language), self-direction, and history and arts can be found in certain frameworks, creativity, critical thinking, problem-solving, and productivity are skills included in most frameworks. The common skills between all frameworks are collaboration, communication, ICT literacy, and social skills/citizenship. Certain skills are mentioned in each framework, such as risk-taking (e.g., EnGauge), managing and solving conflicts (e.g., OECD), sense of initiative and entrepreneurship (e.g., EU), interdisciplinary themes (e.g., P21), and some core subjects which are economics, geography, government, and civics (e.g., P21) (Voogt & Roblin, 2010). As a result, the number of times a certain skill is mentioned in a framework could be used as an indication of its importance. Thus, it can be inferred that skills related to technologies are seen as required in terms of twenty-first century skills, and the fact that all frameworks included ICT skills is a testament to this.

Based on these overviews, the purpose of this study was to investigate the relationship between digital literacy and learner autonomy readiness and explore the perceptions of pre-service teachers (PTs) about digital literacy and autonomy in online classes. The following questions were addressed:

1. Does online education have any impact on the digital literacy levels of PTs?
2. Does online education have any impact on the autonomy readiness of PTs?
3. Is there any significant relationship between digital literacy and autonomy levels?
4. What are the perceptions of PTs about digital literacy?
5. What are the perceptions of PTs about learner autonomy?

4 Method

4.1 Research Design

In this research, a mixed-method approach was adopted by employing qualitative and quantitative methods to investigate the relationship between digital literacy perceptions and learner autonomy beliefs of EFL PTs Specifically, an embedded design was incorporated since a small number of participants from the whole sample was used to collect qualitative data to gain more insight and better understand the results of the quantitative data.

4.2 Participants

The study was conducted at the faculty of education of a private (non-profit, foundation) university in Turkey. The participants were freshman ELT students (n = 49) selected via convenient sampling. The rationale behind the decision to include only freshman students was twofold; it was their first experience of online education in university, and they did not take any ICT courses at the university level at the time of the study. The participants were between the ages of 18 and 30, with most of them being 18 and 19. There were 12 males and 37 females in the sample, and all of them took the courses together in a single group from the same instructors. Specifically, it was the participants' first time using the institution's learning platform as well as their first time taking higher education level courses in an online setting.

4.3 Data Collection and Analysis

In this study, both quantitative and qualitative data collection tools were employed, including a Learner Autonomy Readiness Questionnaire (LARQ), a Digital Literacy Scale (DLS), and semi-structured interviews. LARQ, developed by Nasöz (2015), is based on four sub-dimensions: (1) learners' views about their own and teacher's roles in language learning; (2) learners' decision-making abilities; (3) motivation, and (4) metacognitive strategy use and included 31 items on a 5-point Likert scale. The digital literacy questionnaire was employed to investigate the change in characteristics of participants' digital literacy throughout the semester. The questionnaire, designed and developed by Ng (2012), consisted of 17 items on a 5-point Likert scale. Sub-dimensions consisted of (1) participants' views of using ICT for learning, (2) technical elements of digital literacy, (3) cognitive aspects of digital literacy, and (4) social-emotional components of digital literacy. Both questionnaires were employed twice, at the beginning and the end of the semester.

To support the quantitative data, semi-structured interviews were conducted. The interviews consisted of 10 pre-determined questions, 4 of them concerning digital literacy based on the dimensions in the questionnaire and 6 of them concerning learner autonomy, related to the dimensions in LARQ. The semi-structured interviews were done with 8 participants together with the questionnaires at the beginning and the end of the data collection procedure. The data were collected at the beginning of the semester, before the participants attended online classes, and at the end of the semester after ten weeks of online education. The data from the questionnaires were statistically analyzed via SPSS, and the interview data were transcribed, hand-coded, and analyzed by the researcher as well as two experts to ensure validity.

5 Lessons Learned

5.1 Digital Literacy (DL)

The first research question of this study aimed to investigate the effects of online education on digital literacy (DL) among PTs. To answer this question, a pre- and post-digital literacy questionnaire was administered to the PTs and the results were analyzed via descriptive statistics and paired sample t-test (see Table 2).

The DL questionnaire results indicated that the PTs shared positive perceptions of DL and ICT use and there was an increase in their DL level after ten weeks of online education. Considering the attitudes of the PTs toward ICT for learning, the results indicated that they had an overall positive attitude toward technology after online education.

Regarding the technical dimension of DL, the PTs believed that their problem-solving skills in the case of technical problems were higher at the end of the semester. This can be attributed to their time spent on online platforms throughout the semester and due to the technical issues, they encountered on the learning platform. However, their knowledge of new technologies only had a slight increase at the end of the semester, while their perceptions of their technical abilities increased significantly. Furthermore, the findings related to the cognitive dimension of digital literacy showed that the PTs already had high web-literacy perceptions at the beginning, while it

Table 2 The results of the digital literacy (DL)

	Pre-test		Post-test	
	M	SD	M	SD
1. Attitudes toward ICT for learning dimension	2.84	1.14	3.45	1.16
2. Technical dimension of DL	3.14	1.01	3.59	0.97
3. Cognitive dimension of DL	3.59	0.92	3.63	0.78
4. Social-emotional dimension of DL	3.49	0.83	4.12	0.96

Table 3 The difference in digital literacy (DL) pre and post online education

	Paired-samples t-tes						
	t	df	Sig. (2-tailed)	M	SD	95% confidence interval of the difference	
						Lower	Upper
PreDLS	32	49	0.000*	3.11	0.67	2.92	3.31
PostDLS	48	49	0.000*	3.53	0.50	3.38	3.67

*$p < 0.05$

increased slightly at the end of the semester. Their information searching ability and their awareness of issues of web-based activities have increased.

Further, a paired sample t-test was conducted to find out whether there were any significant differences between pre- and post-test digital literacy. The obtained pre-test ($M = 3.11$, $SD = 0.67$) and post-test ($M = 3.53$, $SD = 0.50$) scores indicated that there was a significant positive increase in digital literacy after ten weeks of online education compared to the beginning of the semester ($t(48) = 3.3$, $p = 0.002$) (see Table 3).

5.2 Learner Autonomy Readiness

Regarding learner autonomy readiness, the results reported that the PTs had low scores at the beginning of the semester. This was apparent in the lower mean scores across the questionnaire items in the pre-test. One reason for that could be that they were not familiar with the concept of autonomy (see Table 4).

According to the results, motivation was the biggest factor that increased PTs' autonomy. The PTs found learning English more enjoyable, and they tried to improve their English in many ways. Their awareness of the importance of learning English also improved drastically. On the other hand, they realized that they did not put their best effort into learning English. Additionally, the PTs reported that they preferred to choose their learning materials and that they needed teacher assistance less. In terms

Table 4 The learner autonomy readiness among PTs

	Pre-test		Post-test	
	M	SD	M	SD
1. Students' views on their roles and teachers' roles	2.12	1.06	3.54	0.92
2. Decision-making	2.80	1.14	3.90	0.79
3. Motivation	3.29	1.06	4.23	0.64
4. Students' use of metacognitive strategies	2.87	1.09	4.14	0.72

Table 5 The difference in autonomy readiness pre- and post-online education

	Paired sample test						
	t	df	Sig. (2-tailed)	MD	SD	95% confidence interval of the difference	
						Lower	Upper
Post	61	49	0.000	3.98	0.45	3.85	4.11
	88	49	0.000	2.85	0.22	2.78	2.91

*$p < 0.05$

of autonomy in classes, their perceptions changed to a more autonomous perspective throughout the semester.

As for metacognitive strategy use, the PTs felt weak at identifying their own mistakes in English before taking online classes. Similarly, their self-assessment skills were not adequate, and they did not know how to be a better learner. This may not be due to the lack of their metacognitive skills, but simply not being able to transfer those skills from L1 to L2 since the use of metacognitive strategies significantly increased after online classes. The self-awareness and noticing abilities of the PTs increased, and their dependence on teacher feedback was reduced.

Further, a paired sample t-test was conducted to find out whether there were any significant differences between pre- and post-test learner autonomy readiness of PTs. The pre-test ($M = 2.85$, $SD = 0.22$) and post-test ($M = 3.98$, $SD = 0.45$) scores indicated that there was a significant increase in the PTs' learner autonomy readiness after online education ($t(48) = 15.3$, $p < 0.001$) (see Table 5).

5.3 Relationship Between Digital Literacy and Learner Autonomy Readiness

The third research question examined if there was any relationship between the PTs' digital literacy level and their learner autonomy readiness after being exposed to online classes. The results reported no significant correlation between digital literacy and learner autonomy readiness at the end of the semester, $r(47) = 0.10$, $p = 0.47$. While learner autonomy readiness and digital literacy levels increased in post-test results, there was no significant correlation between both variables that could be explained in several ways. First, the data were collected online through Google Forms. Online data collection may have lowered the data quality, which would have led to this result. Furthermore, the sample size for quantitative data ($N = 49$) might not have been sufficient for significant statistical results (see Table 6).

Table 6 The correlation between digital literacy and learner autonomy readiness

		Pre-test LAR	Post-test LAR	Pre-test DL	Post-test DL
Pre-test LARQ	Pearson correlation	1			
	Sig. (2-tailed)				
Post-test LARQ	Pearson correlation	−0.05	1		
	Sig. (2-tailed)	0.72			
Pre-test DLS	Pearson correlation	−0.05	−0.03	1	
	Sig. (2-tailed)	0.69	0.80		
Pre-test DLS	Pearson correlation	−0.02	0.10	−0.04	1
	Sig. (2-tailed)	0.87	0.47	0.74	

*$p < 0.05$

5.4 Perceptions of PTs About Digital Literacy

Apart from the quantitative data, this research attempted to gain insight into the perceptions of PTs on digital literacy via qualitative data using semi-structured interviews. The responses revealed that the PTs found the use of ICT tools as time-efficient, especially video conference applications. They also found it easier to connect to classes from home rather than having to go to campus. This finding hints at a major advantage of online tools, which is the freedom to use them anywhere. The time spent on commuting was spent more productively, which is in favor of both the students and the instructors. These findings were supported by the following excerpts:

> […] Some people live far away from school and now they can join online with Zoom. I think that is a great benefit (S4, pre-interview)

> […] It is time-efficient because everything is done online instead of through face-to-face lessons. (S4, post-interview)

On the contrary, there were some negative perceptions about online education and ICT shared by the PTS at the beginning of online education. Some PTs stated that they find technological tools too difficult to use, as shown in these viewpoints:

> […] Without ICT I wouldn't be able to find articles and prepare my assignments. It is good for homework, but I don't like technology in class. I think it is difficult (S8, pre-interview)

> […] It is very beneficial. Lesson recordings, online feedback, web tools, and databases are important tools, but I have difficulty using them (S7, post-interview)

Finally, the PTs emphasized the positive impact of ICT on their learning. Among the participants, opinions were related to the fact that ICT makes learning more interesting and fun and that it motivates them to learn. This positive notion toward certain online tools could be due to those tools making online classes more interactive. Considering this finding, the PTs said:

> […] ICT makes education more fun and interesting. The websites and apps used in classes helped us understand the topics better (S3, post-interview)

> […] ICT is very beneficial. Lesson recordings, online feedback, web tools, and databases are things that impact our education positively (S7, post-interview)

5.5 Perceptions of PTs About Learner Autonomy

The final research question aimed to gain insight into PTs' perceptions of learner autonomy via semi-structured interviews. The pre-interview analysis indicated that they were motivated when studying with their friends, yet their opinion changed completely to them being more motivated when studying alone. This finding can be suggested as the result of less distraction when studying individually. Being able to focus on the tasks and class content more would lead to a better understanding of the material and higher motivation, as illustrated in these excerpts:

> […] I study better in class because we study with friends, and they affect me in terms of motivation, and we study more together (S3, pre-interview)

> […] I like both studying alone and with others but being at home with a coffee in your hand and a piece of relaxing music is good. It kind of motivates you to be productive (S8, post-interview)

Additionally, the PTs mentioned focus and distractions as factors affecting autonomy. Some of the participants reported that they used to get distracted in class and that it was no longer the case in online classes. This might also affect their preference for classroom activities, as most of the participants ended up preferring individual activities in the post-interviews. Therefore, it can be concluded that working individually improved their focus and raised their motivation. These findings were expressed by PTs as follows:

> […] I study better in class because we study with friends, and they affect me in terms of motivation, and we study more together (S3, pre-interview)

> […] I like studying alone to focus and get something done fast. Sometimes it is boring without people around, but I prefer it for most courses (S2, post-interview)

6 Discussion

This section embarks on a discussion of the findings presented in the results section about the research questions and their relation to the literature on digital literacy and learner autonomy. First, the pre-and post-test results of the digital literacy questionnaire indicated that PTs had positive perceptions of digital literacy and ICT use and that their digital literacy levels increased after online education (a total of 10 weeks). This finding was parallel to a study by Meerza and Beauchamp (2017), where undergraduate students reported an overall positive attitude toward ICT use for learning. The role of ICT was investigated in terms of students' attitudes, technical dimension, cognitive dimension, and social-emotional dimension. The obtained results also indicated that the PTs were more positive about technology use after online education which motivated them to learn. The PTs were more self-directed and independent because of ICT use in online education. Both reported findings are in line with the studies conducted by Keshtiarast and Salehi (2020) and Golonka et al. (2014), which revealed that students were more motivated using ICT as well as more autonomous. Similarly, Guillén-Gámez et al. (2019) concluded that motivation is one of the most important aspects that affect digital literacy and ICT use, which is in correlation with the results of this study.

Additionally, the PTs stated that ICT makes learning more interesting and that they should use ICT more during classes. This general positive perception of students on ICT use is in line with related literature on ICT conducted with both undergraduate teacher candidates and in-service teachers (Garcia Botero et al., 2018; Cote & Milliner, 2018; Dedebali, 2020; Golonka et al., 2014; Keshtiarast & Salehi, 2020; Liza & Andriyanti, 2020; Meerza & Beauchamp, 2017; Ngo & Eichelberger, 2019; Özüdoğru & Çakır, 2020). It can be inferred from these recent studies that motivation, autonomy, and interest are factors affecting students' outlook on ICT and that students are in favor of incorporating technology into their education.

In general, the PTs had high ICT skills, especially in the post-test, and they followed new technologies closely. While that was the case, their knowledge of new technologies only had a slight increase at the end of the semester, while their perception of their technical abilities increased significantly. This was similar to the findings of Liza and Andriyanti (2020), where participants' DL perception and application did not correlate which could be the result of a lack of practice and high self-esteem regarding technology. The lack of experience and practice was reported in the literature (Cote & Milliner, 2018).

Regarding autonomy, the results indicated that the PTs had low learner autonomy readiness at the beginning of the semester. This was apparent in the lower mean scores across the questionnaire items in the pre-test. One reason for that could be that learners were not familiar with the concept of autonomy in their earlier education. Putra and Iswara (2019) found that low levels of autonomy are due to the participants' lack of understanding of what autonomy is. However, learner autonomy readiness increased across all items in the post-test, which suggests that online education contributed to being more autonomous. This finding can be supported by Öztürk's

(2019) study, which reported a positive perspective change toward student autonomy. As the results showed, the PTs' belief in their success increased over the course of the semester, which correlates with recent literature that found a positive correlation between academic success and learner autonomy (Alkan & Arslan, 2019; Tilfarlioglu & Ciftci, 2011). The PTs seemed to be more autonomous during the classes as well. They reported that they preferred to choose their learning materials and that they needed teacher assistance less. This finding contradicts Cubukcu's (2016) study, where pre-service teachers preferred the teacher to have more responsibility in selecting topics and activities. Finally, the decision-making abilities of the participants were particularly low, compared to the other sub-categories in the pre-test. The participants had a lot of trouble choosing learning materials for themselves. This result is in line with Karabıyık's (2008) study, which suggests that Turkish EFL learners have trouble, especially with decision-making. This might stem from the education system in Turkey. Traditionally, teachers are the authority figure and students do not have much say on the content and materials.

Considering the relationship between digital literacy and learner autonomy readiness, the results showed no significant correlation at the end of the semester. While learner autonomy readiness and digital literacy levels increased in post-test results, there being no significant correlation between both variables could be explained in several ways. First, the data was collected online through Google Forms. Online data collection may have lowered the data quality, which would have led to this result. The small sample size might lead to similar results.

The analysis of the semi-structured interview answers revealed that the participants found the use of ICT tools as time-efficient. They also found it easier to connect to classes from home rather than having to go to campus. This finding hints at a major advantage of online tools, which is the freedom to use them anywhere. The time spent on commute was spent more productively, which is in favor of both the students and the instructors. These findings are similar to Scherrer et al.'s (2010) study, in which students living far from campus reported favorable views on online education due to time spent on commute, as opposed to students living on campus. The PTs emphasized the positive impact of ICT on their learning, making it more interesting and fun, and motivating them to learn. These findings are in line with other studies (Çebi & Reisoğlu, 2020; Golonka et al., 2014; Liza & Andriyanti, 2020; Özüdoğru and Çakır, 2020), where undergraduate teaching students reported having positive perceptions of ICT and technology integration.

On the contrary, there were some negative viewpoints about online education and ICT at the beginning. Some PTs stated that they found technological tools too difficult to use and expressed their dislike toward online education and digital tools. While this notion died down at the end of the semester, the participants reported facing technical difficulties on the online platform throughout the semester. It would be fair to conclude that the prejudice the participants had toward online education and digital tools stemmed from not being used to the concept of it. Studies (Bauer & Kenton, 2005; Genet, 2013; Wachira & Keengwe, 2011) supported this finding as in-service teachers had "fears" about integrating technology in their classrooms.

As even experienced teachers are hesitant on this topic, it would be expected for PTs, especially those enrolled in the freshmen program to be hesitant about using technology.

Finally, the interview findings for autonomy indicated that students were motivated when studying with their friends, yet their opinion changed completely to them being more motivated when studying alone. Being more motivated while studying alone is contradictory to the findings from Meşe and Sevilen's (2021) study, where students reported being more motivated in a social environment, after going through an online learning period. However, some studies showed a link between autonomy and motivation in distance learning (Güneş & Alagözlü, 2020) and technology-based out-of-class activities (Honarzad & Rassaei, 2019). This finding can be suggested as the result of less distraction when studying individually. Some of the participants reported that they used to get distracted in class and that it was no longer the case in online classes. This perception also impacted their preference for classroom activities, as most of the participants ended up preferring individual activities in the post-interviews. This finding is in line with Heemskerk and Malmberg's (2020) findings, in which it was emphasized that student engagement was higher in individual work, compared to group work and pair work.

7 Conclusion

This study revealed that online education has an influence on PTs and was majorly positive. The overall attitude toward online education and ICT tools changed from negative to positive at the end of online education. Technical issues the participants faced were reduced over the semester due to a better grasp of the ICT tools. They also stated that the incorporation of ICT made their courses more interesting and that they were more motivated to join online courses. Thus, it can be concluded that online education and the use of ICT tools improved their digital literacy and increased their interest in online education and ICT. It was also found that the PTs became more independent throughout the study. Because of online education, the need for teacher feedback was reduced due to individual assignments and the lack of instant teacher feedback. They reported to have increased self-awareness of their mistakes and required less peer feedback as well. This led to them preferring individual activities over pair- and group-work activities in their classes. It would be fair to conclude that their readiness for autonomous learning increased because of online education and that their perception of autonomous learning became favorable at the end of the study. However, the results showed that there was no correlation between learner autonomy readiness and the digital literacy levels of the participants.

The findings offer pedagogical implications for curriculum planners of teacher education programs for designing courses on digital literacy, aspects of autonomy, and overall, updating the curricula based on the needs of the current generation of learners. The present study puts forward several suggestions for further research. First, the study was conducted with a small number of PTs. Similar research can be

carried out that encapsulates more departments in educational faculties with a larger sample size so that any possible correlations between departments, digital literacy, and learner autonomy readiness can be examined. A similar study that investigates the relevant factors before and after taking an ICT course can be conducted to gain insight into the impact of ICT training and digital literacy. Finally, a follow-up study could be conducted to determine whether the PTs' increased learner autonomy readiness impacts professional development later.

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Chapter 6
Online Teacher Education in Times of Crisis: Listening to Teachers' Voices During COVID-19

Christine Savvidou

Abstract As research emerges on emergency remote teaching and learning (ERTL) during the first wave of the COVID-19 pandemic, one specific context remains underrepresented, and one group of learners' voices remains unheard. To date, there is little research examining the experiences of teachers-as-learners already engaged in distance learning education at the start of the pandemic; Thus, this study set out to explore the lived experiences of TESOL teachers participating in a distance learning Teacher Education course between March and June 2020 in Cyprus. While it was assumed that distance learning courses would face minimal disruption, anecdotal evidence suggested that teachers experienced significant challenges to their learning. Using interpretative phenomenological analysis (IPA), this study examines how twelve teachers enrolled in a distance learning Teacher Education in TESOL course made sense of their experiences during this period. It positions teachers' experiences within a transitional and liminal space as they attempt to renegotiate and manage to compete multiple identities as students, teachers, and family members. The chapter concludes with a discussion of the ways in which teacher education providers may develop and teach courses that support distance learning. It is hoped that this study will contribute to a broader understanding of distance learning and online pedagogies in higher education during times of crisis.

Keywords Higher education · Distance learning · COVID-19 · Teacher experiences · Second language teacher education

1 Introduction

In early 2020, the outbreak of coronavirus (COVID-19) caused universities around the world to make a rapid transition from face-to-face teaching to emergency remote teaching and learning (ERTL) (Hodges et al., 2020). With this period of disruption, much of the literature focuses on the transition from physical teaching to online

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teaching. In contrast, the experiences of those educators and learners already engaged in distance learning (DL) education are not well represented.

For the purposes of this study, it is important to note that DL programs are fully "conceived and defined across cyberspace and cyber-distance, as well as across geographical space and geographical distance (Traxler, 2018)." Not only do the DL programs differ from other modalities of teaching, but the characteristics of DL students are also distinct. Since many DL students tend to be older and are often time-bound due to work, family, and community obligations, the provision of asynchronous learning activities is often a primary driver of learners' participation in DL programs (Chaney et al., 2010). Moreover, DL students tend to utilize multiple learning strategies, such as information processing, time management, and task management more effectively than on-campus students (Wang et al., 2008), as well as skills related to independent learning such as self-regulation, multitasking, self-motivation, and discipline (Kauffman, 2015).

Given the distinct dimensions of learning represented by ERTL and DL (e.g., real-time versus asynchronous communication, teacher-directed versus self-paced learning, unlimited versus limited teaching presence, collaboration with peers versus limited social presence) (Means et al., 2014), it might be assumed that DL courses would be minimally affected. Yet, anecdotal evidence, for example, students' reduced participation in course forums, missed deadlines, increased requests for extensions, and face-to-face support (Banegas, 2020), suggested otherwise. Moreover, with concerns regarding disparities in access to connectivity, engagement, and socio-economic inequalities (Czerniewicz, 2020), it is felt that some voices have been neglected in the current research.

In the context of Cyprus, the literature relating to teacher education and professional development in CALL is not well represented. The extant literature mainly focuses on curricula developments of ICT in the Cyprus state education system (Karagiorgi & Charalambous, 2004; Nisiforou & Laghos, 2011), Cypriot teachers' use of ICT (Vrasidas, 2010), factors supporting and inhibiting teachers' use of ICT in primary schools (Papaioannou & Charalambous, 2011). Several studies focusing on CALL in Cyprus map the research landscape (Parmaxi et al., 2013a) and outline language teachers' and students' attitudes and beliefs (Mama & Hennessy, 2013; Papayianni, 2012; Parmaxi et al., 2013b); however, these studies typically focus on language teaching rather than language teacher education. As such, this study hopes to address this research gap and explore the professional development of English language teachers enrolled in a DL teacher education course in Cyprus.

2 Voices Already Heard

Literature from the first wave of the pandemic reflects the experiences of teachers and learners in higher education in three specific areas, namely, educators, students in higher education, and the provision of teacher education.

Firstly, the challenges faced by educators in adapting methodologies and instructional materials to an online context are well documented (e.g., Khurana, 2020; Zuccoli & Teruggi, 2020). While some educators reported that synchronous online learning allowed them to meet students' needs in a relevant and motivating way (Agarwal & Kaushik, 2020), most studies report the challenges encountered. This is illustrated in the Polish education context with language teachers struggling to mirror their face-to-face teaching in the online context (Krajka, 2021). It is suggested that the use of substitution activities was a natural response given that teachers lacked sufficient knowledge and confidence to use new online tools. Added to this, other research suggests that teachers' lived experiences during this period were characterized by uncertainty, practical concerns, worry for pupils, dependence on professional relationships, and the impact on their teacher identity (Kim & Asbury, 2020). For example, a study of US language teachers reported that while numerous adjustments were made to increase student interaction, many language teachers were concerned that instructional goals were not met (Moser et al., 2021).

Secondly, the impact of the COVID-19 pandemic on millions of students in higher education is well reported (for example, see Assunção Flores & Gago, 2020; Avgerinou & Moros, 2020; Bao, 2020; Ferdig et al., 2020; Hasan & Bao, 2020). A global study of over 30.000 higher education students (Aristovnik et al., 2021) indicates that while students were in the main satisfied with the online delivery of course content, they were less satisfied with faculty support, an increased workload, and limited computer skills. Significantly, findings suggest that student satisfaction was strongly correlated to students' personal circumstances (finances, family, and relationships) and their self-reported emotional health. Findings are also supported by research which suggests that student satisfaction during this period was linked to prior online learning. For instance, a survey of primary education students in Italy showed that students who were already participating in blended learning courses expressed less dissatisfaction with ERTL and were less affected by reduced contact than students enrolled solely in face-to-face courses (Zuccoli & Teruggi, 2020). Added to this, several studies indicate high levels of psychological distress among college students during this period relating to fears of "academic loss," limited access to online learning concerns with financial hardship, and fear of infection and transmission of the virus to family members (Hasan & Bao, 2020; Zhai & Du, 2020). Similarly, access to resources, lack of technical skills, unstable internet connections, loss of self-paced learning, anxiety, homeschooling, economic instability, and loss of motivation were also reported as concerns for university students who switched to ERTL during this period (Allo, 2020; Baber, 2020; Banegas, 2020).

A final area of research interest relates to the impact of ERTL on teacher education courses and the challenges related to the delivery of online initial teacher education (ITE), the use of collaborative learning tools, such as breakout rooms (Moorhouse, 2020; Savvidou & Alexander, 2022), and issues around limited access, participation, and engagement (Mutton, 2020). Challenges associated with the online practicum and its assessment (Moyo, 2020) and reduced support from school-based mentors during this period are also reported (Assunção Flores & Gago, 2020). Such research contributes to a discussion on re-envisioning a new pedagogy for online ITE that

addresses equity, social justice, wellbeing, and environmental protection (Hill et al., 2020), as well as rethinking practices, the fragility of the eco-system (i.e., exhaustion of teacher educators) and the need for innovative practices (e.g., virtual placements) (Ellis et al., 2020).

While the focus of this research is on ITE, there are also some interesting studies on CALL teacher education and professional development in relation to ERTL. A study of Iranian language teachers affirms the need for bottom-up professional development that considers teachers' preferences and gives them a sense of agency (Tafazoli, 2021). Similarly, an analysis of the autobiographical narratives of Iranian EFL teachers indicates that CALL teacher preparation programs should prioritize technological pedagogical knowledge and help teachers develop greater awareness of the technological tools that best suit their pedagogical purposes (Tafazoli & Meihami, 2022). Another study examining data from a WhatsApp group for Iranian English language teachers highlights language teachers' concerns regarding the technological aspects of teaching online, online interaction, pedagogy, and assessment (Moniezi et al., 2021). While another study examining English language lecturers' perceptions indicates that English language lecturers assessed their teaching as stressful and less interactive than face-to-face teaching (Krsmanovic, 2022).

In sum, the literature on ERTL highlights challenges associated with teachers' lack of preparedness, learners' experiences, and the provision of initial teacher education. What is not known, and the voices which, thus far, have not been heard are English Language teachers participating in DL teacher education courses as part of their own professional development during the first wave of the pandemic. Thus, the following research questions guide this study:

RQ1: What changes have DL learners (English language teachers) experienced because of the COVID-19 pandemic in their personal and professional lives?

RQ2: What has the impact of these changes been on English language teachers' experiences of distance learning?

RQ3: What factors do DL Learners (English language teachers) perceive to have supported or inhibited their learning during their experience of lockdown?

3 Methods

3.1 Research Design and Context

The present study uses interpretative phenomenological analysis (IPA) as a qualitative approach to examine the personal lived experiences of twelve English language teachers registered on a Language Teacher Education DL course, as part of a master's level TESOL program, at a university in Cyprus during the first wave of the COVID-19 pandemic in spring 2020. The rationale for the study is to explore the personal lived experiences of these English language teachers as they confront the challenges of teaching online during the pandemic while continuing their own professional

development as DL learners on a teacher education course. The course is delivered with asynchronous course content over a twelve-week semester and the semester was five weeks underway when the COVID-19 pandemic was declared in mid-March. While the delivery of the course remained unchanged, the working and living circumstances of these teachers-as-learners changed dramatically.

3.2 Participants

Participants included ten female and two male DL learners (English Language teachers). The small sample size of this study, like most IPA studies, allows for a "micro-reading" of participants' accounts to provide insights into the lived experiences that have, so far, remained out of sight (Smith and Osborn, 2015). Participants' ages ranged from 23 to 53 years (the mean average was 32.5 years). All participants were qualified English language teachers employed in various educational settings, including private language institutes (N = 4), state primary schools (N = 5), private schools (N = 2), and private lessons (N = 1). At the time of the study, each participant had completed between 1 and 4 semesters of this DL TESOL teacher education program (Table 1). Before participating in the study, all teachers gave informed consent expressing their willingness to participate. Pseudonyms are adopted to protect participants' identities.

Table 1 Participants' information

Name	Age	Gender	Teaching context	Semester of study
Vera	23	Female	Private institute	2nd
Aphrodite	24	Female	State school	1st
Valentina	25	Female	Private institute	2nd
Ella	26	Female	Private institute	4th
Peter	26	Male	Private school	2nd
Stella	25	Female	Private school	2nd
Martha	35	Female	Private lessons	2nd
Aria	37	Female	State school	2nd
Xenia	38	Female	Private institute	4th
Sam	39	Male	State school	1st
Sara	41	Female	State school	2nd
Talia	53	Female	State school	3rd

3.3 Data Collection and Analysis

The research was conducted in July 2020 after the completion of the course. In order to gain insights into students' perceptions and experiences of learning under lockdown, the study collected qualitative data using semi-structured interviews. The interviews were between 45–60 min in length and were conducted in English via video conferencing. They were recorded for later transcription.

Data were analyzed using interpretative phenomenological analysis (IPA) which aims to "capture and explore the meanings that participants assign to their experiences (Reid et al., 2005, p. 20)." Using IPA, the researcher acknowledges her role in the research process which influences the interpretation of data. For example, the researcher was also teaching online during this period and experienced some of the same professional and personal challenges described by participants. However, by taking a stance of epistemological reflexivity, she continually returned to the data to support her interpretations.

The process of IPA (Charlick et al., 2015) involves several stages. Firstly, each interview was fully transcribed and read several times to develop familiarity with the content. Initial notes were made to summarize semiotic content, and data were explored to identify emergent themes. Next, the researcher searched for connections across data trying to bracket previous themes and remain open to new ones. This was a reiterative process allowing the researcher to look for deeper interpretations of themes in which to view the analysis.

4 Lessons Learned

This section presents the essence of teachers' lived experiences of distance learning during this period based on five superordinate themes: Wellbeing, Time management, Access to learning, Work life, and Home life.

4.1 Wellbeing

This theme relates to how participants expressed their wellbeing, or the sense of being well, and specifically, teachers' cognitive and affective reactions in relation to their personal characteristics, achievements, and interactions with the world (Karademas, 2007). Evaluations of wellbeing are usually defined by individuals themselves and can include a range of positive and negative factors (Warr, 2013). In relation to the negative factors, all participants reported that they experienced a range of emotional states involving anxiety, decreased motivation, and a sense of social isolation. Martha reported that she had experienced high levels of anxiety emanating from the pandemic itself. She explained, "*I thought I was going to have a nervous breakdown by the end*

of the semester, it was mostly general uncertainty and the anxiety of what is going to happen." Similarly, Aria attributed her anxiety to fear and uncertainty surrounding the pandemic: "*I was affected by everything that was in the news… seeing all those patients and all those people dying and tragic stories from hospitals in Italy and the choices that doctors had to make about who would have treatment and who would not…it was terrifying.*"

Participants also reported decreased motivation. For example, Valentina identified with her students' lack of motivation: "*Honestly, no one wanted to study and at the end of the day, we were all thinking about what is going to happen in the future…so everything was put aside including my thesis and my studies.*" Similarly, Peter also expressed decreased motivation: "*I mean, I am going to write a thesis and I was really, really excited about it and now everything has changed.*"

A sense of social isolation was another negative aspect of wellbeing expressed by teachers, with Aria reporting: "*there is no contact with our colleagues or friends face-to-face, and no contact with our students, and I have to say that I really miss my students and that has really affected my performance.*" For Stella, her sense of isolation was compounded as she was unable to go to work or return home: "*I have to stay inside the house, it's depressing, not going to school and being away from home.*"

Alongside these negative evaluations of wellbeing, teachers also expressed positive evaluations of wellbeing. For some, increased personal time had a positive impact on their physical and mental health. For example, when Vera was unable to go to work, she focused on improving her physical fitness. Vera explained: "*I lost weight, I started working out and I followed a healthy lifestyle. To be honest, I am feeling more positive right now, more optimistic that things will get better.*" Moreover, for some, the national lockdowns reduced the stress brought on by their heavy workload. According to Aphrodite: "*I was working full time and coping with my studies and that was a very stressful period but when quarantine came, I finally found time for myself.*"

4.2 Time Management

Defined as a form of decision-making used to structure, protect, and adapt time to changing conditions (Aeon & Agunis, 2017), time management was a dominant theme in participants' accounts. For some participants, there was no change and they continued to plan their time in the same way as they had prior to lockdown. Martha talked about how she was used to balancing her studies with work and home: "*Because I am a bit strict and like to have a programme, I used to study at night even before quarantine; I continued the same way so there was no change.*"

However, other participants reported difficulties finding time to study due to overlapping and conflicting roles and responsibilities. As Talia explained: "*I am a working person, I am a mum, but I didn't have the time to study. I realized it was impossible for me to meet the deadlines to meet the requirements.*" Similarly, Peter also felt his

ability to manage his time suffered: "*Before the pandemic, I had my study days, I logged in every day and I was on top of everything. But with the pandemic, I was so busy with my kids at school and with everything going around in the house, sometimes I was like 'no, I didn't do the week's work' and it accumulated and accumulated … which was tough*".

4.3 Access to Learning

A third theme to emerge from the participants' narratives revolved around access to learning, which is typically defined as the adaptation of assessment, methods, and materials that meet the needs of individual learners (Curry, 2020). While no fundamental changes were made to the delivery of the course, participants experienced a variety of difficulties related to access. For example, Ella, who was working on her dissertation, had problems conducting research: "*no one was willing to give me an interview because it was a really crazy time, everyone was running and stocking up at the supermarket to get supplies.*"

Another challenge related to accessing specific resources. Sara had difficulty purchasing ink: "*The way I study is that I print all the readings so I can highlight and add notes and I had the practical problem of even ordering ink for my printer and there was all this information there and I could not get access to it*". For Ella, sharing devices with her family created problems: "*I was teaching online, my mother is also a teacher, so she was also teaching online and my sister had to sit exams, so sometimes they all coincided. We had two laptops and we had to share… it was really demanding.*"

In the early days of the lockdown, participants complained of unstable internet connections which impacted their abilities to study. Martha explained: "*sometimes I had problems with the internet connection, two or three times we had a power cut in our neighborhood so I had to go to a cousin to continue working*". Peter also reported: "*during my first exam the internet played a trick on me and I was kicked out of the exam, it was very stressful*" Moreover, Vera explained the difficulties accessing the online exams: "*it was a problem regarding the exams, I had to postpone two out of three exams because on those dates I had no access to a laptop because my parents are working and needed their laptops.*"

However, it should be noted that not all participants experienced such difficulties. Xenia's account of the online examination was positive: "*It was better than going to an exam centre, I was here, I had my glass of water, it was nice, I didn't have to move. At the beginning, I was worried about the exam but it turned out better*."

4.4 Work Life

In relation to work life, many of the participants reported how changes in their working lives impacted their abilities to study. For instance, Ella reported: "*we had to undergo seminars … I knew how to teach online but I didn't know all the possibilities that online teaching offers*". In addition, the demands of emergency remote teaching also increased the time needed for teachers to prepare their classes. Sara reported, "*I had to start preparing things from the internet, I spent 20 hours a day on the internet both to prepare for my job and my studies*". Not only did their working lives impact their studies, but there were significant changes to their professional relationships. Ella recalls, "*…parents were calling us and everybody was angry…they did not know what to do and we had to guide them to help their children*". Talia also expressed the challenges of engaging her students through online teaching: "*Yes I did have to work a lot more because we did not have the right materials and we needed to engage the students' attention and get them to communicate and participate.*"

However, some participants experienced more significant changes in their working lives as some schools closed for a period of time. For instance, Valentina explained: "*The school was closed but after a month, we started online teaching*". While Vera was made redundant, leaving her job and her home: "*I just came back to my hometown, I had to leave* [city] *and come back home. I went from living alone to living with my family.*"

4.5 Home Life

Another theme to emerge from participants' narratives included changes to their domestic circumstances. Measures to stay indoors and work from home presented challenges for learning, as Peter recounted: "*Sometimes I was sitting at a table with five people or more so it can be really challenging and with the exams, everyone had to tiptoe around me… it was sometimes close to unbearable.*" Likewise, Talia found it difficult dealing with her teenage children: "*the problem was that everybody was in the house, it was all of us, and you know when you have teenagers at home things are really more difficult.*" Similarly, Martha, a mother of very young children found it stressful: "*It was more stressful because I had to combine kids all around me with work… and the grandparents couldn't be available to help out.*" However, for some participants, close family proximity was reassuring. as Ella described: "*Luckily I live with my family so we were all together and I am really grateful because I wouldn't be able to go through this alone.*" In contrast, for some participants, this was a period of enforced isolation. As Stella explained: "*I live alone and now I had to stay inside the house, not going out and all I had to do was study …it was a bit depressing, not going to school and being away from home.*"

On a related note, participants also referred to the financial impact during this period. For some participants, there was no financial impact. Sara explained: "*I'm*

a state school teacher, so we went on being paid and my husband went on working and our expenses were reduced and the only expenses were the supermarket and my studies." Moreover, Vera described how being furloughed improved her financial situation: "*I got paid by the government, in fact, the amount was a lot more than I would have got paid from my work …so I didn't have to worry.*" In contrast, other teachers faced financial insecurity as Peter explained his decision to emigrate: "*we were not planning on moving abroad, [partner's] contract was not extended so we had to find a solution and this job offer came and it was a no-brainer for us …*" Similarly, Xenia explained: "*There were economic issues … if you work in the private sector, if you don't work, you don't get paid, I was entitled to some government support but it was not enough.*"

5 Discussion

This study offers insights into the lived experiences of postgraduate teachers enrolled in a DL teacher education course during the first wave of the COVID-19 pandemic. The use of IPA methodology in this study enabled an in-depth exploration of these experiences and offered the unique perspectives of DL teachers whose voices have, so far, gone unheard. The main findings are discussed below in relation to the initial research questions.

5.1 What Changes Have DL Learners (English Language Teachers) Experienced Because of the COVID-19 Pandemic in Their Personal and Professional Lives?

In regard to RQ1, participants recounted an initial expectation that they would not encounter significant changes or difficulties in their studies, and for some participants, there was an expectation that this period would be beneficial for their studies.

However, despite high expectations and minimal concerns, participants reported that their learning was significantly disrupted. Specifically, participants reported changes in mental and physical wellbeing, their ability to manage time, difficulties in accessing learning, and changes in employment and individual living circumstances. For example, participants recounted their fears of "academic loss," limited access to online learning, concerns with financial hardship, and fears of infection. These findings are also reflected in ERTL research showing high levels of psychological distress among all learners during this period (Hasan & Bao, 2020; Zhai & Du, 2020). Findings acknowledge the differences in participants' experiences, and the literature also indicates that learning experiences are strongly correlated with personal circumstances related to family, finances, and relationships. For example, participants recounted how changes to their home lives impacted their studies; while

some participants struggled to share spaces and devices with family members, others lived alone and felt isolated.

Another challenge revolved around changes to participants' working lives as teachers, including increased time spent on seminars, training, and preparation, as well as managing anxious students and parents. Such findings are also reflected in the literature (Khurana, 2020; Kim & Asbury, 2020; Zuccoli & Teruggi, 2020). Moreover, while some participants had guaranteed incomes from employers or the state, others were made redundant and faced financial insecurity.

Other findings relating to difficulties accessing learning, loss of self-paced learning, anxiety, homeschooling, economic instability, and loss of motivation are also reported in the ERTL literature (Allo, 2020; Baber, 2020; Benegas, 2020). However, unlike some other ERTL research (e.g., Aristovnik et al., 2021), participants did not express dissatisfaction with faculty support, nor did they express difficulties in transitioning to online learning.

5.2 *What Has the Impact of These Changes Been on English Language Teachers' Experiences of Distance Learning?*

Regarding RQ2, findings suggest that the impact on teachers' experiences of DL was, in the main, related to their struggle to negotiate the lack of clear spatial and temporal boundaries between work life, home life, and their DL studies. While participants expect teaching to be a "take-home" job (Beutel et al., 2019), they reported challenges in balancing their multiple roles as teachers, learners engaged in DL teacher education, and family members. They recounted feeling overwhelmed by personal and professional challenges that required a huge amount of energy and emotional labor. These findings are also echoed in the ERTL literature (Ellis et al., 2020). Participants' accounts of limited access, participation, and engagement in learning during this period are represented in the literature examining ITE (e.g., Mutton, 2020; Scull et al., 2020). Moreover, disparities in educational access experienced by some participants, which are represented in the ERTL literature (Czerniewicz, 2020; Hodges, 2020), warrant further investigation.

5.3 *What Factors Do DL Learners (English Language Teachers) Perceive to Have Supported or Inhibited Their Learning During Their Experience of Lockdown?*

In relation to RQ3, participants perceived a range of factors that supported their learning, including positive wellbeing, planning, prioritizing learning goals, communication with faculty and DL support services, positive family support, and a sense of financial security. In contrast, the factors perceived to have negatively impacted their

learning during this period include anxiety, isolation, lack of motivation, poor time-management skills, limited access to learning, for example, shared resources and poor connectivity, exam stress, family tensions, and worry about personal finances. All these factors have previously been discussed in relation to the ERTL literature.

However, one significant difference between these findings and the ERTL literature is that the use of IPA methodology highlights the personal and private experiences of teachers-as-learners over and above pedagogical theories and frameworks. Such insights can offer educators and DL providers a greater understanding of learners' experiences. For example, at a pedagogical level, such courses can offer more than knowledge, skills, and values relating to continuing professional development. Providing opportunities to explore topics relating to teacher identity, wellbeing, resilience, motivation, and time management can offer learners critical and transferable skills and knowledge that extend beyond the current health crisis. Secondly, at a structural/organizational level, participants' accounts of anxiety and sense of social isolation might lead course providers to create and strengthen online communities of learning. Thirdly, at a more pragmatic level, strategies for managing crises should be considered on a more systemic level. For example, adding flexible deadlines, abandoning group tasks in favor of individual work, and reducing recommended reading lists can enable learners to better manage their time and reduce their anxiety. These suggestions are very much in line with similar observations in the ERTL literature (Benegas, 2020).

6 Conclusion

Building on a body of research focusing on ERTL, this study examines the unique experiences of twelve teachers engaged in a DL teacher education course during the COVID-19 pandemic. Firstly, findings showed that despite expectations, participants experienced significant changes in their mental and physical wellbeing, their ability to manage time, access to learning, employment, and individual living circumstances. Secondly, this study found that the impact on participants' learning was significant as they tried to navigate multiple roles as, teachers, DL students, and family members during a time of crisis. Whereas, prior to the pandemic, DL teacher education provided a flexible way for teachers to access postgraduate education, the onset of the COVID-19 pandemic added to the strain of their DL education. Thirdly, participants reported multiple factors that negatively impacted their learning (anxiety, isolation, demotivation, poor time management, limited access, poor connectivity, family responsibilities, financial insecurities), as well as factors that positively supported their learning (sense of positive wellbeing, increased time, clear learning goals, family support/social connection, financial security).

The findings from this small-scale study are tentative and require further investigation. However, they suggest that these language teachers are positioned in a liminal and transitional space (Field and Morgan-Klein, 2010; Turner, 1987), characterized

by ambiguity, paradox, confusion, and temporality. By positioning participants' experiences within this space, the study seeks to acknowledge the uncertainty and flux experienced by English language teachers as they attempt to renegotiate and manage complex and multiple roles as DL students, teachers, and family members.

This qualitative study does not seek to make generalizations outside of this specific context but rather to offer idiographic and contextual analysis of data; however, the researcher acknowledges some limitations. Firstly, the interviews were all conducted in English rather than the participants' first language. Although all participants are English language teachers, it might be that the ability to express the nuances of their lived experiences is limited. Secondly, this is a descriptive study highlighting how teachers make sense of their experiences, and as such, it can only indicate factors that support or inhibit their DL experiences. Thirdly, the study focuses on the personal and pedagogical impact of a unique crisis, COVID-19, with limited implications for other crises. However, while this is a unique crisis, the findings and implications of this study might resonate with those engaged in DL teacher education and professional development during other periods of national and international crises.

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Chapter 7
How Do Indonesian EFL Student Teachers Solve Teaching Issues During Online Teaching Practicums? A Phenomenological Study

I Putu Indra Kusuma

Abstract The COVID-19 pandemic did not stop English as a foreign language (EFL) student teachers from conducting their teaching practicums, even though it was conducted in online forms. Unfortunately, what issues were encountered during the online teaching practicums and the solutions taken by EFL student teachers to solve them remain unclear as this is a new form due to the COVID-19 pandemic. This study, therefore, aimed at exploring the issues faced by student teachers and how they solved them during online teaching practicums due to the COVID-19 pandemic. This phenomenological research was conducted in Indonesia and explored the participants' online teaching practicum experience. Eighteen EFL student teachers from three education universities participated in semi-structured interviews. In particular, several issues were encountered during the designing and conducting of online teaching practicums. Moreover, various solutions were inspired by several resources such as YouTube videos, websites, and supervisors' suggestions.

Keywords English as a Foreign Language (EFL) student teachers · Emergency remote teaching · Online teaching issues · Online teaching practicums · COVID-19

1 Introduction

COVID-19, unfortunately, has affected education around the globe (Nisiforou et al., 2021; Tafazoli & Meihami, 2022; Tafazoli, 2021a), including English language teaching (Yi & Jang, 2020). The spread of COVID-19 is swift and has affected the closure of schools around the world (Basilaia & Kvavadze, 2020; Viner et al., 2020), including in Indonesia (Ferdiansyah et al., 2020; Kusuma, 2022a). As a result, teachers could not do anything but conduct emergency remote teaching (hereafter, ERT) to limit this virus's spread through online teaching. This quick shift is undoubtedly new to our educators, including student teachers who still need

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to conduct teaching practicums at partner schools. To date, previous studies in the Indonesian context immensely reported how ERT was conducted by EFL in-service teachers (e.g., Ahmad & Arifin, 2021; Ferdiansyah et al., 2020; Kusuma, 2022a, 2022b; Kusuma et al., 2021), resulting in very limited knowledge of the one conducted by student teachers in their teaching practicums. As a result, it becomes an under-represented issue that must be profoundly investigated.

A teaching practicum is vital for student teachers as it provides meaningful teaching experiences in which student teachers come to schools to conduct real teaching practices. However, during the first year of teaching, known as the induction period (Opfer & Pedder, 2011), student teachers often face some issues (Haim et al., 2020), such as gaps between teaching theories obtained from teacher education programs (hereafter, TEPs) and practical teaching (Salazar Noguera & McCluskey, 2017), fear of the inadequacy of professional capability in teaching (Zhu et al., 2020a), and handling students' attitudes (Azimi et al., 2019; Haim & Amdur, 2016). Moreover, student teachers also carry intricate conflictual interrelationships (Farrell, 2008) to their new schools. As a result, issues are unavoidably encountered throughout the teaching practicums, and the inability to adapt to changing schools may be detrimental to student teachers during their teaching practicums. Several studies have indicated that EFL student teachers around the world face issues during their teaching practicums, especially when teaching using technology (e.g., Batane & Ngwako, 2017; Baz et al., 2019; Merç, 2015). Thus, as COVID-19 is a new phenomenon and requires full online teaching, issues are inevitably inherent.

Changing from a traditional teaching method to fully online teaching is challenging (Tafazoli & Meihami, 2022; Tafazoli, 2021a). Even though several studies have reported that Indonesian EFL pre-service teachers have sufficient self-efficacy levels to conduct teaching using technology (e.g., Kusuma, 2022b; Megawati & Astutik, 2018; Rachmawati et al., 2017), initial studies have indicated several issues might be inherent during the online teaching practicums during ERT (e.g., Drajati et al., 2021; Riyanti, 2021). For instance, Drajati et al. (2021) reported that Indonesian EFL student teachers' lesson plans for fully online learning were unsatisfactory for several learning purposes when measured using the TPACK-21 Century Learning rubric.

The above studies have provided initial information on Indonesian EFL student teachers' preparedness. However, in-depth issues and how these teachers solve them during ERT remain unclear. Furthermore, Indonesia is well known for its insufficient education infrastructure (Febriana et al., 2018), and this might strengthen the issues faced during online teaching practicums. As several studies have indicated, even Indonesian EFL in-service teachers had issues during ERT (e.g., Ahmad & Arifin, 2021; Ferdiansyah et al., 2020; Kusuma, 2022a, 2022b; Kusuma et al., 2021). Thus, the information about the issues and how EFL student teachers solve them are necessary to provide a better understanding of student teachers' professional development. Therefore, considering the gaps mentioned above, this study aimed at exploring the issues faced by Indonesian EFL student teachers and the solutions they implemented during ERT due to the COVID-19 pandemic. To guide the exploration, the following research questions were formulated:

1. What issues did Indonesian EFL student teachers face during emergency remote teaching due to the COVID-19 pandemic?
2. What solutions did Indonesian EFL student teachers implement during emergency remote teaching due to the COVID-19 pandemic?

2 Voices Already Heard

2.1 Teaching Practicums

Improving the quality of teachers is necessary to improve the quality of schools and education (Opfer & Pedder, 2011). Thus, TEPs are responsible for providing pre-service teachers with relevant knowledge and teaching experiences. Teaching practicums represent a means to practice teaching skills effectively (Altalhab et al., 2021). Teaching practicums also provide opportunities to deepen their identity as teachers (Altalhab et al., 2021; Safari, 2020). Moreover, as student teachers will practice what they have learned in TEPs in the real teaching sites (Batane & Ngwako, 2017), teaching practicums provide opportunities to improve their professionalism during the induction period, or during the student teachers' first year of teaching (Opfer & Pedder, 2011).

Previous studies on student teachers' induction period have reported various issues with teaching competency and self-efficacy, students' attitudes, and negotiations with other teachers (e.g., Ashton, 2020; Azimi et al., 2019; Salazar Noguera & McCluskey, 2017; Salinas & Ayala, 2018; Zhu et al., 2020b). For example, Noguera and McCluskey (2017) conducted a case study about early career secondary teachers' perceptions of their preparedness for teaching by recruiting five Australian and six Spanish student teachers. Noguera and McCluskey found that both groups experienced gaps between teaching theories they obtained from TEPs and practical teaching. Interestingly, other studies also found that student teachers often had issues with time allocation (e.g., Ashton, 2020; Salinas & Ayala, 2018) and students' attitudes (e.g., Azimi et al., 2019; Haim & Amdur, 2016;). Consequently, previous research has revealed that issues during the induction period are widespread and unavoidable.

Pertaining to teaching practicums in the Indonesian context, an increasing number of studies have been devoted to investigating EFL student teachers' teaching practicums, resulting in similar issues. For instance, Nugroho (2017) investigated 65 Indonesian EFL pre-service teachers and reported that these teachers mostly had issues with teaching self-efficacy. Nugroho also reported that these teachers had issues with the infrastructure at school which could not support these teachers' teaching practicums effectively. These similar results were also encountered by 17 Indonesian student teachers, as reported by Mudra (2018), who did research in rural schools. Interestingly, issues were also indicated when Indonesian EFL student teachers did practice teaching in overseas schools. Chasanah and Sumardi (2022) explored the stories of two student teachers who did international teaching practicums

in Thailand. These two teachers mostly faced issues with classroom management, instruction, and communication.

2.2 *Online Teaching Issues and Solutions During Emergency Remote Teaching*

Even though previous studies showed that Indonesian EFL pre-service teachers have sufficient self-efficacy levels to conduct teaching using technology (e.g., Kusuma, 2022b; Megawati & Astutik, 2018; Rachmawati et al., 2017), initial studies on their preparedness during ERT indicated issues were possibly encountered. For example, Riyanti (2021) explored six Indonesian pre-service teachers' experiences during preparations for online teaching practicums in an online microteaching class and reported that these participants faced an unusual atmosphere since, during the online simulations, they could not interact lively as they used to do in offline classes. In addition, Drajati et al. (2021) investigated 20 Indonesian EFL student teachers' lesson plans for fully online learning during ERT and found that, while these student teachers were capable of developing interactive EFL activities using technology, those that provided active learning, constructive learning, and authentic learning were unsatisfactory when measured using the TPACK-21 Century Learning rubric. Therefore, the above studies have indicated that issues happened during the preparations and might also happen during the teaching and learning process.

As fully online teaching during ERT is a new phenomenon, several studies have reported that even professional EFL teachers encountered some issues during this ERT (e.g., Evans et al., 2020; Ferdiansyah et al., 2020; Kusuma, 2022a, 2022b; Moorhouse & Beaumont, 2020; Nuland et al., 2020; Yi & Jang, 2020). For instance, Ferdiansyah et al. (2020), who taught their students using WhatsApp to facilitate online literature circles, found that they failed to communicate effectively and on time when addressing a topic with their classmates in group assignments. Similar findings were also replicated in Kusuma's (2022a, 2022b) study, where he reported some EFL students had bad attitudes and low learning engagement during ERT because of uninteresting online learning activities.

Several scholars have provided solutions to the problems that student teachers may experience during their online practice teaching practicums. For instance, Nasri et al. (2020) mentioned that to solve internet issues, asynchronous learning via instant messaging platforms could be implemented as an alternative as they require very low bandwidth to operate. On the other hand, Darling-Hammond and Hyler (2020) emphasized that training could be the solution to provide knowledge on using technology and implementing courses during a pandemic. Nuland et al. (2020) also suggested that student teachers need to learn from their associate teachers during this pandemic time. Nuland et al. also suggested student teachers expand their knowledge by using various technology platforms to provide digital education during their online teaching practicums. In addition, seeking help could also come from supervisors as

they are the ones that know the teaching sites and the students very well (Azimi et al., 2019; Haim & Amdur, 2016). However, because this is a new phenomenon, relatively few researchers have examined the challenges that may arise during student teachers' online teaching practicums. Additionally, it is uncertain what solutions the student teachers will implement to resolve the issues.

3 Methods

3.1 Research Design

This is a qualitative research where I employed a phenomenological approach to describe the participants' lived experiences of a phenomenon to gain an in-depth understanding. Since an online teaching practicum is a new phenomenon due to the COVID-19 pandemic, phenomenology research is appropriate to be employed. This research was conducted to understand EFL student teachers' experiences in conducting online teaching practicums, especially the issues they faced and how they solved them.

This study was conducted in Indonesia during the COVID-19 pandemic. Prior to doing this investigation, I obtained Institutional Review Board approval and I contacted numerous colleges in Indonesia that had student teachers completing teaching practicums using online forms during ERT due to the COVID-19 pandemic. Only three of the several universities contacted eventually granted permission to contact their student teachers.

3.2 Participants

I recruited participants using the convenience sampling strategy for recruiting participants based on their ease of availability (Ary et al., 2019; Mertens, 2015). I contacted the potential participants via WhatsApp to describe the present study, including the risks and benefits of joining this study. Out of 25 potential participants approached, eventually, only 18 student teachers (male = 9; female = 9) showed a willingness to participate. These participants spoke Indonesian as their first language and English as a foreign language. They conducted their online practice teaching in junior and high schools in urban and suburban areas. On average, the participants were 21 years old with very minimum teaching experience using technology obtained in laboratory settings during their studies in TEPs. Moreover, they were the first student teachers impacted by the COVID-19 pandemic but still had to conduct online teaching practicums as a requirement to finish their TEPs. The participants in this study were called pseudonyms to preserve their confidential information (Table 1).

Table 1 Participants' demographic information

Participants	Gender	Age	Level of schools taught during practice teaching
Indra	Male	23 y.o	Junior High School
Yanti	Female	22 y.o	Senior High School
Mira	Female	22 y.o	Senior High School
Bagus	Male	21 y.o	Junior High School
Surya	Male	22 y.o	Junior High School
Sinta	Female	21 y.o	Junior High School
Wawan	Male	22 y.o	Junior High School
Komang	Male	21 y.o	Junior High School
Mila	Female	22 y.o	Junior High School
Nova	Female	23 y.o	Senior High School
Dwipa	Male	21 y.o	Senior High School
Ketut	Male	23 y.o	Junior High School
Anik	Female	22 y.o	Senior High School
Agung	Male	22 y.o	Senior High School
Saras	Female	22 y.o	Senior High School
Ayu	Female	21 y.o	Senior High School
Keysha	Female	22 y.o	Junior High School
Andre	Male	21 y.o	Junior High School

3.3 Instrument, Data Collection, and Analysis

I gathered data for this study via semi-structured interviews conducted via voice calls. The participants and I could not meet in person since Indonesian was implementing the Stay-at-Home order, which requires all Indonesian to stay at home due to the increased COVID cases. I developed an interview protocol that contained four demographic information questions and seven interview questions asking about the student teachers' experiences of teaching practicums using technology. The participants were interviewed individually for 30–40 min, two sessions, over three months from April to July 2021. The first session focused on the issues they encountered and the second one focused on the solutions. Since they were all Indonesians, I conducted the interviews in Indonesian to reduce anxiety and increase the chance of getting more profound data. I recorded the interviews using a recorder application.

To ensure the rigor of the study, especially the credibility of the data, I began analyzing the data by transcribing the interviews in Indonesian and sent the transcriptions back to all participants for validation as well as to ensure the accuracy and trustworthiness of the data. Then, after all participants confirmed, I organized all data in folders for easy management. Next, I read all transcripts and took notes for data analysis as well as generated codes and relevant themes using the inductive thematic analysis technique (see Braun & Clarke, 2006). During this phase, I found

four themes that were relevant to the research questions. Additionally, I examined several relevant resources, including the literature review, to help me create proper interpretations of the themes I generated. During these phases, I employed the bracketing method, a method to support data analysis through writing memos (Tufford & Newman, 2012).

4 Lessons Learned

The in-depth analysis of the interview results using inductive thematic analysis generated four themes and 16 sub-themes with 118 excerpts. Each theme is presented below and supported by relevant excerpts to understand better the phenomena experienced by the student teachers during ERT due to the COVID-19 pandemic.

4.1 Issues While Designing Online EFL Activities

As summarized in Table 2, the interview findings showed that EFL student teachers encountered issues when designing online EFL activities that involved designing appropriate online learning activities and choosing appropriate technology tools. As they only used to develop face-to-face classroom activities using technology, 12 student teachers revealed that they encountered issues when designing full online activities, offering materials through online platforms, conducting online discussions, and what kinds of online practices could be designed. For example, Dwipa confessed, "Actually, the biggest problem was designing the online EFL learning activities because many students were not motivated if the activities were monotonous, such as discussion using English on WhatsApp only, or watching videos on YouTube only."

In addition, the student teachers were required to consider the technology tools that could be used to supplement their online instruction. Five participants indicated that they were having issues selecting appropriate technology tools for online instruction. Most importantly, they had to choose tools that were compatible with the students' circumstances, including limited gadgets, limited internet bandwidth, and low internet connectivity. Even though the participants desired to design engaging EFL activities by utilizing specific technology tools, they could do nothing about it due to their lack of familiarity with the platforms. Furthermore, students in villages usually know less about technology for EFL as they often lack infrastructure. For instance, Saras said, "I wanted to use Kahoot after reading an English text, but few students did not know how to use Kahoot. It [the school] is in a village, and I had to adjust the tools that students from the village knew how to operate…."

Additionally, the issues encountered when developing online learning activities derived from their teaching supervisors. Six interviewees admitted that as inexperienced teachers, they were required to obey their superiors' commands, including

Table 2 Themes and sub-themes

Themes	Sub-themes
The issues while designing online learning activities	Designing appropriate online learning activities
	Choosing appropriate technology for online learning
	Supervisors limited the use of technology tools for learning
Solutions to solve issues related to designing online activities	Watching YouTube videos
	Reading articles on websites
	Asking supervisor for suggestions
The issues while conducting online teaching	Internet connectivity /bandwidth
	Time allocation
	Students' netiquette
The solutions to solve the issues related to conducting online teaching	Approaching the students
	Being less strict with schools' rules
	Designing activities that suit the students' condition
	Designing interesting activities
	Giving reinforcements
	Giving encouragement

implementing limited digital teaching tools. Furthermore, the participants had to suppress their creativity to create engaging EFL activities for the students, as the supervisor did not permit the use of some technology tools, such as Kahoot, Facebook, or Instagram, to facilitate the creation of these activities. For example:

> When choosing technology tools, I said, "Kahoot could be more interesting. There are some new features for learning." But because the students could not access it, my supervisor said, "just use the common ones!". Thus, we only used Google Forms, YouTube, and WhatsApp. (Saras, July 15th, 2021)

Moreover, the participants were not allowed to design some interesting activities that could burden the students. For example, Bagus expressed his situation, "I wanted the students to create speaking videos when I taught speaking skills. But when I discussed it with my supervisor, he said it was not possible to do this activity because not all students could create videos."

4.2 Solutions to Solve the Issues Related to Designing Online EFL Activities

While EFL student teachers admitted that they encountered issues when constructing online EFL activities for ERT due to the COVID-19 pandemic, they had to find

solutions. According to the interview results, nine participants appeared to have discovered the solutions on YouTube. They would find videos demonstrating possible activities for online courses during the pandemic. Sometimes, they also searched for strategies for teaching English online. For example, Komang said, "For that issue, I liked searching and watching how teachers conduct online teaching on YouTube as well as finding some videos about some strategies to teach online."

Additionally, a few student teachers sought solutions from different sources. The interview findings indicated that three participants read some websites to gather information on online teaching. The participants also would search lesson plans to see which activities could be implemented in their situations. For example, Surya mentioned, "I sometimes searched on several websites about some lesson plans for teaching online."

The interview results also revealed that the participants would get feedback from their supervisors when constructing online EFL activities. Six participants admitted that they frequently sought assistance from their teaching supervisors. They would also discuss the design they had with other English teachers. For example:

> In the beginning, when I designed speaking activities using Google Classroom, I contacted my supervisor. Not only to the supervisor but I also talked to other English teachers, like how to use this platform for teaching speaking skills, and which speaking activities I should design using this platform. (Nova, July 23rd, 2021)

Pertaining to choosing technology tools for teaching, the participants researched by themselves the appropriate technology tools for teaching. The interview results showed that six participants tried out several technology tools for teaching purposes. For example:

> I never thought that voice notes [WhatsApp] could be used for teaching. I found out that this feature could be implemented for teaching and learning, especially in teaching speaking skills. I asked the students to send their voice notes in English to the group. (Ketut, July 19th, 2021)

Furthermore, the participants would use technology that was familiar to their students. They would consider the platforms that their students could access everywhere, anytime, and without any issues.

4.3 Issues While Conducting Online Teaching Practicums

Being able to resolve the issues in designing online learning activities does not guarantee that EFL student teachers will encounter no issues while performing the ERT. According to the interview findings, eight EFL student teachers experienced issues with internet access and bandwidth. In addition, students frequently were unable to participate in synchronous modes due to poor internet connectivity. For example, Yanti mentioned, "… for example, "Mam, my [internet] connection was horrible." Or they just disappeared and left the online learning." Even, the students complained when EFL student teachers used video conference platforms because

of the internet issue. The participants also confessed that most of their students lived in places with limited internet availability. Thus, these geographical conditions influenced online teaching instruction.

Additionally, the interview findings suggested that EFL student teachers struggled with managing time during their online teaching practicums. Eight individuals stated their concerns about time allocation. The bad internet connectivity also caused this issue, requiring EFL student teachers to give extra time to their students to download teaching materials. Time management issues were also exacerbated by their students' delayed responses to instruction. For example, Ayu expressed her situation, "We spent more time than usual, and some students slowly responded to the instruction. For example, some students had given their opinions while others still had not shown responses yet".

Interestingly, EFL student teachers reported that students demonstrated negative attitudes during ERT. The interview findings showed thirteen EFL student teachers expressed concerns about their students' netiquette while conducting online instruction. For example:

> There were a few students, from my first online teaching until I finished my teaching practicum, never showed up. They did not even join in online activities. When I asked my supervisor, she said they were lazy students and lacked participation. (Bagus, July 18th, 2021)

Some students who joined the video conference also occasionally left the meeting for no apparent reason. Furthermore, the most frequently seen issue was students refusing to turn on the camera. As a result, EFL student teachers could not see what they were doing and whether they were paying attention to the instructions. For example, Sinta said, "The issue was when I taught using Zoom, only a few students showed active participation. In fact, I had asked others to participate as well, but they did not respond to me. They even turned the camera off."

4.4 Solutions to Solve the Issues Related to Conducting Online Teaching Practicums

The participants were required to make several attempts to resolve the issues associated with conducting online instruction. As summarized in Table 2, the interview findings revealed that participants implemented various solutions to solve their issues. Six EFL student teachers admitted that they approached students to learn about their circumstances and why they were unable to participate in online EFL activities. However, some of them answered the participants' calls while the rest did not. Even a few students did not answer the calls until the student teachers finished their practice teaching. Additionally, the participants were required to be less strict with their students, as five EFL student teachers stated that their teaching supervisors instructed them to tolerate their students' attitudes during the pandemic. For example, Mira mentioned, "My supervisor suggested not to burden the students, which means that

if there were students who did not show active engagement, I could not force them to participate. If they attended the class, it was more than enough" The participants also frequently extended time to students and occasionally let students submit assignments after the due date. They often gave one week for their students to finish the assignments during the online teaching.

The problems that the student teachers encountered compelled them to innovate and create appropriate activities for their students' situations. Nine EFL student teachers indicated that they frequently altered their online EFL activities in response to students' netiquette and internet connectivity concerns. For example, Dwipa said, "I discussed with the students what activities they liked for the online EFL activities. They said they would be enthusiasts if the topics were relevant to what they liked or knew as the topics should be about their favorite artists…."

For those who lacked the necessary technology to participate in online instruction, student teachers invited them to come to school to pick up some hardcopy materials and quizzes for take-home learning. Also, for the students who had gadgets but did not join the online learning activities, the student teachers asked them to create a speaking video of 30–60 s duration as a soft punishment. However, the student teachers did not see this as a punishment but as an encouragement to improve their English skills.

The student teachers recognized that joining fully online instruction was a novel experience for their students, and this pandemic exacerbated the students' boredom. Thus, four EFL student teachers admitted that they attempted to create engaging activities to address netiquette concerns. For example, Agung said, "To start with, we played games to make them enjoy the class. So, they would not feel anxious and could be more relaxed during the online learning."

On the other hand, two participants revealed that they gave positive reinforcements to their students by giving some additional points. For example, if the students could answer the questions, they would get additional scores. Furthermore, four EFL student teachers confessed that they would encourage their students to join online activities. For example:

> I often told some jokes and tried to be friendly to show that I was not like what they thought. When they turned on the camera, I said it did not matter if the quality of the camera was bad or if they could not speak English well. The most important was I could see them in my class. (Nova, July 23rd, 2021)

5 Discussion

In response to the first research question, interview data indicated that Indonesian EFL student teachers faced various issues prior to undertaking online instruction, most notably designing online learning activities and selecting acceptable technology tools. This study's findings, therefore, mirrored several previous studies' findings (Evans et al., 2020; Moorhouse & Beaumont, 2020; Yi & Jang, 2020) that both in-service and pre-service EFL teachers struggled with planning online teaching

instructions. Moreover, it also supported Drajati et al.'s (2021) research findings that discovered similar results. Presumably, student teachers commonly encounter discrepancies between the theoretical knowledge gained through TEPs and the practical situations found in schools (Haim et al., 2020; Salazar Noguera & McCluskey, 2017) posing issues in designing learning activities. On the other hand, this study's findings contrasted with earlier research indicating that EFL student teachers used various technology platforms and had no issues selecting technological tools for online teaching (e.g., Fathi & Ebadi, 2020; Park & Son, 2020). Likely, the participants in this study did not obtain the necessary emergency technology training to execute ERT. As a result, issues in teaching practicums were easily encountered.

Interestingly, the issues before ERT were also derived from the participants' teaching supervisors. This study's findings supported Salinas and Ayala's (2018) as well as Zhu et al., and and's (2020a, 2020b) findings which found that student teachers sometimes encountered issues with their teaching supervisors. In addition, these investigations demonstrated that participants were frequently instructed to emulate their supervisors' teaching styles during offline classroom training. Notably, as demonstrated in this study, the issue may also include selecting technology tools for online instruction. Perhaps this was due to novice teachers' tremendous excitement for conducting online instruction using various technology tools but lacked familiarity with the recognized standards in schools (Sabar, 2004) that had developed throughout the ERT.

Additionally, the participants encountered several issues, mainly from the students' side, such as internet connectivity, time allotment, and students' netiquette when joining online instruction. This study's findings echoed previous studies' findings that internet access was the primary source of contentions during ERT (e.g., Ferdiansyah et al., 2020; Nuland et al., 2020). Unfortunately, internet connectivity often becomes a technology dispute when teaching using technology (Jie & Sunze, 2021), especially in Indonesia (Kusuma, 2022a). Moreover, This study's findings also supported what had been reported by previous studies that student teachers often had issues with time allocation (e.g., Ashton, 2020; Salinas & Ayala, 2018) and students' attitudes (e.g., Azimi et al., 2019; Haim & Amdur, 2016; Zhu et al., 2020a, 2020b). As a result of the findings in this study, it is possible that fully online teaching requires longer time allocation than typical teaching in offline classroom settings. In addition, as shown in this study, the students appeared to be quite noisy during offline classroom instruction (Azimi et al., 2019) but were relatively quiet and showed less participation in online classes. Thus, due to issues encountered by the participants during the COVID-19 pandemic, the induction period for Indonesian EFL student teachers may be more complicated than those previously reported prior to the pandemic.

To address the second question, it was discovered that the participants sought ideas for constructing online learning activities from various sources, including YouTube and websites. Even though the participants lacked experience, the data indicated that they exerted considerable efforts in resolving issues throughout their teaching practicums (Safari, 2020). Interestingly, the participants in this study also sought

assistance from teaching supervisors, as also reported by previous studies (e.g., Azimi et al., 2019; Haim & Amdur, 2016). Furthermore, supervisors were an excellent source to seek feedback and ideas since they know teaching sites, including the characteristics and attitudes of the students, and can offer insightful suggestions.

The findings also indicated that Indonesian EFL student teachers' solutions became less stringent during this pandemic, focusing on interacting with students and developing appropriate and engaging activities. Perhaps, by doing this, teachers could create conditions in which the students can progress in their studies (Warner & Picard, 2013). Similarly, previous studies found that student teachers would show themselves as friends, mediators, co-partners, helpers, facilitators, and supporters for their students (Safari, 2020) and designed exciting activities for their students (Safari, 2020; Salinas & Ayala, 2018; Zhu et al., 2020b). Those options were probably chosen because the participants desired to maintain relationships with students during their practicums (Safari, 2020; Zhu et al., 2020a, 2020b) to demonstrate that they could develop into individuals who cared about students' learning (Azimi et al., 2019) and the ones whom students could trust and refer to in addition to becoming figures of authority (Haim & Amdur, 2016).

Four implications can be drawn from the preceding discussion regarding the importance of TEPs during a situation that requires ERT. First, as integrating technology in teaching requires teachers' competency (Tafazoli, 2021b), TEPs must provide enough educational technology training to equip EFL student teachers to conduct fully online instruction, including outlining potential issues and how to resolve them. The more knowledgeable student teachers are about the issues and possible solutions, the more effective they will be for their students' learning (Raza & Coombe, 2021). Additionally, TEPs should give regular consultations with EFL student teachers, as they will likely require professional advice due to their lack of teaching experience, primarily to conduct full online instruction. Second, TEPs should reach an agreement with partner schools to increase EFL student teachers' flexibility in planning activities and selecting digital tools in their teaching practicums. As a result, it provides them in gaining more teaching experience, as a teaching practicum is a means of efficiently practicing teaching skills (Altalhab et al., 2021). Third, as identified in this study, internet connectivity became a big concern, affecting students' time allocation and their netiquette. As a result, TEPs must identify technology tools, especially mobile technology that is compatible with low internet connectivity and bandwidth as it can help to make higher education more inclusive and equitable (Kaliisa & Picard, 2019).

6 Conclusion

Analyzing the issues faced by Indonesian EFL student teachers and how they solved them is crucial to understanding the phenomena, which is a novel one caused by the COVID-19 pandemic. This study discovered that Indonesian EFL student teachers encountered a variety of issues while designing and implementing online teaching

instruction. The issues were mostly caused by a lack of knowledge regarding the design of comprehensive online learning activities, technical issues, student netiquette, and teaching supervisor needs. Nevertheless, those issues might be resolved by employing various solutions, even though most solutions were derived from YouTube videos, websites, and supervisor suggestions.

Additionally, this study identified three shortcomings. First, because this qualitative study focused exclusively on student teachers, additional data, such as supervisor and students' confessions, is required to eliminate bias in the data collected. Second, this study did not explore whether the solutions were effective. Third, this study did not investigate profoundly how EFL student teachers developed their professional identities through online practice teaching. As a result, it is hoped that future research will address these limitations to develop TEPs and student teachers' teaching practicums.

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Chapter 8
CALL Teacher Education for Young Learner Classrooms

Serdar Tekin

Abstract One of the most important aims of CALL teacher education programs is guiding and helping pre-service teachers with the effective integration of technology into language teaching. An increasing number of studies focus on this issue by investigating attitudes and perspectives of CALL. This study goes beyond and examines actual practices regarding the strategies to promote the use of CALL in the ELT department at a state university in Turkey. More specifically, it scrutinizes how pre-service teachers' CALL competencies are developed in teaching English to young learners (TEYL) module. It also comprises the voices of 20 pre-service English as a foreign language (EFL) teachers' accounts about CALL-integrated ways of teaching English to young learners (YLs) through focus group interviews. The study employed semi-structured interviews, including a series of questions regarding competency in technology, module contents with specific reference to CALL, and the use of CALL in practicum. Thematic analysis was used to analyze the interview data. The results revealed interesting findings in terms of awareness of and competency in the implementation of CALL in practicum as well as the sufficiency of the TEYL module. Although participants all agreed on the importance of the use of technology due to learners' young age and hence used their technological knowledge in practicum, some believed that teacher education had some space to be improved so that they would confidently integrate CALL into YL classes. Combining an under-researched area which is TEYL and CALL teacher education, it is believed that this study will be beneficial both for teacher education programs and YL teachers in terms of planning CALL-integrated classes.

Keywords Computer-assisted language learning (CALL) · Pre-service teacher education · Young learner language education

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1 Introduction

The role of information and communication technology (ICT) has considerably increased in second/foreign language education in line with the enormous developments in technology recently. It is expected that classes are planned and designed and integrated with technology to make them more effective and appealing for learners. Language teachers' ICT skills and their education in Computer-Assisted Language Learning (CALL) are hence regarded as important components of teacher education programs across the world (Batane & Ngwako, 2017; Park & Son, 2009). Considering this, a growing amount of attention is given to CALL teacher education to improve pre-service teachers' ability for the successful implementation of CALL in classes.

It is commonly reported that many governments and educational institutions are currently focusing on investments in the integration and development of ICT infrastructure, such as in England (Hall & Higgins, 2005), South Korea (Park & Son, 2009), and Turkey (Aşık & Gönen, 2020). In Turkey, for example, the Ministry of Education (MoE) started a new project named "Movement of Enhancing Opportunities and Improving Technology" (FATIH) around a decade ago which aimed to integrate ICT into all schools from primary to high school level (MoE, 2012). More specifically, within the scope of this project, schools have been provided with ICT equipment and infrastructure (interactive whiteboard in each classroom, improved Internet infrastructure for schools, and tablet PCs for students), digital education content to be used on these ICT devices, and in-service teacher training.

The advancement in ICT and its common use in language education make it vital to educate pre-service language teachers and equip them with the necessary ICT skills for them to teach English efficiently, particularly to young learners (YLs) who are more engaged with technology than older generations. Teachers' lack of ICT skills is a commonly reported problem for the use of CALL (Hall & Higgins, 2005; Park & Son, 2020; Yáñez & Coyle, 2011). This is also supported by various studies revealing that pre-service teachers are not prepared or confident to use ICT in language classes (Barbour & Harrison, 2016; Ranellucci et al., 2020). When YLs are at stake, ICT-integrated classes become even more crucial considering their young age, high capability in technology, and distinctive characteristics different from older learners in terms of shorter concentration span and lack of instructional motivation to learn a new language (Pinter, 2017). Hence, YL teacher education is expected to educate pre-service teachers in terms of CALL and make them competent users of ICT tools in language classes. Considering the importance of YL teacher education, this study investigates the role of the TEYL module offered to pre-service EFL teachers on CALL development. Scrutinizing the content of the module, it explores pre-service teachers' competency in CALL as well as their experiences in and views about the module in terms of CALL development.

2 Voices Already Heard

2.1 CALL in Turkish EFL Context

With the rapid developments in technology, more investments are made in technology to provide learners with a better education integrated with the latest ICT tools. Educational authorities across the world make great efforts for aligning education with technology by reforming curriculums and improving technology infrastructure (Park & Son, 2020). In line with this, a new project has been launched relatively recently to integrate ICT components into all schools in Turkey (MoE, 2012). The main component of the project involves putting an interactive whiteboard (IWB) in each classroom. Within the scope of this initiative, around 500.000 IWBs have been installed in around 25.000 schools in different parts of the country during the last ten years. The schools were also equipped with Internet infrastructure and printers. A great number of students were given tablet PCs to have access to online materials such as videos, games, animations, and interactive tests. Furthermore, in-sessional training was provided to all teachers working at different levels, including primary, middle, and high schools. Considering its extent, this project could be regarded as a comprehensive step for the inclusion of ICT in educational settings.

Although some aspects of the project are questioned (e.g., the efficiency of the use of tablet PCs), it is generally reported that both teachers and learners have positive attitudes toward the use of ICT tools with particular reference to IWB in language classes (Aydın, 2013; Gursul & Tozmaz, 2010; Han & Okatan, 2016; Şad, 2012). From the teachers' viewpoint, Han and Oktan (2016) revealed that IWBs provide a great convenience in terms of extending learners' concentration span and increasing their engagement in the class as well as attaining the intended skills. Similarly, the project and ICT devices were considered as valuable and helpful tools enabling effective language education through facilitating understanding of language points in English (Aydın, 2013). It was also found in the study that IWBs had a time saver role during the implementation of language activities with the help of audio-visual materials available in online content provided by the MoE. It is quite in line with the results of another study (Şad, 2012) which revealed positive attitudes toward IWBs and high motivation resulting from high language attainment in CALL-integrated classes.

In addition to government-led ICT initiatives, several individual and organizational CALL-related practices consisting of different CALL tools have been implemented in language education in Turkey. For example, the eTwinning platform considerably contributed to students' ICT skills in the language learning process (Demir & Kayaoğlu, 2021). In this project, students occasionally used video conferences and Web 2.0 tools and prepared online activities for their peers from different countries and hence became more active in the use of technology (including their mobile phones) for instructional purposes. A more recent study also revealed that the use of interactive e-books including animated texts, videos, and games and video feedback enhanced students' language learning process and fostered their intrinsic

motivation (Yorganci, 2022). Furthermore, a great number of schools in Turkey provide students with Dynamic Education (DynEd) software which enables students to engage with English both in and out of school. It was found that DynED promoted primary school students' language learning in terms of vocabulary acquisition and studying autonomously (Meri, 2012). In this regard, it could be argued that various aspects of CALL have great potential to enhance language learning.

Despite positive aspects of CALL reported in language classes in Turkey, several studies found a problematic issue regarding teachers' lack of CALL skills, which also had adverse effects on the use of CALL effectively (e.g., Aşık & Gönen, 2020; Aydın, 2013). For example, the findings of Aydın (2013) indicate that teachers had only basic knowledge about how to use specific features of CALL including graphics, spreadsheets, and concept mapping. Another aspect regarding teachers' lack of ICT skills was revealed by Aşık and Gönen (2020) who found that teachers were unaware of the potential features of IWBs. They mostly considered these tools as screens that substitute traditional blackboards or show coursebooks on the board without focusing on interactive activities such as online games, songs, and online language exercises. This is quite in line with what Cutrim Schmid (2016) calls "superficial interactivity," which refers to the use of ICT tools for only displaying prepared presentational texts, moving pictures or textbooks, and revealing the answers of the activities. This way of using IWBs could be regarded as impeding factor to fully draw on the benefits of ICT and integrate ICT into language teaching and hence has some implications for teacher education.

2.2 CALL Teacher Education for Teaching Young Learners

Extensive developments in technology and its adoption in educational contexts at a breath-taking rate make it crucial to educate pre-service teachers so that they can be equipped with the required skills to meet the current needs of integrating technology into language teaching. Today's pre-service teachers can be viewed as more familiar with the technology and drawing on it compared to their predecessors, but there is some evidence showing that some are still unconfident or unprepared for the use of ICT tools for language teaching (Barbour & Harrison, 2016; Ranellucci et al., 2020). Although modules and courses on CALL are offered to pre-service teachers, their adoption and implementation of an ICT-integrated way of teaching are limited (Park & Son, 2020). Even viewing themselves as competent users of ICTs in daily life has little impact on designing language classes as a technology-enhanced way (Park & Son, 2020). In this regard, hands-on activities and sample lessons would be beneficial for them to see how to implement CALL with different age groups ranging from YLs to adults.

The role of ICT in language education has been emphasized for all age groups so far, but CALL-integrated teaching in YL classes can be regarded as particularly important, since YLs are more engaged with technology compared to older generations. Recent evidence shows that effective use of technology with YLs leads to

considerably higher motivation and attention among learners (Butler et al., 2014) and higher language attainment in terms of spoken communication skills (Sadeghi & Dousti, 2013), and vocabulary acquisition (Vasileiadou & Makrina, 2017). Considering these benefits, teacher education programs should train pre-service teachers to use ICT effectively. However, it is important to use age-appropriate ICT activities taking into consideration YLs' distinctive characteristics which are different from older learners in many aspects (Garton & Tekin, 2022; Moon, 2005; Pinter, 2017). For example, children are unable to sit still for a long time, which implies that activities should allow them to move around (Pinter, 2017). Their concentration span is considerably shorter than older learners, so they need attractive and enjoyable activities to learn (Garton & Tekin, 2022). Due to such characteristics of YLs, teaching them is unlike teaching older learners, and hence teaching methodology and practices necessitate being adjusted (Hird et al., 2000). Therefore, pre-service teachers should be trained with specific reference to the integration of ICT into YL language classes.

Despite the importance of pre-service teacher education on CALL use, it is commonly reported that teacher candidates are not sufficiently prepared to follow a CALL-integrated teaching in language classes (Barbour & Harrison, 2016; Ranellucci et al., 2020). Therefore, it would be useful to unearth CALL-related trainings and applications in teacher education programs so that they could be problematized and improved. Considering YLs' higher familiarity with technology than older learners, investigating CALL trainings with specific reference to YL education becomes even more crucial. Considering this, the current study explored the effectiveness of the TEYL module to prepare pre-service teachers to integrate technology into actual teaching. It mainly aimed to find out the role and efficiency of TEYL module in terms of improving pre-service EFL teachers' CALL skills. It also explored their competency in CALL as well as views about the module in terms of CALL development and experiences in practicum. The study employed focus group interviews and addressed the following research questions: (1) To what extent pre-service EFL teachers are aware of the role of CALL in YL classes? (2) How sufficient is the TEYL module to educate EFL pre-service teachers in terms of CALL? (3) To what extent can pre-service EFL teachers put their CALL knowledge into practice?

3 Methods

3.1 Research Design

The current study adopted a qualitative-oriented approach, utilizing a case study to investigate CALL teacher education. Case study is regarded as a useful way for examining a phenomenon in detail in its own context (Yin, 2018). Furthermore, it enables the researchers to gain rich description and in-depth insights into the researched

issue (Creswell, 2013; Dörnyei, 2007). It also maximizes understanding of the interaction of interrelated factors (Stake, 2005; Yin, 2018), which serves to reveal the relationship between participants' opinions and experiences of CALL education as well as their use of CALL in real classroom contexts. Considering its benefits, this study employed a case study to unearth the CALL education with a focus on YLs in terms of pre-service teachers' accounts and experiences in the abovementioned teacher education context. Moreover, the use of case study helped to address the research questions efficiently by delving into several key points, including participants' awareness of CALL in YL teaching, their opinions about the CALL education they received, and their own experiences of integrating CALL into practicum.

3.2 Participants and Context

Participants were recruited through a convenience sampling which is the most commonly used method in social science (Dörnyei, 2007). Being a specific type of nonprobability sampling, convenience sampling involves choosing participants depending on the availability and convenience (Silverman, 2013). Despite this sampling lacks generalizability, it does not lack purpose (Perry, 2011), which is gaining in-depth understanding of CALL practices in a pre-service teacher education program. In this regard, pre-service teachers who were taking TEYL module in the researched context were contacted, they were informed about the study, and the ones who were willing to take part were included in the study.

A total of 20 pre-service teachers accepted to participate in the study. Five participants were male and 15 were female with the age range of 20–21 (see Table 1). They were all in the third year of a four-year undergraduate teacher education program at a public university in Turkey. They were native speakers of Turkish and enrolled in BA in ELT. After successful completion of the program the following year, they would be awarded to become English teachers and work in various contexts, including primary, middle, and high schools. Although they did not have any previous teaching experience, they were all voluntarily teaching English to young learners in a primary school while taking the TEYL module at the university. In this way, they had a chance to put what they learned into practice and gain experience in teaching YLs.

The TEYL module follows the common curriculum designed by the Council of Higher Education (CHE), which should be followed by all ELT departments in Turkey. According to this curriculum, the module aims to improve pre-service teachers' teaching skills for children, develop strategies specifically designed for children, and design age-appropriate activities with the help of several ways, including stories and visual and auditory tools (e.g., videos, songs, and puppets) (CHE, 2021). However, this is only a general frame that serves as a guide for tutors who can plan their modules freely. The TEYL module offered in the context of this study, therefore, included some sessions about the use of CALL in YL education. The focus of these sessions was teaching specific language points through videos (e.g., from YouTube and other websites), online songs, and online interactive activities with the help of

Table 1 Participants' demographic information

Number	Participants (pseudonyms)	Gender	Major	Grade	Age range
1.	Ahmet	Male	ELT	Third grade	21
2.	Ayse	Female	ELT	Third grade	21
3.	Begum	Female	ELT	Third grade	21
4.	Betul	Female	ELT	Third grade	21
5.	Canan	Female	ELT	Third grade	21
6.	Cigdem	Female	ELT	Third grade	20
7.	Demet	Female	ELT	Third grade	20
8.	Deniz	Female	ELT	Third grade	20
9.	Erhan	Male	ELT	Third grade	21
10.	Esra	Female	ELT	Third grade	20
11.	Feride	Female	ELT	Third grade	20
12.	Medine	Female	ELT	Third grade	20
13.	Mehmet	Male	ELT	Third grade	20
14.	Melek	Female	ELT	Third grade	20
15.	Melisa	Female	ELT	Third grade	21
16.	Mira	Female	ELT	Third grade	21
17.	Selin	Female	ELT	Third grade	20
18.	Senay	Female	ELT	Third grade	21
19.	Okan	Male	ELT	Third grade	21
20.	Veli	Male	ELT	Third grade	20

Web 2.0 tools. Sample lessons were demonstrated, and hands-on activities about the use of technology in YL classes were provided for pre-service teachers to picture how they were used in a real classroom.

3.3 Data Collection and Analysis

Data were collected through focus group interviews which rely on systematic questioning of multiple individuals at the same time and enable participants to shared brainstorming and thinking by creating a relaxed atmosphere (Denzin & Lincoln, 2005). The goal is not to reach a consensus or respond to the interviewer in this method but to generate discussion and bring out participants' viewpoints and experiences (Brinkman & Kvale, 2015). This type of interview is becoming more commonly used in social sciences since it allows to emerge both shared experiences and views without ignoring individual differences (Bryman, 2012). This method was considered the most appropriate one to collect data, as the study was concerned with pre-service

teachers' individual and shared experiences and opinions about the TEYL module in terms of CALL.

There was a total of five focus groups (labeled one to five), and each included four participants who were asked a series of questions regarding their competency in technology, the module contents with specific reference to CALL, and the use of ICT devices in practicum (see Appendix A). The interviewer's role was very important in that it ensured that the discussion flowed well, and all interviewees were allowed to share their ideas freely without being the dominant speaker. In line with the participants' choice, interviews were conducted in Turkish.

In the first phase of data analysis, interview data were first transcribed and translated into English by using NVivo 12, which allowed me to get familiarized with the data and gain an overview of its richness through listening to the audio-recordings repeatedly. For the main analysis process, this study adopted the Framework approach, which is regarded as an assisting strategy for thematic analysis (Bryman, 2012). In this approach, a structured sequence of steps was followed to construct an index of main themes and subthemes that are recurring motifs in the interview transcripts, and then the data were synthesized for interpretation (Ritchie et al., 2003). During this process, I took notes and highlighted the patterns and recurrent themes. Although the existing literature on CALL and research questions were helpful to identify a number of key issues, there were some emergent issues raised by participants (e.g., their own experiences and opinions about YLs). These were also identified and taken into consideration in the analysis process. Thus, this study employed a combination of deductive and inductive thematic analysis (Bryman, 2012). Depending on the similarities and differences in participants' accounts, key characteristics were visually charted in NVivo, which was followed by interpretation and explanation of the data.

4 Lessons Learned

4.1 Awareness of the Role of CALL

Participants were mostly aware of the role of CALL with YLs. They commonly expressed the positive effects of using technology on teaching English with a specific reference to the role of technological tools on student engagement. They stated that children learn considerably better with visual materials such as videos and interactive flashcards. The accounts of all participants from the first group are presented collectively to show how the knowledge is built together in the focus group interview.

> *Ayse: In my opinion, it is tremendously necessary. Children's visual memory might be dominant, and it can be ineffective to constantly use traditional flashcards or similar tools to make the class attractive. Online games and supporting videos are notably advantageous. We should use them.*

Betul: I agree with you. Nowadays, children are highly dependent on applications such as YouTube. However, they might not be able to comprehend when something is presented to them verbally due to their deficiency in verbal memory. In case of visual teaching supported by computer, they immediately catch it, and you can attract their attention. As a result of higher interest, they actively engage in learning.

Esra: When technology is used in the class, it attracts their attention, they want to participate in the activity. They like to touch the smartboard. They would like to come to the board and do the online exercise.

Mira: It expands the limits of children's creativity since they are not solely devoted to a plain book or board. Don't just imagine it as a smartboard. For instance, children learn while playing a game. They also learn while doing an exercise and check the answers on it. They can figure out that there are different things happening around him such as visuals, interactivity, audios, instant feedback, etc. In this way, the creative part of the brain begins to function, and the brain ceases to be a monotonous information receiver and becomes more productive and creative.

As seen in the extracts above, participants emphasized the necessity of integrating ICT into English classes due to its motivating role to learn English. They commonly argued that English classes become more attractive for children with the help of technology and hence learners are more engaged in learning. One participant (Ayse) compared traditional materials (e.g., books and notebooks) with interactive visual ones in terms of effectiveness and stated that the latter was more advantageous in terms of drawing learners' attention. This argument was supplemented by Betul who highlighted children's frequent use of technology in their daily life. In addition to supporting these views about the advantages of CALL, Mira mentioned children's learning process that is positively affected by several features of ICT tools and argued that these features make children more creative.

Participants from other groups also agreed that ICT played a role in making English classes more attractive for children. One participant (Deniz) mentioned that technology could assist in reducing her workload. She mentioned that it would be very difficult for them to create and prepare attractive content and activities in the traditional method (e.g., preparing flashcards and print-outs.), but they could easily do it on a computer.

Deniz: They are children. They want colourful, loud, and energetic contents. We cannot do that without technology. We cannot do it all by ourselves. With the help of technology, we should create something which adds a different perspective to children. Also, technology reduces our workload with Web 2.0 tools.

In line with the previous accounts, Canan mentioned positive aspects of CALL by drawing on her teaching experience in practicum. She stated the benefits of technology on learners having different ways of learning, including auditory, visual, and kinaesthetic.

Canan: We have witnessed lots of benefits in the practicum. It draws children's attention. For instance, we have played a video clip. It was helpful for students with multiple intelligence including auditory, visual, and kinaesthetic. Moreover, we have taken advantage of online interactive flashcards. However, I can say that I am against counting entirely on

digital methods. Although it is necessary for YL classes, there should be a certain amount of dependence.

Although she was in favor of CALL in YL classes in the above extract, she cautioned about the excessive use of it. She argued that the class should not be completely dependent on technology. This is quite in line with the accounts of another participant from another focus group (Veli). He highlighted that the main focus of the lesson should be teaching English rather than the use of technology and that technology should be the means for this aim. He elaborated his views as follows.

Veli: I believe that we should avoid using technology excessively. If the main focus is having fun rather than teaching the specific language point, we cannot teach them anything. Technology should be a means for effective teaching rather than the aim. If we use technology all the time, students will always think about having fun and games. It will be very difficult to manage the class in case of absence of technology. Therefore, there should be a balance in the use of technology.

4.2 Sufficiency of TEYL Module in Terms of CALL

The accounts of participants revealed mixed results regarding the sufficiency of the TEYL module for the use of CALL in YL classes. The participants were split into two parties—one arguing that the module provided useful information about the use of technology to some extent, the other believing vice versa. The views of the first party focused on what was taught to them in terms of specific technological tools with reference to Web 2.0 tools. Similar views from the participants from different focus groups are presented below.

Feride: The module is linked to technology and provides us with opportunities to use it in teaching. … Since we learned and saw how they were used in real life context in case studies, I think that I can use them in my own teaching. For this reason, I believe that our class is adequate in terms of technology integration. The applications and the Web 2.0 tools that we have used throughout the semester definitely help us to get more familiar with technology in the classroom.

The above extract indicates that the TEYL module serves as a role model for pre-service teachers in terms of technology use since it draws on ICT in the process of training them. The module also offers demo classes to show how ICT can be used with YLs so that pre-service teachers apply it to their teaching. In line with the module contents, the participant draws attention to Web 2.0 tools, which is elaborated by another participant who names some of these as follows.

Mira: We were given a booklet in which there were lots of Web 2.0 tools. They were amazing and very useful. It included enjoyable tools such as Kahoot, Quizlet, Wordwall, and Powtoon.

Agreeing with his classmates about the module's adequacy for CALL, another participant (Canan) highlighted their responsibility to investigate CALL tools further.

Canan: In my opinion, the module is sufficient [in terms of teaching CALL], but I think we should try to improve our digital skills to use these tools. I do not think that there is a problem with the inclusion of technology and sources in TEYL module. I think that it is adequate.

Despite acknowledging the sources on CALL, some participants were not happy with the time allocated to CALL tools in the class. They believe that there should be some improvements in providing the details of the technological tools so that they can more clearly understand the features of such tools and use them more confidently. Demet explained her dissatisfaction as follows.

> *Demet*: It offered us some tools as well as good resources, but we could not spend enough time to learn more about them. It would be much better if we had learned more details about them in the class. I felt the deficiency of the module from this aspect.

In a similar vein, Selin emphasized the need for further improvement of the module in terms of teaching Web 2.0 tools by giving some suggestions.

> *Selin*: It would be really good to spend more time on the Web 2.0 tools we learned. We could design activities and prepare some lesson plans with them. We were given a document including lots of Web 2.0 tools but looking at it was not as effective as seeing these tools how actually works.

Similar suggestions were also voiced by another participant who regarded herself as incompetent in the use of ICT in teaching English.

> *Ayse: We could have prepared a plan referring to which programmes can be used for what functions. Because some of us, especially me, are not competent in* technology use in classroom.

4.3 CALL Integration in YL Classes

The results showed that participants used ICT tools in actual YL classes. They were able to put what they learned about CALL in the TEYL module into practice and were happy with their performance during the integration of technology in teaching. They stated that the outcome was also positive from the children's viewpoints since they actively engaged in the class. One participant mentioned her experience as follows.

> *Medine*: We did everything we learned here [in TEYL class] with children in practicum. They really liked it and participated in the activities.

Another participant had similar experiences with the one above, but with more elaboration:

> *Okan: We had already known Web 2.0 tools theoretically, but we had the chance to use them in the class. For example, we used YouTube and Quizlet to teach animals to the 2nd graders [7 year-olds], which was attractive for children.*

In addition to naming some tools they used with YLs, Mira touched upon the convenience of using ICT tools in terms of saving time. She highlighted those online flashcards are much easier to prepare and attractive for children.

> *Mira*: We used online flashcards, British Council, Quizlet, and Wordwall. The outcome was very positive. Students learned the topics very well. We mostly used flashcards to introduce a language point, but rather than preparing physical ones, we used online flashcards. Therefore, we did not have to waste time for preparation of papers or cardboards. Our students love online flashcards.

Agreeing with others, one participant explained how and when she used ICT to teach a language point and do revision. She was happy with the inclusion of technology in language classes.

> *Melisa*: We mostly used videos on the smartboard and showed online flashcards to teach a language point. We also played interactive games on the smart board to do revision after teaching so that students would understand better. I can say that we can use technology effectively with the help of TEYL class.

The results also revealed that the participants stating the necessity of further education on CALL in the TEYL module were also able to apply their theoretical knowledge. An example extract from a participant is provided below.

> *Selin: I used few Web 2.0 tools and became more familiar as I used them. Before going to practicum, I checked the sources given to us in the module. I used the easy ones such as YouTube and British Council website, but some were too complicated for me to use in the classroom.*

5 Discussion

This research explored the efficiency of the TEYL module to develop pre-service EFL teachers' CALL skills in TEYL. It also investigated pre-service teachers' awareness of and competency in technology and their experiences in CALL-integrated teaching in YL classes.

The findings showed that pre-service EFL teachers were aware of the positive impacts of CALL in YL classes. They commonly believed that the use of technology makes English education more enjoyable and attractive in terms of auditory, visual, and interactive activities and games so that learners' motivation and engagement in the lesson increase. In this regard, concurring with previous research (Chen et al., 2021; Taghizadeh & Yourdshahi, 2020), they had positive attitudes toward the integration of technology in language classes. Participants' awareness of CALL is also quite in line with the previous studies in terms of the positive effects of technology in YL education. Butler et al. (2014), for example, found that the use of games on ICTs as instructional tools had a major positive effect on increasing learners' attention and motivation and hence language attainment. Similar findings were also reported by other studies in terms of increasing spoken communication skills (Sadeghi & Dousti, 2013) and vocabulary acquisition (Vasileiadou & Makrina, 2017). Participants also mentioned the use of online games for enhancing students' engagement and comprehension. Butler (2018) similarly highlighted the importance of serious games (online games for educational purposes) in language teaching to children. In this regard, it could be argued that participants were aware of some ICT tools and CALL-integrated language teaching to young learners.

Regarding the sufficiency of CALL education at the university, pre-service teachers' accounts had mixed results. Although they all admitted that ICT tools (particularly Web 2.0 tools) were introduced to them to some extent, some emphasized the necessity of further education or trainings about how to use these. These

participants felt insufficiently prepared for the effective use of technology in YL classes. The results concur with previous research highlighting the deficiency of teacher education programs in terms of CALL use (Barbour & Harrison, 2016; Ranellucci et al., 2020). The inadequacy of CALL education at universities could also adversely affect actual teachers' CALL skills after their graduation. Actual teachers' lack of technological skills is commonly reported in various contexts in different countries, including Turkey (Aşık & Gönen, 2020; Aydın, 2013). Therefore, teacher education programs' role in the use of CALL is important and such programs should be improved by offering pre-service teachers more opportunities to engage with CALL tools.

In terms of their experiences in teaching, participants were generally happy with the implementation of ICT tools in their actual teaching in YL classes. Regardless of their beliefs about the TEYL module in terms of CALL education, they stated that they were able to use a variety of ICT tools in the course of teaching English to children, such as YouTube, online flashcards, games, British Council website, Quizlet, and Wordwall. With the help of the technology infrastructure of the practice school, they stated that they did not have major problems while using technological tools. However, some stated that they did not use different tools but only the ones easy for them. As previously mentioned, there are several other CALL tools that can be used to enhance students' engagement with English, such as interactive e-books (Yorganci, 2022), DynEd software (Meri, 2012), a variety of serious games (Butler, 2018), and other Web 2.0 tools through an eTwinning project (Demir & Kayaoğlu, 2021). In this way, pre-service teachers' technological repertoire could be expanded, and hence they could diversify their way of CALL-integrated teaching. It could be done by providing them with additional education about a great variety of CALL instruments.

6 Conclusion

This study investigated the efficiency of the TEYL module in terms of improving pre-service EFL teachers' CALL skills for teaching children. It also unveiled pre-service teachers' voices about CALL education and implementation of CALL in YL classes. Overall, the findings suggest that pre-service teachers were highly aware of the importance of ICT in language classes considering affective (e.g., higher learner motivation) and pedagogical aspects (e.g., lower workload, higher learner engagement, and language attainment). However, the sufficiency of CALL education yielded mixed results in that some were not happy with the CALL education they received. For this reason, they were able to use a limited number of ICT tools in practicum. Despite this, they used these tools successfully without any major problems. These findings have important implications for CALL teacher education.

The exponential developments in technology and hence easy availability of technological sources do not necessarily mean that pre-service teachers automatically learn how to use technology in language teaching. Therefore, it seems useful to

maximize the advantages of access to ICT tools for pre-service language teachers. They could benefit from sessions or training merely devoted to various ICT tools and the use of CALL in YL classes. However, in line with participants' accounts, such training should give detailed information regarding specific tools and provide pre-service teachers with opportunities to use these. In this way, rather than just receiving theoretical information, they would see how these tools actually work in teaching. A good way to implement this could be micro-teaching or practicum during which pre-service teachers are expected to use various tools to teach different language points. Thus, they would evaluate themselves in terms of the implementation of CALL.

The focus has shifted from whether to use technology in language education to how to use it effectively (Beatty, 2003). Bearing this in mind, TPACK Framework (Tafazoli & Meihami, 2022) should be an inevitable part of teacher education programs. Along with content and pedagogy, technological knowledge should be integrated into teacher education so that they gain insights on how to effectively interweave three main areas of teaching. In this regard, rather than offering stand-alone ICT courses, the core idea of TPACK should be emphasized in different major area courses, such as teaching listening and reading. Pre-service teachers can hence develop appropriate and context-specific ways of using technology to teach different skills.

Although there is an increasing number of research on CALL, more research is needed for a better understanding of CALL-integrated English education in YL classes, since YLs are more engaged with technology due to their young age. Such studies could focus on teacher education programs and actual YL classes as well as the effectiveness of various ICT tools. It would help to maximize the potential of technology, enable teachers and pre-service teachers to effectively integrate it into classes, and enhance language education.

Appendix A: Interview Questions

A. Previous technology/computer experience

- How competent do you feel in technology?
- Do you have any modules to improve your technology skills?

B. CALL in TEYL classes

- What do you think about the use of ICT in TEYL?
- How do you think CALL affects students' learning?
- How can CALL be integrated into TEYL?

C. CALL in TEYL module

- What did you learn about CALL in TEYL module?
- What kind of ICT tools or sources did you learn in the module?
- How do you think TEYL module is useful in terms of CALL?

- What are the positive aspects and aspects that need to be improved in TEYL module in terms of call?

D. CALL in practicum

- What ICT tools are available in practice school?
- Did you have any problems with the use of ICT tools?
- How useful were the CALL strategies you learned in the TEYL module in your practicum?

E. Expectations from TEYL module

- How can TEYL module be improved in terms of CALL education?
- What should be done for you to become confident with CALL use in English classes?
- Would you like to add anything related to CALL in TEYL module or practicum?

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Part III
Voices of In-Service Teachers

Chapter 9
Emergency Remote EFL Instruction in Brazil, China, and Indonesia: What Teachers Learned and How?

Carla Meskill, Wuri Kusumastuti, Dongni Guo, Fang Wang, and Roberto L. M. Ramos

Abstract It is widely accepted that language teachers' pedagogical knowledge bases are dynamic and ever-evolving (Freeman and Johnson, 1998; Johnson and Golombek, 2020; Moradkhani et al., 2013; Schachter & Freeman, 2020; Varghese et al., 2016). With the swift integration of technology-supported language teaching practices under emergency lockdown conditions, the dynamicity of teacher development, both formal and autonomous, augmented in exciting and unanticipated ways (Meskill, et al., 2023a). This inquiry set out to discover how six EFL educators' pedagogical knowledges and actions were shaped by their quick, unexpected migration to online teaching. Teachers from Brazil, China, and Indonesia were interviewed to probe what and how they learned about their practices. Forced to discover new ways to interact with learners, they found technological means to implement student-centered materials and instructional activities online. Findings point to the cyclical dynamic of pedagogical knowledge and action while underscoring teacher freedom and autonomy as integral components of professional development.

Keywords Language teacher development · Pedagogical knowledge · Emergency remote language teaching · English as a foreign language (EFL) · Teaching languages online

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1 Introduction

It is widely accepted that language teachers' pedagogical knowledge bases are dynamic and ever-evolving (Freeman & Johnson, 1998; Johnson & Golombek, 2020; Moradkhani et al., 2013; Schachter & Freeman, 2020; Varghese et al., 2016). Pedagogical knowledge bases are continually informed by pedagogical actions and vice versa, resulting in an ever-generative spiral of growth and development (Guerriero, 2017; Shulman, 1987). It is also the case that differing contextual needs get addressed through such knowledges and actions and thus play a central role in teacher development (Freeman, 2002; Kubanyiova, 2020). Given the swift adoption of technology-supported language teaching practices under emergency lockdown conditions, development of pedagogical knowledge and actions has augmented in exciting and unanticipated ways (Meskill et al., 2023a). This inquiry set out to discover how English as a Foreign Language (EFL) educators' pedagogical knowledges and actions were shaped by a quick, unexpected migration to online language teaching. Because the contexts of this shift were radically different, we were particularly interested in the voices of culturally distinct educators. We, therefore, examined EFL teacher learning and development during the emergency migration to online language teaching in Brazil, China, and Indonesia. Our guiding research question for this inquiry was as follows:

> How did the emergency move to online language teaching impact the knowledge and actions of public school EFL teachers in three distinct cultural contexts?

To address this overarching question, we asked six public school EFL educators from Brazil, China, and Indonesia[1] to relate their experiences of emergency transitions to online language instruction with a particular focus on what they saw themselves learning from these experiences.

2 Theoretical Voices

Regardless of the subject area, teacher knowledge is not fixed. It is subject to continual revision based on direct and shared experiences in ever-shifting contexts. Indeed, most teachers see their professional development as a lifelong and enriching endeavor. In essence, teachers are not only professional educators, they are also professional students whose development is continual and generative when informed by practice (Freeman, 2002; Guerriero, 2017; Hammerness et al., 2005; Shulman, 1998). This view of teachers' pedagogical knowledge and practice as dynamic and ever-evolving (Moradkhani et al., 2013; Schachter & Freeman, 2020) comprises the conceptual and interpretive framework through which this inquiry was designed and implemented.

The theoretical lens we employ views language education as a dynamic interplay of teachers as learners (the cumulative nature of pedagogical actions informing future pedagogical actions) within the contexts of their work. Together these shape teaching

Fig. 1 Cycle of teachers' development during emergency online learning

practices (Freeman & Johnson, 1998; Johnson & Golombek, 2020). Further, while some research points to the challenges that cultural differences in perspectives on the role of teachers and schooling present (e.g., König et al., 2011), in the case of the pandemic lockdown, most teachers, regardless of their culture/country, experienced the challenge of moving their language instruction online quickly and with differing levels of supports and constraints given their specific contexts (e.g., Meskill et al., 2023a). This inquiry focuses on teachers' pedagogical knowledges in action and how these were impacted by the emergency move online. How pedagogical knowledge becomes action and action becomes knowledge given specific contexts of practice framed our design and interpretations (see Fig. 1).

3 Voices Already Heard

Emergency responses to the move to online language instruction have been examined in a number of cultural contexts and from a number of perspectives (e.g., Aladsani, 2022; Altam, 2020; Denardi et al., 2022; Jeon, 2021). The results of these studies are varied. On the one hand, there is growing recognition of the rich opportunities for communicative interactions that teaching languages online affords, a fact that had been empirically demonstrated prior to the pandemic (Lee, 2016; Meskill & Anthony, 2014; Meskil et al., 2020; Thorne, 2008). In a recent study on the response to the lockdown by the education community in Trinidad and Tobago, researchers found three critical factors that supported the transition online: community as an empathetic connection to stakeholders, creativity as the ability for agile and imaginative responses, and connectivity through technological readiness (Kalloo et al., 2020). On the other hand, there were reports of communication breakdowns when teachers and students moved online (e.g., Dau, 2022), especially when there was an initial lack of contextual support (Lindberg & Haglind, 2021). Further, teachers in

Italy initially reported that the "lack of structured content versus the abundance of online resources, learners' lack of interactivity and motivation, and teachers' lack of social and cognitive presence" presented critical challenges to the move to online instruction (Ferri et al., 2020).

Clearly, when teaching modes shift as they did with the Covid lockdown, new and unique demands on teachers' communicative competencies result. Lindberg and Haglind (2021), for example, found that the forms and functions of communication changed radically. It was mostly left to teachers to devise and experiment with new forms of communication in response. Teachers found that, rather than being the center of activity, they faced ongoing competition with other communication channels, including live interactions with people in children's homes. In examining fifty-two secondary teachers' narratives about their experiences with the emergency transition, the researchers found that teachers tended to focus most on "collaborative, communicative, and creative practices (the intersection of the three representing ideal circumstances for positive teacher change) as crucial to development work with digital and distance learning. Our results indicate that if these three practices are equally and jointly supported, then the quality of teaching and learning will improve" (Lindberg & Haglind, 2021, p. 1). These teachers cited a lack of preparedness and support in communicative and collaborative practices, not in technical training. These findings are echoed in a study of the reported language teaching competencies that language educators considered crucial during the lockdown in the face of teaching synchronously online (Moorhouse et al., 2021).

Additional outcomes of emergency remote learning include the discovery of new ways to interact with students and learning materials. Many teachers reported having quickly learned of the benefits to be had in terms of communicative opportunities (e.g., Moorhouse & Beaumont, 2020). This was the case in Sweden, where instructor-student and peer interactions were clearly enhanced when moved online (Kaufmann & Vallade, 2021) as well as in both Indonesia and China (Meskill et al., 2023a). In Vietnam, Dau found that despite listing challenges—"more workload, more stress, technical issues, students' lack of learning devices, the requirement for parent's assistance, more interactions, and hands-on activities" (pagination?)—teachers also expressed their intention to continue many of the remote teaching approaches they developed during the pandemic once it was over (Dau, 2022). Likewise, Can and Silman-Karanfil (2022) reported that EFL teachers moved from teacher-centered to more engaged and interactive modes. Recognition of students as central to learning processes during the pandemic and beyond was also echoed in a study of EFL learning (Bailey, 2021), as well as in a study of a secondary EFL teacher in Hong Kong who likewise shifted from transmission modes of language teaching toward more student-centered approaches during the pandemic (Cheung, 2021).

Teacher responses to the shift online and what they learned from the experience were also reported by teachers in China, where online instruction was only required during a three-month period. In one study, teacher educators found online forums places for creative and flexible uses of digital media while preparing rural English

teachers to teach online (Meskill et al., 2023a). In another, language teachers' willingness to explore different media to incorporate into their teaching-influenced practice was reported (Sundarwati & Pahlevi, 2021). In short, what teachers learned from the emergency shift to online language teaching was rich and varied.

4 Methods

In order to address the study's overarching research question—*How did the emergency move to online language teaching impact the knowledge and actions of public school EFL teachers in three distinct cultural contexts?*—we systematically queried teachers about their experiences and, specifically, what they learned from their experiences teaching EFL. Asking teachers to focus on their pedagogical knowledges and actions in their pivot to online teaching meant "capturing a moving object empirically, that is, a phenomenon occurring at the boundaries of different physical-virtual sites" and thereby requiring "particular analytical attention and methodological creativity" (Bagga-Gupta et al., 2019). We recruited six practicing public school EFL educators, two from Brazil, two from China, and two from Indonesia, to report on their experiences during the emergency transition. The dual focus of remote work and cultural difference was at the forefront of our design considerations. And, in keeping with this volume, so too was the importance of understanding the experiences of educators from less often reported-on areas of the world. Interviews were conducted online in the authors' countries of origin and, it should be noted, where each had formerly practiced as a language educator. This was done to best account for local subjectivities in the local discourse community. Participants were drawn from the authors' professional networks using two criteria: (1) current practicing EFL educators and (2) experience teaching online during the lockdown. Six public school educators representing a range of grade levels and demographics (Table 1) participated in two intensive interviews: one asynchronous (Appendix A) with a follow-on, one-hour synchronous interview in their native languages. The first probed their overall experiences in terms of pedagogical knowledge and practices. The follow-on, synchronous interview used responses from the first written interview as anchors and springboards to probe more deeply and encourage participants to explicate the nuances of these experiences. All data were translated into English—the authors' common language—and reviewed as a team. Using the theoretical framework of pedagogical knowledge and action, groupings and codings of thematic patterns were iteratively generated, reviewed, revised, and refined by the authors via consensus building.

Table 1 Participant demographics

Name	Gender	Age	Country	Time period of remote teaching	Teaching grade	Years of teaching
Ping	Female	23	China	3 months	Grade 3	5
Lin	Female	31	China	3 months	Grade 5	10
Amanda	Female	37	Brazil	15 months	Grade 10–11	24
Mariana	Female	42	Brazil	15 months	Grade 8–9	21
Ani	Female	32	Indonesia	18 months–2 years	Grade 7–9	5
Andy	Male	46	Indonesia	18 months–2 years	Grade 7–9	19

5 Lessons Learned

In this section, we describe what these educators learned about language teaching from their emergency remote teaching experiences. We first share teachers' respective cultural contexts and their specific supports and constraints, followed by their observations regarding shifts to student-centeredness. Finally, we discuss how these data illustrate how the lockdown ultimately served as an urgent, vibrant laboratory for EFL teacher experimentation, growth, and development across these three very different contexts.

5.1 Subjects' Teaching Contexts

Although the six contexts of EFL teaching differed in many ways, a common theme throughout these interviews was the newfound freedoms online teaching afforded in terms of curriculum and instruction. In Indonesia, national standardized testing was suspended, which opened up possibilities for generating student-centered materials and instruction. Likewise in Brazil, EFL teachers were granted more curricular flexibility during lockdown by their districts. And in China, even though the national government supplied teaching videos to be used during the lockdown, these were models teachers could adapt and tailor to their specific students' needs. Consequently, all six teachers reported that the lockdown period, challenges withstanding, represented opportunities for them to experiment and thereby develop their pedagogical knowledge and practices. Regardless of their particular contexts, they reported newfound flexibility in their work for such development to thrive.

Brazil

In Brazil, being from the capital's school district, teachers listed the following constraining factors in their shift to emergency remote teaching:

- lesson time reduced for synchronous meetings;
- extremely limited government support in training for online teaching;

- various levels of difficulty in student access to online sessions and platforms;
- limited government support to overcome Internet access issues;
- low student participation in synchronous meetings.

Amanda and Mariana faced challenges teaching online with most of their students' cameras and microphones turned off during synchronous sessions. They also reported that many students could only access online learning activities on mobile phones. Both teachers reported having covered the costs of upgrading their home Internet infrastructure and procuring professional development on their own. Teachers' meetings served as important spaces for emotional and professional support, and it was here that challenges and frustrations but also successful strategies were shared. These conditions, along with the district's relaxation of the usual curricular expectations, represented opportunities for Mariana and Amanda to explore new ways of reaching learners. To do so, they became more attentive to students' needs and interests.

Teaching in a language school enrichment program which served around 15 high schoolers per class, Amanda began including artifacts (TV show clips, memes) that her students liked in her lessons and activities to engage her students. She experimented with assigning students online multimodal projects (Google slides, comic strips, and eBooks) wherein they could express themselves in the target language:

> The project evinced a learning experience, and students could see it [materialize] for themselves. It was significant to them because they wrote what they wanted to. They chose what they wanted to do.—Amanda

Impressed by their production and how they managed to use language more meaningfully and beyond the standard curriculum, Amanda later maintained these newly developed strategies as part of her in-person teaching.

Mariana, in turn, taught in a regular middle school context, with approximately 38 students per class, and mainly oriented toward university entrance exams. Still, during lockdown, she found it helpful to develop a better rapport with students and capitalize on their interests and curiosities.

She incorporated students' favorite songs into class activities and created more lessons on current events (e.g., COP26, Black History Month), having students work in groups during class time to prepare digital slide presentations on their research of such topics.

> I used group work more than once, which gave me a lot more work than a simple lesson, but I saw them producing better. […] I realized that my classes became more dynamic and richer beyond grammar. [...] It was so sweet and so satisfying, because it was something I used to do but in a more superficial way.—Mariana.

From the lockdown experience, Mariana assimilated not only these strategies into her teaching repertoire, but also previously unused digital tools (timers, testing, and game apps), and the habit of writing out clear activity guidelines for her students to follow.

In sum, despite the peculiarities of each of their educational contexts, both Brazilian teachers experienced similar supports and constraints. Administrative leniency toward the usual curricular objectives and colleagues' encouragement,

along with technologically related limitations of student participation, conditioned teachers' exploration of new teaching strategies.

China

Our two Chinese participants represented a somewhat different picture as their emergency online teaching ended after only three months. Indeed, they reported mostly support for their transitions:

- government training, equipment, and support;
- corporate training, equipment, and support;
- access to model online EFL teaching videos;
- free access to teaching tools and resources;
- parental support and co-learning.

Like teachers throughout China, Ping and Lin were granted temporary access to free digital learning tools, models, and resources. They actively adapted these for their own uses and reported gradually discovering the benefits of online applications. Further, they continued to make use of what they had learned post-lockdown. Indeed, although many of these resources were no longer free post-lockdown, Lin found that many parents were willing to pay for these services.

In China, where class sizes are large and curricula and teaching are exam-oriented, Ping and Lin found that online, they could "get to know students' needs" and tailor instruction accordingly. This was something quite new (Meskill et al., 2023b). For example, Lin reported that it was unrealistic for her to answer the 200 students' questions one by one. So, she decided to group them by level. She directed them to try to learn as a group and assigned a group leader to report progress to her for tailored remediation. After lockdown, she still used these same grouping strategies.

Indonesia

In rural Indonesia, contextual factors constraining online language teaching during the pandemic included the following:

- teachers unable to upload videos due to limited access and bandwidth;
- limited instructional time due to school structure;
- overcrowded classes;
- low student motivation to attend online classes;
- low support from parents;
- no professional development or clear protocol from the school or district.

Further, EFL was not a popular subject, and students saw little motivation to learn the language. Several technical challenges due to rural poverty beset both teachers and students. However, both Ani and Andy found that during the lockdown, they had more options to communicate with students and, therefore, to get to know them. They, in turn, built their online curricular activities on students' interests and quickly discovered how this increased students' engagement in and confidence with EFL.

In Ani's case, for example, students engaged in active learning during the pandemic by asking questions and actively responding to her questions and instructions in their WhatsApp Group. Her students produced more output in English, often in multimodal forms, as compared to former face-to-face classes. Further, Ani found that she could continue to extend their learning beyond school when the lockdown ceased. She kept using her WhatsApp group as a platform to submit students' homework, online competitions, and general communication.

> In online classes many of them [students] ask questions all the time. Maybe because they have independent learning and a lot of assignments. Also, there is a time gap where they could think about their questions after they read the materials. Now, after they went back to face-to-face class, not many of them were asking questions. They just kept silent and listened to me.—Ani

Andy reported that he relied on support from fellow teachers to improve his own digital literacy during lockdown by asking colleagues to undertake challenging technical tasks for him.

5.2 Shift to Student-Centeredness

From our extensive examination and analyses of interview data from the six EFL teachers, we found that all reported a prominent shift away from textbook/teacher-centeredness to student-centeredness**.** We first discuss this shift as regards materials and then as regards instruction.

Student-centered materials

Prior to lockdown, teacher-centered and curriculum-centered EFL teaching was the norm for these teachers. This changed radically when teachers discovered that (1) they needed to fully and effectively engage learners in online learning; (2) textbook materials were limited in this regard; and (3) focusing on what interested students in conjunction with authentic online materials made good, pedagogical sense. They uniformly pointed to both the opportunities for learning about individual and collective student interests in online forums and the motivating aspects of authentic online materials that aligned with students' interests. All six of our teachers reported developing and adapting new assignments along these lines and that they continue to supplement their in-person teaching in this way. In Brazil, for example, Mariana had students collectively use online resources to research and prepare slideshow presentations that matched their curiosity.

> I had students research relevant black personalities. These kids went crazy. They thought it was so cool: "Teacher, I didn't even know!" […] Accepting that they are much more connected [to the internet] and bringing this into the class, I think, that was the biggest change.—Mariana

Amanda, in turn, reported having designed and assigned individual projects, something she had not done prior to the pandemic but decided to "take the risk" online.

Students were thereby able to pursue their own interests as language learning content using authentic online tools and material.

> It was the first time I saw the student produce something that he really valued, that he could say [to himself]: "Look, I did that!" "Look, I really learned [something]!"[...] something he will never forget because it was a pleasant, fun experience for him that he will not forget.—Amanda

The outcome, she reports, was so positive that she continues this practice post-pandemic. Likewise, in China, Lin reported that teachers had mostly ignored students' interests and stayed focused on the set curriculum. During the pandemic, they discovered that they needed to marshal these interests to keep learners motivated and on task.

> In order to attract students' attention in real-time class, I had to use some resources that my students might be interested in, such as cartoon characters and picture books. I think that such a teaching design seems to be more attractive to students.—Lin

In a move toward learner-centeredness in her online instruction, Ani in Indonesia incorporated images and ideas from the popular culture her students enjoyed outside of class, e.g., introducing unfamiliar words in popular culture contexts.

> I would use the characters from the game or a popular sentence from the game in my lesson. For example, I used the name Tagita or Terysla or Lancelot from the mobile legend game. They would be interested in the class and try to participate more because they knew who they were and what they looked like.—Ani

Further, a sense of ease with communicating online in English was expressed by teachers which was in turn reflected in student work:

> I feel relaxed teaching online because students with behavioral issues will not intervene in the class dynamic. In fact, I feel like they learn more because they are "forced" to engage in the classroom discussion in English.—Andy

Ani stopped using the school textbook entirely. Instead, she used PowerPoint slides, flashcards, mini quizzes, and songs from popular culture. Students were much more responsive to these materials, which, she says, provided relatable learning experiences for them.

> I used Michael Jackson's song "Heal the World" to teach rhyme and pronunciation, I would provide the chorus of the song and assign my students to sing it via voice note in WhatsApp as the homework... From this moment, I could see their effort in doing these tasks. I could see that they actually wanted to speak in English but were too shy in the class. So, with this online platform, there is some sort of anonymity that encourages them to participate...they were very proud of their English.—Ani

Finally, in China, Ping made a series of video micro courses using an authentic, relatable child as her teaching assistant to model authentic conversations in English. Her students, in turn, could watch these any time and mimic and mirror the English conversations of someone like them.

Because the shift to online teaching also meant a shift from analog to digital materials, teachers were faced with new forms of multimodal instructional resources

with which to experiment. Our two Chinese teachers emphasized how access to, and assignments with multimodal materials led to student interest and autonomy. The fact that they could control, repeat, and even create video segments, for example, boosted student engagement and, thereby, language learning. On their return to the live classroom, they continued to find that bringing in digital information was a powerful instructional component.

> Now every classroom has a digital noticeboard. Sometimes when students talk about something interesting in class, I can search and share it on the digital noticeboard immediately, and then discuss it with my students. Such interaction I think makes teaching and learning more fun and effective.—Lin.

In Brazil and Indonesia, teachers reported how they and their students became co-creators of language learning materials with students using teachers as resources rather than sources of knowledge.

> We did not use the textbook at all since the lockdown. I decided to create our own text as learning resources to develop students' engagement. I even sometimes ask students to develop the text by contributing one sentence each. For example, I will post one picture in our group and write one sentence describing this picture. Then, I will call students one by one to continue the story by posting one sentence to continue the previous sentence and so on. With this approach, students will not only actively be producing language [text], but they also build a sense of ownership with the material they produce.—Ani

> With the pandemic, we abandoned the few books that we still used. Now, back to in-person teaching, we don't have any books. We continue this process of creating materials together. The school English teachers have no intention of returning to the textbook—Amanda

> I helped the kids make slides, make digital posters […] One thing I really liked was seeing the possibility of digital literacy for students. They learnt how to create a slideshow and present them, I had students producing videos. […] not all students have access to technology in the [regular] classroom, but they did online.—Mariana

Lin pointed out the empowering aspect of students being able to search for and instantaneously find and share information that the teacher didn't necessarily know. So valuable did she find this practice that she continued to ask students to find information relevant to the moment once back in her live classroom. Further, Ping emphasized the importance of digital games, manipulatives, and other resources to promote interaction between the teacher, students, and their parents. She not only used digital pictures tailored to her students, but also encouraged her students to play enjoyable learning games on their phones.

> When I taught new vocabulary, such as woman, man, girl, and boy, the pictures on the textbook were so normal and nothing special, so I showed my students some interesting digital pictures from the internet, such as cartoons and drag queen who is man but dresses like a woman. Our classes were filled with so much fun and joy. Also, there were many digital games and tools to help my students memorize vocabulary. On the learning applications (English Bao), students could increase levels through finishing tasks, challenge their classmates to improve their position in rank. It was so fun and encouraging.—Ping

Ani posted short sentences in her WhatsApp group accompanied by questions or instructions. Seeing how this method worked well online, she adopted it in her

face-to-face class by providing flashcards consisting of short sentences and short questions.

> I broke down long text into small quizzes because my students understand that better. For example, when I have a positive form and I asked them to change it into negative and interrogative, I would give them one sentence and one question. So, they would focus on answering that first. After they answered that first question, I would follow up with the second question. So, basically, they would only focus on one to two sentences per quiz.—Ani

Student-centered instruction

In addition to authentic materials, teachers made use of parents, peers, competitions, and encouragement to keep students on track with their language learning.

In China, parents became an integral part of many home assignments and activities. Whereas before the pandemic, parents' roles were limited to checking that their children completed their homework, during the pandemic Ping and Lin specifically incorporated parents into their language learning activity designs (see Meskill et al., 2023b).

> I asked my students to finish English conversation tasks with their parents at home and to record the process as videos or audios. They shared and submitted their digital products. For example, in the learning unit of Describing Clothes, I asked students to choose one of their parents' clothes at home and describe and discuss it with their parents in English. Parents recorded the whole process as video. I found parents and students created so much excellent work.—Ping

They also grouped students by their learning levels and tailored instruction for each group. Ping reports orchestrating her online student groups so that a leader recorded questions for her to which she would respond synchronously during that group's meetings, often incorporating visual aids:

> I created a WeChat group for them and showed them the difference between How and Who with flashcards. And then, we did a great deal of practice. The tailored class was filled with plenty of fun and joy.—Ping

Lin, on the other hand, found this kind of live instruction time-consuming. She, therefore, carried out tailored instruction via asynchronous Q&As and pre-recorded videos.

Both Ping and Lin encouraged students to compete, a central feature of Chinese education. What was less typical of that system was that both reported that, rather than chide students for mistakes as they did pre-pandemic, they learned the importance of encouragement during the lockdown and shifted their focus on students and their learning rather than on the mistakes they made. Indeed, this was something they brought back to their classrooms after the lockdown—giving students positive rather than negative feedback.

> During the pandemic, I always praised students more and criticized them less. After the pandemic, I prefer to encourage individual students or student groups instead of criticizing them in order to improve students' motivation.—Lin

In her efforts to orchestrate active language practice, Ani emphasized the importance of speaking up and actively participating both inside and outside of class. Every day, she would assign one student to orally present that day's topic and allowed the use of cheat sheets to build students' confidence.

> I want them to build confidence in public speaking and speaking English. So, I promoted peer teaching, but I still made the materials for them. I wanted them to focus on English learning. I know that my students were not yet proficient in IT. So, I wanted them not to worry about that.—Ani

Another strategy Ani employed to promote active participation was using prizes.

> I posted one sentence in my WhatsApp Status and invited my students to translate this sentence into their own words (Indonesia or Javanese). One best translator would get Rp 5.000,00 (USD 5 cents) credit from me. They could use this to buy 30 GB of subsidized internet connection for educational purposes. It was not a lot of money, but it was a lot of GBS to access internet.—Ani

Teachers reported that their efforts at student-centeredness online paid off in terms of student learning engagement and confidence.

> Students who are creating [their projects] see their progress and find it lovely, but when you show a new class what the previous one accomplished during the pandemic they go: "Wow, how did they do that?!" They were amazed.—Amanda

In rural Indonesia, discrepancies between students with and without proper Internet access were a problem. Students with sufficient Internet access flourished during the emergency remote learning. They could get immediate feedback when they needed help and interacted with their peers and teachers regularly. On the other hand, students with limited access took a longer time to get help and often did not have an opportunity to connect with their peers.

> Most of the time, they [rural students] just did not have a phone or internet quota, there is no coverage in their place, their phone did not support the learning platform, their phone was broken, other members of the family used the phone or their lack of digital literacy.—Andy

To address this challenge, both Ani and Andy exercised flexibility and empathy to accommodate students' needs. Andy decided to have regular home visits to deliver assignments and check on students' well-being. He also made use of low-bandwidth applications. Ani also developed low-bandwidth multimodal lessons and assignments in her WhatsApp group through low-quality YouTube videos, voice notes, and short quizzes.

Likewise in Brazil, teachers rethought their prior views on strictness and adherence to the usual curriculum standards as they saw the need to empathize with students. Mariana specifically acknowledged this in relation to forcing students to make oral presentations.

> Online [learning] taught me to really respect the individuality of the students more. I think we usually try to standardize treatment [in class]. […] I think I learned to be more empathetic towards the really shy student who doesn't feel so comfortable. […] I learned that online. I was more demanding in the face-to-face classroom.—Mariana

In sum, while the pandemic represented challenges for EFL instructors, our subjects reported tremendous learning opportunities in the process of meeting these challenges and, in the case of China, took advantage of supports provided. For our subjects, the lockdown became a pedagogical catalyst for teacher learning. Across these three different cultural contexts, a major shift toward valuing student-centered materials and instructional approaches was consistent. And, in the process of moving away from textbooks and lecturing, these teachers discovered the power of their and their students' voices when free to interact in and around online digital tools and materials.

> I think the pandemic has redefined the meaning of learning [English, foreign language]. It can happen anywhere, anytime, with anyone, and whatever knowledge it was. It does not have to be at school or the knowledge that schools offered. You can learn anything in English nowadays. - Andy

> I think the most important thing [to learn from the pandemic] is the realization that learning [English, foreign language] can be done anywhere and students can find their niche [singing, gaming] to use English.—Ani

The shift to focusing on students and student learning was pronounced in teachers' reports of their emergency lockdown teaching experiences and clearly impacted their pedagogical knowledge and their practices once back in the live classroom.

6 Discussion and Conclusion

In a study on emergency shifts to online instruction, Ferri et al. found that, based on extended discussions among educators, "emergency remote teaching has given a significant boost to online learning, opening up new opportunities and reflections" (p. 5). In that same study, they also observed that "the COVID-19 emergency has made clear that technologies alone do not represent a panacea" (Ferri et al., 2020, p. 5). Further, in a review of studies on the value of professional development in online teaching, Jaramillo Cherrez found that while educators do benefit from some instruction in the use of digital tools, what they rarely experience is guidance in making critical connections with pedagogical knowledge and actions as regards those tools (Jaramillo Cherrez, 2017; see also, Tafazoli, 2021). For many educators, direct experience with what worked during emergency remote teaching forced such connections: pedagogical practice informed pedagogical knowledge in swift, continuous cycles.

Through their emergency remote teaching experiences, our Brazilian, Chinese, and Indonesian EFL specialists clearly expanded their pedagogical knowledges through pedagogical actions. Through the pedagogical actions made possible by teaching online, they learned the value of authentic, learner-centered target-language materials as means to motivate and engage their students. Whether it was by using familiar vocabulary from popular culture, or using popular Internet texts, images, and audio/video sequences, the use of such materials in place of textbooks was viewed as an asset as was the freedom to select and integrate these into instruction as they

determined. Part and parcel of this shift in instructional materials was the overall reported shift away from teacher-centered lecturing toward engaging students in their own learning. This was echoed in two other studies of EFL teachers' changes during the pandemic in Vietnam and in Georgia. Researchers also found that when language teachers were faced with quick adaptation to online teaching, they reconsidered methods of instruction to favor student-centeredness (Dinh & Dao, 2021; Tabatadze & Chachkhiani, 2021).

In many respects, the emergency lockdown experiences of these six public school EFL professionals represent ideal CALL teacher learning: they enjoyed supported autonomy, increased access to materials, and flexibility to make the best use of the tools and resources at hand. They also enjoyed the opportunity to exercise creative, localized uses of their pedagogical knowledge and, in short, to learn for themselves what works through pedagogical action. Indeed, according to the experiences and reflections on the part of these educators, the pandemic became a significant catalyst for teacher learning. They report that the shift to online digital teaching and learning materials, including authentic materials in the target language, represented positive changes in their pedagogical knowledge and practices and, in turn, student engagement in language learning. Learners who were otherwise disengaged with English found a new interest in the content that was relevant to their interests.

Given new curricular and practical freedoms, curricular and instructional design can become an outlet for exploration, experimentation, and for exercising creativity. Most notably, across all six teachers from three vastly different cultural contexts, the forced move to online language teaching brought a move away from teacher-centeredness toward learner-centeredness, a positive change that carried over into their post-lockdown practices. As Amanda explained.

> *The pandemic for me was liberating - […] [it] opened up this horizon to me, something that was there in my face, but I couldn't make it happen. So, what I wasn't able to do before the pandemic, I can now do in the classroom. - Amanda*

Appendix A: Interview Questions

How did your prior classroom practices shape your online teaching? How were these practices the same online? How were they different? Please provide examples.

How have you changed as a teacher because of your experiences teaching online? What online teaching practices now carry over into your live classroom?

What aspects of your language teaching practices have remained mostly the same moving from your pre-pandemic regular classroom to online and back to the regular classroom?

How have they changed?

How would you describe yourself as a teacher now that you have taught online compared to yourself as a teacher prior to moving online?

While teaching online.

What did you learn about yourself as a professional educator?
What did you learn from having taught online? Please list and describe as many items as possible.
What did you learn about your profession and its practices that you did not know before?
What did you learn about your students that you did not know before?
What did you learn about your relationship with your students that you did not know before?
What did you learn about your students' relationships with one another that you did not know before?
What did you learn about working with ELT curricula that you didn't know before?

Choose a metaphor that best describes your online teaching experience.

Explain.

While now teaching in the live classroom, are there aspects of the online teaching experience that come to mind? That you now integrate?

How have your students changed as learners? What do you see as the most important things they learned as fully online English learners?

Please describe your attitude toward fully online learning prior to Covid.

Please describe your attitude toward fully online learning while you were teaching fully online during Covid.

If you have returned to your regular, in-person classroom, describe your attitude toward fully online learning.

Blended learning?

Notes

1. In Brazil, more specifically in the capital region of Brasilia, where two participants are from, a full lockdown at public schools began in March 2019 and Emergency Online Instruction extended from July 2019 to June 2021. A hybrid format was then adopted until in-person classes resumed fully in late 2021. In February, 2020 schools in China moved completely online (China MOE, 2020). A program of staggered return to classrooms was complete in May. Emergency remote learning began in Indonesia in March 2020 and in September 2021, in-person classes partly resumed in a half-day format (Indonesian MOE, 2021).

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Chapter 10
Kimono Books and Chicken Hats: Doing Critical Literacy as Professional Development in One Urban Elementary School

Peggy Albers

Abstract This study investigated professional development in arts and design technologies with the aim to support the transformation of a critical mass of primary school teachers. Research questions included the following: What happens when teachers engage in professional development that is centered within a critical literacy framework with attention toward a schoolwide STEAM vision? What changes (if any) are observable in teachers' engagement with these technologies and become visible in their pedagogy and practice? The year-long state-funded study involved 12 teachers in one urban primary school. Teachers engaged in 12 full-day workshops across summer, fall, and spring. Data included interviews, video/photographs, pre- and post-arts survey, teacher artifacts, and exit slips. Constructivist Grounded Theory (CGT), a methodological approach that aims to contribute both to personal and societal transformation, was adopted. Engagement in arts and design technologies starts with the aesthetic; art and design technologies fostered abduction; important shifts in teachers' attitudes and implementation of arts and digital technologies into their instruction were evident. Professional development situated within the lives and experiences of teachers is critical to personal and societal transformation. Instruction and practice must foster embodied learning that is felt, heard, touched, and experienced.

Keywords Arts-based literacy · Professional development · Critical literacy · Teacher education · STEAM education

1 Introduction

This year-long state-funded ethnographic study, Project Artventure (pseudonym) was conducted at Urban Elementary School (UES) (pseudonym) in a large metro area in the US where this researcher conducted approximately 60 h of arts, literacy, and design-centered professional development (PD). UES was the only urban public

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elementary school in the state to earn STEAM certification (Science, Technology, Engineering, Arts, and Mathematics). STEAM is an approach that integrates at least two of the five disciplines alongside the arts as points that engage students in inquiry, conversation, and complex thinking. The administrators had been aspiring to expand STEAM pedagogy to all teachers with an aim to improve students' language and literacy abilities. Thus, the aim of this professional development was to expand the limitations of working only in STEM fields and open up teacher knowledge, creativity, and inquiry through arts and design technologies which, in turn, would engage children in creative and critical approaches to learning and literacy.

UES is a high-poverty urban primary school that serviced pre-kindergarten through grade five. The school had approximately 600 students, 97% of whom were African American and 3% Hispanic. UES was designated as Title 1; the school received federal funds through state and local education agencies with the aim that the school met challenging state academic content and student academic achievement standards. UES had 40 teachers with a teacher-student ratio of approximately 15:1. UES was located in a very low socioeconomic area of the city. A high percentage of UES children came from low-income families, 100% of its students were eligible to participate in the free and reduced lunch program, and 10% were identified as special needs. Grandparents routinely raised children, as one or both of their parents were imprisoned. The neighborhood had a great deal of violence, gang activity, and crime. Faced with such complex social issues, students were challenged to attend school regularly. In addition, many UES students had very serious emotional problems that required external psychiatrists, a school psychologist, a full-time school counselor, and a school social worker to support them. Thus, UES was challenged with a lack of parental involvement, and children came to school less than prepared to learn.

2 Context Under Investigation

The focus of this book is computer-assisted language learning (CALL); however, this chapter steps outside the use of computers in literacy and language learning and steps into UES's commitment to embedding arts and design technologies in all learning. For the purposes of this study, technologies were defined as the applicability of multiple languages knowledge (art, performance, language, music, and mathematics) for practical purposes in the classroom. As professional development, Project Artventure incorporated arts and design technologies from paints, inks, paper to wire, and fabric for sculptural work to develop critical, imaginative, and three-dimensional thinking across engagements. The intention behind these technologies was to encourage interdisciplinary thinking and to provide opportunities for teachers to enliven their current literacy practices to improve students' achievement. Positioning technologies in Project Artventure in this way was intentional; teachers could reimagine arts and design engagements as central to their literacy curricula, which would enable entry points into learning for children of all abilities. Children's literature was also an integral component of Project Artventure. These stories served

as examples of different art and design technologies and were selected to introduce teachers to urban children's literature that more closely represented the lives of the children and the community in which they lived.

This study involved 12 female participants, 10 teachers (nine African American, one Caucasian; grades kindergarten to four) and two administrators (one African American, one Caucasian). Professional development occurred over a full academic year (summer, fall, spring) and was delivered by this researcher and her art education colleague. While this school did not have a large population of English learners, most of the children had difficulty reading and writing school-required texts and content, and the majority performed below grade level. In this way, ideas in this chapter may provide insights into working with different populations within schools, especially those with limited pragmatic (reading/writing) and disciplinary (academic) knowledge.

Project Artventure started in the summer with a six-day, all-day, summer institute comprised of interactive workshops, six full-day additional workshops, and two field trips held across the fall and spring. The grant provided each teacher a suite of top-of-the-line arts and design technologies including oil pastels, watercolors, paper supports, acrylics, and acetate papers, among others. Teachers were also provided with approximately 20 hard-bound copies of all children's literature used in the workshops. Teachers also were provided as a resource two art project books with dozens of art project ideas. The use of children's literature alongside arts and design technologies was deliberate. Scholars of children's literature have found that children learn values, positions in life, and social markers of identity through their reading of picturebooks through both image and text (Albers et al., 2020). Further, Fleming et al. (2016) argued that few urban educators and librarians have extensive knowledge about urban children's literature that can serve as "mirrors" that represent their lives (Sims-Bishop, 1990). Thus, children's literature served as a bridge between teachers' literacy practices and the school's goal of integrating arts and design into all learning. Teachers kept an art journal in which they documented their learning, practiced different art and design technologies, and recorded ideas for their teaching. At the end of the study, each teacher was given a budget with which to purchase art technologies, children's literature, and equipment as future ongoing support.

3 Voices Already Heard

Integrating art throughout the curriculum has seen great promise in literacy learning (Burnaford, 2009) from writing with English learners (Olshansky, 2018), to using the arts to develop the reading and writing of English as a Second Language students (Cargar, 2004), to vocabulary building (Cowan & Albers, 2007). Other research has shown substantial integration of the arts and design generates new content and understandings (Peppler & Wohlwend, 2018), develops language learning, fosters openness and intellect (Clapp & Jimenez, 2016; Keane & Keane, 2016), and engenders important spatial and divergent reasoning through collaborative experiences

(Posner & Patoine, 2009). In English as an additional language research, scholars have found that an arts and design-based inquiry approach to learning provides a haven for minoritized populations (Milgron-Elcott, 2019) who build their language skills by making and talking about their arts-based projects.

In another turn, critical literacy educators have focused on what images mean in print-based (e.g., magazines, billboards, posters, etc.) and digital spaces (e.g., pop-up ads, YouTube videos, etc.). This work suggests that embedded in texts is an ideology of visibility (Albers et al., 2017; Johnson-Roullier, 2010). That is, images are visibly marked with ideologies, beliefs, and practices (both producer and viewer) around which they are used, read, and applied. Janks (2019) provided a way to analyze texts for ideologies—reading with and against the text—with the aim of reading "below the level of consciousness" (p. 561). This body of work has increasingly argued for careful and thoughtful study of visual information as integral to critical knowing. For these scholars, the arts offer a way to interrogate the everyday images language learners encounter, to understand the relationship between image and language.

Research in professional development has shown that teachers are the most important factor in students' learning. Darling-Hammond (2019) identified four characteristics of effective professional development: content focused; active engagement in the learning; supports collaboration; and uses models of effective learning. "If you don't have a strong supply of well-prepared teachers, nothing else in education can work." (n.p.). Our research in professional development in the arts builds on this work as it concerns literacy: (1) teachers learn best when the aesthetic is foregrounded and when professional development is sustained over time (Albers, Seely Flint & Matthews, 2019a, 2019b); (2) effective teaching starts with teachers' lived experiences (Albers & Frederick, 2012); (3) teachers who engage directly with the arts more readily integrate them into their instruction (Albers et al., 2019a, 2019b). Across our work, we have argued that the arts enable teachers to think more critically and holistically around social issues that matter to their community and apply this learning to their educational setting, the classroom, and school.

4 Theoretical Voices

Critical literacy is both a lens and a frame by which to understand teachers' decision-making in how and what is taught. Janks (2010) outlined four central tenets of critical literacy: (1) *domination*: names and analyzes the inequitable relations of power that constrain literacy education and responds to the question, "whose interests are served?"; (2) *access*: provides access to dominant forms of language and literacy but also includes and values diverse histories learners bring to the classroom; (3) *diversity*: speaks to learners' complex social identities, yet difference can lead to issues of inequitable distribution of power and can lead to domination; (4) *design*: learners' ability to participate in productive power through semiotic resources to challenge and change dominant social systems. Central to critical literacy is an understanding

of how power works across all texts through discourses with the understanding that no text and discourse are ever neutral.

Positioning professional development through critical literacy is what Vasquez et al. (2019) might call "doing critical literacy," in which learning looks, feels, and sounds different in different contexts. Critical literacy, they argued, does not involve examining topics and issues from only a negative stance, but rather looks to the tenet of redesign to study issues or topics through different semiotic resources. In so doing, learners generate different possibilities for change and improvement, especially in their own spaces. "As such, critical literacies can be pleasurable and transformational as well as pedagogical and transgressive" (p. 300).

Doing critical literacy involves teacher-centered professional development that aims toward transformation in five ways (Fig. 1). First, learning starts with what teachers know and provides opportunities for them to browse different arts and design technologies, talk about their learning, and raise questions. Second, demonstrations introduce new knowledge and open up space for teachers to engage in conversations about social issues raised in texts. Demonstrations serve as transformative tools in reading both the word and world and develop conscientization or awareness of ideologies that underpin the language in texts (Freire, 1970). Third, by sharing knowledge, projects, and questions, teachers develop a language to talk about their learning, gain experience necessary for higher-level and deep thinking about their practice, and develop a cohesive and shared vision for transformation. Last, teachers implement their learning with the aim to improve their practices, and thus, improve the academic and social lives of their children.

5 Methods

5.1 Research Questions

This study investigated the following questions: What happens when teachers engage in professional development framed in critical literacy with attention toward school-wide integration of arts and design technologies in all learning? What does it look like? What characterizes this learning? What changes (if any) are observable in teachers' engagement with these technologies and become visible in their pedagogy and practice?

5.2 Participants

The group of 10 teachers had between 2 and 24 years of experience; the two administrators collectively had over 30 years of administrative experience. The administrators had long been proponents of arts-integrated teaching and provided needed

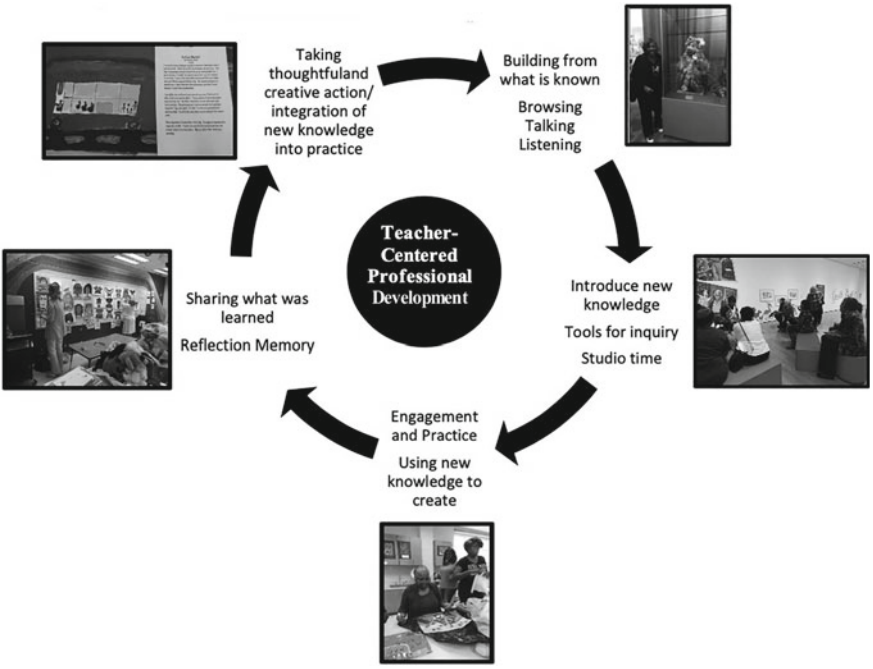

Fig. 1 Teacher-centered professional development model for transformation

resources to support this integration. This group of teachers constituted what Oliver et al. (1985) called a critical mass. That is, an expectation of Project Artventure was that teachers' participation in this professional development had the potential to sustain their learning and influence others in the school, and beyond.

5.3 Project Artventure Workshops

The format of workshops was designed for teachers to achieve a sense of flow Csíkszentmihályi's (2008). Flow happens when a person is fully immersed in an activity and experiences a feeling of energized focus, complete involvement, and sheer enjoyment in the process of the activity (Table 1).

Picturebooks served as spaces for teaching literacy, whether in response to a picturebook through retelling, enactment, puppetry, and/or a visual response. They also foreshadowed the arts and design technologies for workshops. Picturebooks were selected to engage teachers in conversations around social issues such as anti-racism and sustaining cultural traditions and global issues like recycling and environmental protection. For example, teachers studied *In a Small Pond* by Fleming (1998) who used hand-made papers which she colored to design and make her illustrations. The

Table 1 Project artventure workshop schedule

Day	9:00	9:30	11:30	Noon	1:00	2:30
Focus: paper-making & tempera paints; using paper-making to tell stories	Picturebook *In a Small Pond* with paper-making illustrations; stories told through paper technologies	Art Wkshp 1 Art form + techniques & application to classroom, with att'n on literacy	Reflection/Implementation; Connection to STEAM, literacy learning standards	Lunch	Art Wkshp 2 Art form + techniques; classroom application; reading/writing critical responses	Picturebook *Harriet and the Promised Land;* tempera paints, Reflection/Implementation Exit Slip

workshop demonstration, then, focused on paper-making in preparation for their own illustrations. Teachers learned how to make paper using kitchen blenders, colored construction papers, and screens to sieve out excess water. They then moved into designing compositions, much like those represented by Fleming. Teachers made connections to STEAM disciplines, but also suggested ways in which their illustrations could be collated into designing, writing, and illustrating a classroom book on environmental protection.

Harste (2021) has argued that literacy as a social practice must include reaching into language and stories to connect with children's lives and engender an understanding that literacy expands beyond the boundaries of print-based texts and into other forms of representation, including the visual arts. All workshops operated within Harste's concept, and always with a critical eye toward literacy, culture, and representation. That is, when teachers engaged in workshops, the emphasis was on making art and how semiotic resources provided avenues into an expanded notion of literacy. They also engaged teachers in critical talk around social issues of concern in STEAM, like recycling objects often thrown away. For example, teachers engaged in multiple layers of literacy through their study of puppets. First, teachers read *Puppets* (Bryant, 2014), a book of Ashley Bryant's puppets made from found objects and accompanying poems. Teachers took two field trips, one to the art museum and the other to the puppet theater and museum. At the art museum, they studied the special exhibit of Ashley Bryant's puppets. At the puppet theater and museum, they learned from professional puppeteers how puppets move, act, and express themselves, after which they collaboratively wrote and performed their own puppet plays. Across these two experiences, teachers engaged in discussions around recycling and bullying tying these topics to this learning (Fig. 2).

5.4 Data and Data Analysis

Data points were collected and triangulated across the summer institute and the workshops across the academic year to generate lessons learned: Semi-structured interviews, pre- and post-surveys, participant artifacts, video/photographs, and researcher notes. Digitally recorded interviews were conducted individually, in groups at the start and conclusion of the study, and informally during and after each workshop. Interviews captured, for example, the extent to which teachers felt comfortable with arts technologies, and the extent to which they were inspired to implement their learning into their pedagogy and practice. *Teaching With the Arts Survey* (Oreck, 2000) was administered at the start and conclusion of the study to determine differences in teachers' self-reported frequency of use of art and design materials in their teaching practice and to identify shifts in attitudes and personal characteristics related to arts use. Video and photograph data documented teachers' processes and enabled multiple viewings to generate insights.

This study adopted Constructivist Grounded Theory (CGT) (Charmaz, 2005) (Fig. 3), a methodological approach that aims to contribute both to personal and

Fig. 2 Teachers perform puppets plays

societal transformation: personal transformation must happen in order for societal transformation to occur. In alignment with critical literacy and conscientization, CGT research must be ethically grounded in the culture and experiences of participants in order for them to realize their own transformation. In this framework, teacher learning leads to societal transformation in which both teachers and children envision their futures differently.

Charmaz (2005) describes CGT as centralizing phenomena studied rather than the methods of studying it. CGT is open and involves purposive sampling in the study

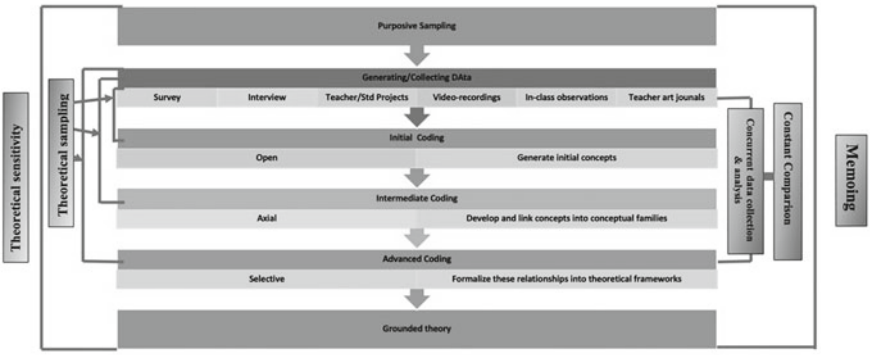

Fig. 3 Constructivist Grounded Theory (Charmaz, 2005) (model adapted from Tie et al., 2019)

site/participants and phenomena studied. In other words, CGT provides a framework to study the convergence of teachers' engagement with and use of arts and design technologies. CGT analysts value modes of knowing (e.g., spoken, written, visual, and digital), how studied lives are recorded and represented through these modes, and examine what people say and compare it to what they do. In CGT, categories do not emerge in data but are a result of analysts' interpretation of data filtered through their experienced lives, their interpretative frames, and stances toward the studied phenomena (e.g., critical, design, arts-centered professional development).

6 Lessons Learned

6.1 What Happens When Teachers Engage in Professional Development Framed in Critical Literacy With Attention Toward Schoolwide Integration of Arts and Design Technologies in all Learning?

First, teachers' interest in knowing arts and design technologies and their desire to implement engagements in the classrooms increased. This increase was attributed to the integration of children's literature which framed the art technologies, and which also connected to teachers' lived experiences. Teachers studied arts and design technologies through picturebooks, practiced the technologies, and then created more complex projects using these technologies. As teachers increasingly built knowledge about these technologies, their projects grew more complex and they increasingly built confidence in themselves as artists and designers. For example, on day one, teachers read *Beautiful Oops!* (Saltzberg, 2010) to demonstrate that art "mistakes" should be seen as moments of creativity and discovery. Teachers also learned about color through symmetrical prints, invented a character inspired by the print, and wrote an accompanying story. By mid-year, teachers were applying their knowledge to more complex projects like paper-making, galimotos, and puppets from found objects, among other projects.

Second, teachers had favorite engagements they implemented immediately into classroom practice, two of which involved origami technologies: kimono books and chicken hats (Fig. 4). Kimono books, inspired by kimono fabrics, were made from white drawing paper cut into $4'' \times 4''$ squares, folded to open as an accordion, flanked in the front and back with cardboard squares covered in fabric, and tied with ribbon to open and close books. Kimono books allowed for flexibility in their content. For example, some teachers conveyed stories of their personal and professional memories while others saw them as demonstrating discipline-based concepts (e.g., lifecycles). Beverly immediately integrated kimono books into her special needs classes. She explained,

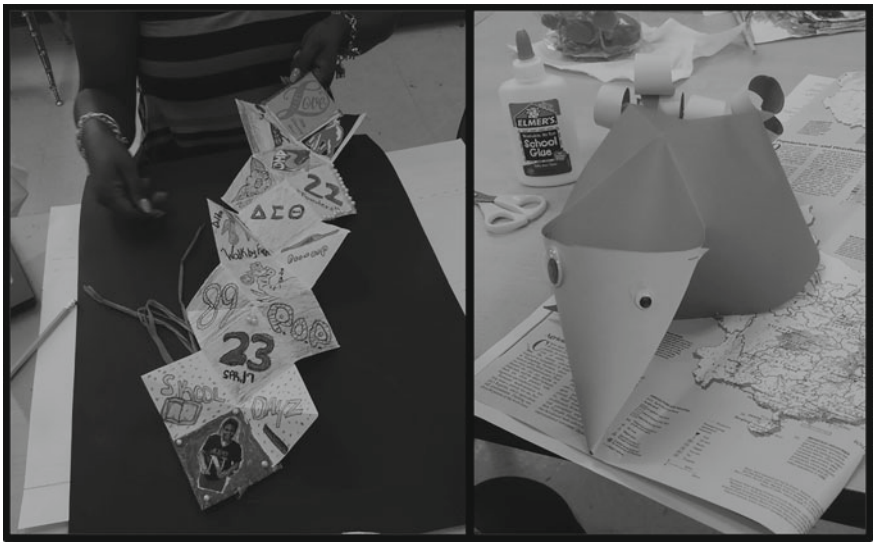

Fig. 4 Teacher's Kimono book on her college sorority sisterhood and partially finished chicken hats

> We embedded kimono books into the English language arts program. We saw that [the children] were scoring low in the area of author's purpose and characterization on standardized tests. Children created kimono books around the question, 'Do we need a hero?' So we came up with our own heroes and wrote about their characteristics.

Designing and making chicken hats using origami technologies was the culminating experience in the summer institute. Teachers used their knowledge of making puppets they had learned earlier in the week and drew from their knowledge of origami through their making of kimono books. Teachers used duo-sided colored paper which was cut, folded, and stapled to make individualized hats to represent themselves and their feelings about their learning and literally to playfully cap off the institute. Both kimono books and chicken hats provided teachers with a way to individualize their learning, brought laughter and joy in the making, and shared a part of themselves with their colleagues.

Third, teachers always looked for curricular connections and articulated a range of ways in which to implement completed projects. Christine connected deeply with the Jacob Lawrence workshop. In this workshop, teachers learned the story of one of the most celebrated African American artists and the techniques and technologies he used to paint his visual narratives. Teachers connected with his humble beginnings and his depiction of the Great Migration, a time in history when millions of African Americans moved from the South to Northern, Western, and Midwestern areas of the US. This workshop inspired Christine to invite her grade 4 students to paint their interpretations of the Great Migration and write stories about families they imagined were part of this historic event. Students posted their work outside Christine's room for public viewing of this learning (Fig. 5).

Fig. 5 Integration of Lawrence's great migration in a social studies class

6.2 What Characterizes This Learning?

First, engagement in arts and design technologies starts with the aesthetic. That is making began with teachers' interest in how arts technologies functioned as technique and as aesthetic objects that provoked sensations of joy, desire, intrigue, inquiry, positive memory, and even discomfort or confusion. Exit slips and audit trails evidenced the pleasure in learning that teachers experienced. Both engagements documented teachers' learning for the day and across the projects. Studying each other's artifacts generated collaborative thinking. Christine, for example, saw the value in collaboration and community connection:

> I noticed this year that my kids wanted to work with Beverly's kids a little more because her kids share. They bring it out. At other schools where I worked, they praise the individual. So many good things in this community can be overlooked. But at this school, you give. You look out and think you see what you see, but there is a lot of richness here.

Audit trails also made visible teachers' learning journeys. Audit trails, as Vasquez (2008) described, are public displays of artifacts that show one's thinking and learning across time. Audit trails allow for learners to linger across weeks to contemplate their learning and make connections across learning engagements. During Project Artventure, teachers posted their artifacts on their audit trail wall to chronologically document their learning and make connections to previous artifacts. Teachers returned to the wall multiple times during the institute to reflect across their learning, share conversation, and generate ideas for classroom implementation (Fig. 6).

A second characteristic that described teachers' learning was their engagement in critical discussions. Teachers discussed the different art and digital technologies

Fig. 6 Audit trails as a way to reflect and document learning

represented in picturebooks they read. They also challenged issues of what counted as knowledge in these stories and interrogated what knowledge was absent in state-mandated curricula. One of the more poignant examples was in teachers' study of collage as a technology through Romare Bearden's (2003) *Li'l Dan the Drummer Boy: A Civil War Story*. More than any other picturebook, Bearden's story resonated with teachers. First, teachers were surprised they did not know Bearden, one of the most noted African American artists known for collage illustrations. Second, they were even more dismayed that they had never heard the story of Li'l Dan with regards to the civil war. In the story, Li'l Dan was a young slave on a Southern plantation who learned to play the drum and learned to play all the sounds he heard. One day, Li'l Dan encountered a company of Union soldiers who told him he was "free", as decreed by President Abraham Lincoln. Li'l Dan didn't know where to go so he marched along with the company who subsequently made him their mascot. Later in the story, Confederate soldiers—the enemy—moved in to attack this company, and it was Li'l Dan's ability to drum that alerted and ultimately thwarted the enemy's attack and saved his company.

This story elicited an hour-long discussion that started with their personal responses and questions like Lindsey's,

> Another question I had was when they [black Union soldiers] said you [Li'l Dan] don't belong here anymore, you're free now. L'il Dan said, 'What do you mean I'm free now?' This leads to a lot of questions: How did Lil Dan feel? Where's he going to go because he's not with his family anymore? Where does he go from here?

However, this discussion became more critical around their knowledge of the civil war and concepts of freedom, most of which teachers learned through movies like *Twelve Years a Slave* and *Glory*. Monique stated,

> I just never…I'll just go and say it. I just never pictured in my mind black Union soldiers freeing slaves. That's just something I didn't know. Umm…I knew that there were black soldiers in the civil war. Maybe I just watched Glory too much, that's the only story I knew. When I think of black Union soldiers, I always think of them as having less than the other soldiers. Not very much and sent to the front lines.

Relating to Monique's statement, Eunice questioned why she had never heard of Li'l Dan, a real person, and the significant role that African Americans played in the Civil War. She also raised the issue of what "free" must have meant to adult slaves:

> Adults must have thought, 'Where do we go from here? Do we have freedom? I have freedom to do what? We're able to do what?'

Eunice problematized the notion of "free", especially as it related to sustaining their lives,

> They end up either going back to the plantation or do sharecropping and end up in the same situation as they were before. While everything's on paper [declaration of freedom], they didn't have the reality of not being sold…. They find out years and years later that they were free because, of course, their masters weren't going to tell them. So you find out years later, 'Oh, hey, I'm free', from events like in this picturebook.

Eunice's statement critically challenged how white plantation owners intentionally chose not to inform slaves they were free…for "years and years." Further, slaves only knew about being sold for labor, often separated from their families, and entrapped on plantations. So, as Eunice implied, how would slaves even know the concept of "free"? This conversation continued and touched on issues of family separation, culture of sharing, and helping others, among others. As she often did, Beverly shifted the discussion to curriculum and wanted to connect Li'l Dan and the civil war to school goals of collaboration, conversation, creativity, and critical thinking. Grade 1 teacher Nakita raised a potential connection,

> From a child's perspective, I would see how Li'l Dan played a role in encouraging and supporting the soldiers. So a lesson might be, 'Although I may be small, my contribution is important.' So that's the part I connected with. Some kids don't think their voice is important….his playing the drum is creative contribution. This says to me that sometimes you think you don't have a voice to contribute, but you do.

While there is limited space to capture the intensity of this discussion, teachers spent time thinking about which knowledge was privileged in school texts and which was not. Through stories like Li'l Dan, teachers became aware of how so much of their own history has been invisible in school texts, events often only made visible through children's literature and movies. Teachers' discussion was an example of doing critical literacy. They repositioned themselves to step into the story; they saw, felt, and experienced at a visceral level how slaves during the civil war must have felt, or how confused and angry they must have been when they learned they had been freed

for "years and years." Their conversation challenged the dominance of whiteness in school texts. Their questions interrogated the lack of access to African American contributions in the civil war. For this group of teachers, doing critical literacy repositioned them as bodies historically inscribed with stories of their ancestors.

Art and design technologies fostered abduction

Deely (2004) describes three forms of logic: induction enables one to reach a conclusion based on observation; deduction is generating conclusions based upon theory; and abduction is drawing conclusions intuitively without specific data pointing to how conclusions are reached. Harste (2021) argued that induction and deduction are derivative of scientific method and thinking. However, abduction, which is most often attributed to the arts, evidences one's creativity, imagination, and seeing issues anew, and fosters leaps in thinking.

In the Jacob Lawrence workshop in which teachers read *Harriet and the Promised Land* by Jacob Lawrence (1997), teachers were positioned to engage in imaginative and creative thinking by redesigning one of Lawrence's images that spoke to their interests. The intent behind this experience was to ask teachers to reposition themselves and their understanding of critical literacy as viewed through their school's vision. Teachers accessed Lawrence's paintings on their iPhones, studied them, and then selected one that they wanted to redesign. Glenda chose Lawrence's original image of black children on a chalkboard which reflected the importance of education to African Americans (Fig. 7). Glenda's redesign captured Lawrence's intention and yet reimagined it through her local school's educational goals: fostering African American children's strong learning through STEM disciplines. In Glenda's image, she intuitively captured an aspiration that UES children of all ages can reach success, literally. She saw anew how children at this school could find success even though they faced social and economic hardships at home.

6.3 What Changes (if Any) Are Observable in Teachers' Engagement with These Technologies and Become Visible in Their Pedagogy and Practice?

The Oreck Survey of Art (2000) showed important shifts in teachers' attitudes and implementation of arts and digital technologies into their instruction. Both quantitative analysis of Likert scale questions and qualitative analysis of open-ended responses indicated that the teachers surveyed perceived teaching through arts and design technologies as important or very important prior to the project and after the project. They also indicated that they felt confident in their ability to facilitate instruction projects using the arts. Interviews with teachers attributed their capacity to integrate the arts and design technologies to administrative support.

Fig. 7 Glenda's Redesign of a Jacob Lawrence Painting

> Beverly: The principal provides the tools to help us reach students. She knows that if we know what to do, then our children will learn from this. This is so important when working with special needs children who have difficulty writing what they know.
>
> Eunice: That's right. [The principal] knew she had to lead the way to get resources for us so we could teach the curriculum, thinking especially about reading and writing, because children will not learn if they can't read the content.
>
> Nakita: The principal knows that the arts do help children better understand what they are learning and how to get them there.

Teachers at the school felt strong support from their administrators and they trusted them to "lead the way" to secure resources to teach an expanded understanding of literacy, one that enabled children to learn through the arts to develop the literacy they needed to read, understand, and convey content. The principal (P) and vice-principal (VP), in turn, saw and felt the fruits of their commitment schoolwide.

> VP: This project changed teachers' perceptions—and mine as well—about what art is and how it can be integrated. The teachers felt differently about themselves as artists through the many different hands-on workshops they participated in.
>
> P: We now see art much more in student artifacts around the building, out on bulletin boards. It used to be more one-dimensional and now they are using tables to display children's work, student projects, and freed up teachers and students to express their learning in multiple ways. Teachers were so excited about their learning that other teachers wanted to be part of it…. I think these workshops helped the whole school.

VP: The teachers saw a tie between the picturebooks and art projects. I see the teachers using the picturebooks in their classrooms to teach literacy, and was a great way for them to see how art ties so closely with what they were doing in the classroom.

P: The teachers helped me as an administrator see some of the books and exposure to global issues…. I know these books helped me see the integration of disciplines differently.

VP: I agree. I also think it changes a school culture and climate for the teachers and students. We saw the teachers' whole demeanor change. We saw a sense of calm while they were in the workshops, and to see "wow, look what I can do with my students."

P: We saw value added to the school.

VP: Teachers were bringing their learning to the school and doing presentations for other teachers.

In 1988, Brian Cambourne described eight conditions for children's literacy learning. Similar conditions are essential for teacher learning to effect change. By bringing Project Artventure to UES, administrators set up seven conditions for teachers' transformation: (1) immersion in the arts and children's literature; (2) demonstrations of and engagement with arts and design technologies; (3) expectations of schoolwide impact; (4) responsibility to share their learning with others; (5) collaboration with colleagues; (6) practicality of learning leads to integration; and (7) response to teachers' successes with integration. Administrators recognized that they needed to provide the necessary conditions if they expected shifts in teachers' practices.

7 Implications and Suggestions

For Harste (2014), a strong language arts program must involve three components: meaning-making, "language" study, and inquiry. Meaning-making cuts across sign systems (art, music, performance, language, and math) and children must have "lots and lots of opportunities to mean, not only in the form of reading and writing, but also in the form of nonprint-based literacies" (p. 91). Through exploration and practice with arts and design technologies, or nonprint-based literacies, teachers in this study experienced "lots and lots of opportunities" to express meaning across different media with the intent to understand how nonprint literacies operate and inspire new ways of seeing. When Glenda redesigned Jacob Lawrence's painting, she took the opportunity to situate children's education within the STEAM vision of the school. Such emphasis on meaning-making through sign systems provided teachers with the experience they needed to support children's literacy in multiple ways. To engage children in multiple responses to learning, Harste argued, enlivens a reading program and increases children's comprehension. Thus, this study provides evidence that teachers in language and language arts programs must engage children in a range of different opportunities to express what they learn and mean from the

many texts they encounter in schools. This shift in their perspective, as corroborated in the Oreck survey, may not have been understood had teachers not themselves become practicing artists and designers.

The second component, "language" study, metaphorically represents the multiple ways in which learners mean, not only through print-based (written/oral language) but other sign systems as well. Language programs are often reduced to phonics-, spelling-, and grammar-related lessons, especially in special needs or remedial reading classrooms. The assumption is these students are incapable of reading for meaning, thus, from this deficit perspective, intense work with skills is vital. Such reduction suppresses rather than opens up learners' ability to represent their meaning. Beverly, a special needs grade 3 teacher, knew that her children needed "language" study to help her children mean. Her students' kimono books encouraged three-dimensional origami-technologies thinking and provided space for her students to strengthen their writing, especially around character traits, a weakness identified in their language arts standardized test scores. This study suggests that teachers should provide all children with "lots and lots" of opportunities to engage in "languages" study. In so doing, they stretch their own abilities in and knowledge about languages to express meaning. Even more important, teachers must provide students labeled as "special needs" (or other incapacitating labels) with rich complex language projects, such as those Beverly provided to her students. Beverly expected her students to do well on complex projects, and they did just that, especially when the focus was not solely on written languages. Languages study provides access to learning to all students and encourages diverse perspectives on curricular topics (Fig. 8).

The third component of a strong language arts program is inquiry-based learning. In a school with children who struggle with social, economic, intellectual, and psychological issues, what better place to study such issues through collective and collaborative inquiry. How better to engage teachers in inquiry-based learning in

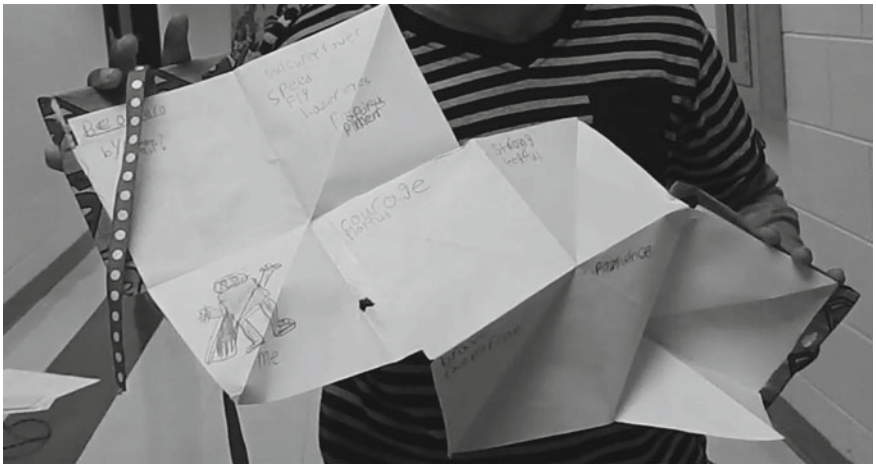

Fig. 8 Special needs student's Kimono book

which they use multiple sign systems to consider and generate possible resolutions for issues that matter to their school and community? This study provides some evidence to suggest teachers' shifts in practice, especially around whose knowledge counts in the curriculum. *Li'l Dan* story of the civil war spurred a lengthy discussion of concepts that mattered to them around freedom and prompted new ideas about how to teach this historical event. As this study evidences, learning that is situated in one's interests generates creativity, imagination, and inductive thinking. Christine's direct engagement with Jacob Lawrence inspired her to design the Great Migration project in her class. She repositioned her students to consider who migrated and how this migration affected their lives, an example of doing critical literacy. Such inquiry helps students re-theorize historical events and challenge assumptions about the effect such events had on human lives.

Harste (2014) has argued over the years that teachers cannot do for children what they themselves have not experienced. Across this study, doing critical literacy through arts and design technologies elicited strong engagement from teachers. In turn, teachers designed inquiry-based projects that positioned students to speak to and against facts that often drive selected knowledge in disciplines. This study also provides some evidence to suggest that doing critical literacy is an embodied way of knowing. Learning is not about recollection and recitation of facts Rather, learning involves eliciting feelings from different genres of texts, touching and manipulating media to express ideas, and listening and learning from others through their artifacts. As embodied experiences, Project Artventure enabled teachers to connect viscerally and positively with learning. They understood how they felt when making kimono books, enacting story through puppets, or expressing shared knowledge and experiences through children's literature. Teachers were positioned to design projects with the hope that children would also learn by doing critical literacy.

8 Conclusion

To be literate, we must see ourselves in literacy, not just through reading and writing, Harste (2014) argued. This study is a call to teachers to see themselves in the very literacy and language study they expect from their students. Teachers must provide "lots and lots" of opportunities to share their learning through languages and inquiry-based projects that honor students' lives, languages, and cultures. To again quote Harste, "Curriculum is the lives we want to lead and the people we want to be." Doing critical literacy as professional development repositions teachers to design curriculum in ways in which students learn and engage in multiple languages learning, and thus, see themselves in the career path they wish for themselves through literacy.

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Chapter 11
Teacher Education in Mobile Assisted Language Learning for Adult Migrants: A Study of Provincial Centres for Adult Education in Italy

Simone Torsani

Abstract Provincial Centres for Adult Education (It. *Centri Provinciali per l'Istruzione degli Adulti*, CPIA) have in recent years been tasked with teaching Italian to adult migrants. With respect to other educational contexts, language courses in CPIAs exhibit a greater heterogeneity as regards literacy; this fact influences the way learners work with technology. Further, CPIA learners make large use of handheld devices; therefore, mobile assisted language learning constitutes a major issue in this context and teacher education for this technology is of paramount importance today. The chapter reports on a case study about how three CPIA language teachers use mobile technology in their classrooms and how contextual factors influence their work. Based on the findings, a tentative list of issues pertaining to teacher training for mobile assisted language learning (MALL) in this context is discussed.

Keywords Mobile assisted language learning (MALL) · Migrant language education · Italian as a second language · Digital literacy

1 Introduction: Migrant Language Education in Italy

Migration is nowadays a major issue in the political agenda of many countries, and language education plays an important social and economic function within this ambit (Gazzola, 2017; Little, 2008). Language education for adult migrants, being coexistent with the migration itself in the contemporary world, is rather a well-documented field of practice and research (see, e.g., Bouffard, 2015). Over the years, the issues of migrant linguistic education have further extended to newer countries of immigration (see, for example, Ahlgren & Rydell, 2020; Kantzou et al., 2017), including Italy (see, e.g., Machetti & Rocca, 2017; Minuz & Borri, 2017). However, each historical and geographical context has its specificities (regarding, for instance, the target population motivations for learning the language, the institutions in charge of education, or the language to be learnt), and an understanding of each context is

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useful not only to deepen our knowledge of migrant education in general, but also to foster the exchange of expertise and good practices based on the different contexts.

In Italy, Provincial Centres for Adult Education (It. *Centri Provinciali per l'Istruzione degli Adulti*, CPIA) have in recent years been tasked by the government with teaching basic Italian to adult migrants. CPIAs were instituted in 2012 and constitute a development of the former Permanent Territorial Centres (*Centri Territoriali Permanenti*, CPT), originally devoted to professional education for adults. CPIAs are public and autonomous educational institutions targeting adults, i.e., persons aged 16 or over who either must complete the cycle of compulsory education, wish to attend vocational courses, or, finally, must attend language courses to reach the A2 level of the CEFR so as to obtain a residence permit in the country. Language courses in CPIAs, named Alphabetization and Learning in the Italian Language (It. *Alfabetizzazione e Apprendimento della Lingua Italiana*, AALI), are aimed at adult migrant learners (see Porcaro, 2021 for an overview of the relevant legislation) and make up the context under scrutiny in the present chapter.

With respect to other educational settings for Italian as a Foreign/Second Language, education in CPIAs constitutes rather a peculiar context, because of the heterogeneity of the learners who attend language courses. Classes are indeed quite diverse as regards various aspects. First, we may notice age, which spans from teenagers to adults in their forties or fifties. Second, adult migrants show extremely differentiated profiles with respect to background instruction, with some of them possessing higher education degrees while others lack even basic schooling. Third, some of the learners are already proficient in a European language (generally, French or English), while others only speak their mother tongue (Porcaro, 2021). Such diversity in the classroom has led the editors of the syllabus for the pre-A1 level (see Council of Europe, 2020) aimed at migrant learners to subdivide and distribute them based on their literacy, and four groups are envisaged (Bonvino et al., 2018), namely the following:

- Pre-literate: illiterate learners whose mother tongue does not possess a writing system;
- Illiterate: learners who received no schooling and are therefore not able to read or write;
- Scarcely literate: learners who received short schooling and, while technically possessing the ability to read or write, may have partially lost it;
- Literate: learners who can read or write.

What is noteworthy is that this distinction is, in the intention of the authors of the syllabus, of paramount importance in order to best adapt courses to the needs of the different learners. Further, various solutions have been proposed to help bridge some of the gaps among the pupils in a classroom, including one which envisages using mobile technologies to support the learning process (Torsani & Ravicchio, 2021). From a linguistic point of view, pre-A1 courses for migrants generally put emphasis on the issues of the language, such as phonology (see, Brichese et al., 2020) or basic morphology, both of which facilitate the integration of technology for simple linguistic exercises (see below).

As can be seen in the next section, the case for migrant language education is precisely one of understanding and adapting to diverse needs and profiles. Such diversity in the target population of learners may have profound implications for the way CPIA teachers use mobile technology in the classroom.

2 Voices Already Heard

In addition to the above-mentioned issues, language education in CPIAs presents another important peculiarity, namely, that mobile technologies constitute an important asset for learners. The connection between migrant learners and Mobile Assisted Language Learning is indeed the subject of a large body of research, and the reason for such interest is that many migrant learners possess a handheld device, which may serve as a support tool for learning (Ahmad et al., 2015; Demmans Epp, 2017; Gaved & Peasgood, 2017). Because of the personal nature of mobile technology, it comes as no surprise that one of the main issues of research within this domain is the heterogeneity of the learners and their needs (e.g., Abou-Khalil et al., 2019; Kukulska-Hulme, 2019) and, consequently, the individualization of learning, a theme in line with the specificities of the courses in CPIAs as described in the previous paragraph.

In the specific context of CPIAs, the connection between technology and education is again the subject of great interest because of the potential of technology for the gradual empowerment of education (Tonelli, 2020). Again, it is not surprising that, given the heterogeneity of the class groups and the need for learners to bridge the formal and informal dimensions of learning, mobile technology is much valued because of its flexibility (see, e.g., Floreancig et al., 2018 for an overview of different projects developed in the country).

While much work has been done on the role of mobile technology in language learning in CPIAs (see Torsani & Ravicchio, 2021) and on the competencies teachers need in order to work in such a context (Deiana & De Gironimo, 2020), no study, to my knowledge, has so far focused on the competencies teachers need to integrate mobile technology in their work and on the issues that should be addressed by education for technology in this specific context. The present chapter aims at bridging this gap by reporting on a case study of three teachers using mobile technology for teaching Italian as a Second Language to adult migrants in a CPIA.

3 Theoretical Voices: A Model for MALL in CPIAs

Because teaching, like any other profession, is a complex and multifaceted issue, it is paramount to take into account all the contextual factors that may influence it. Within this framework, it is then not surprising that a sociocultural perspective is held in great value within the broader domain of Second Language Teacher Education

(Johnson, 2009). From such a perspective, Activity Theory has been used in the last decades in different ambits relating to technology-enhanced language learning. Three of such ambits are closely related to the topic of this chapter, namely to describe different language teaching situations and pick out disturbances (Cowan & Butler, 2013; Montoro & Hampel, 2011); second language teacher education for technology (Motteram et al., 2013); and Mobile Assisted Language Learning (Chung et al., 2019; Lai et al., 2014; Lin et al., 2020). The same theoretical stance may therefore be profitably used for understanding how CPIA teachers use mobile technology in their classrooms.

Based on Leont'ev's expansion of the subject-tool-object mediation model (Leont'ev, 1977), which includes and accounts for the role of context and community, Engeström's model (2015) conceives activity as a system and is depicted in the shape of a triangle, with contextual factors at its base. This model was adopted by Motteram et al. (2013) to investigate Second Language Teacher Education for technologies as a complex system and so will do the present study (Fig. 1).

Because our focus here is on teachers learning and integrating mobile technology in their language classrooms, this constitutes the outcome of the depicted action, with the teachers being the subject and mobile technology the object. The instruments that mediate between teachers and technology consist of the various sources of information that the teachers consult, the training and support provided by experts and peers, and, finally, their reflection. Moving to the baseline of contextual factors, the community is made up of the teachers themselves, the learners, and the institutional stakeholders. Indeed, when considering CPIA courses, we should bear in mind

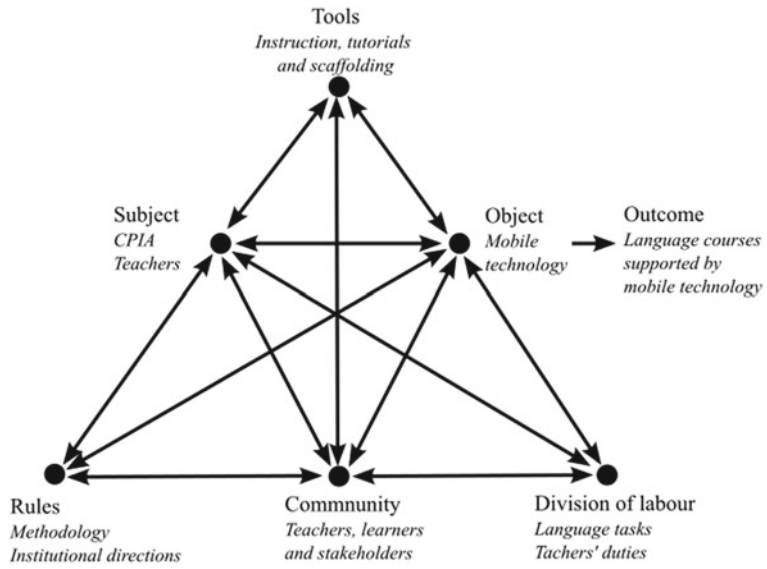

Fig. 1 Mobile technology in CPIAs as activity system

that these courses have an important social function; namely, fostering the integration of the migrant population in the country, and that the involved stakeholders include the country's political institutions, in particular, the Interior Minister in charge of issuing a residence permit (see above). The rules of the action consist of the institution's directions as to what technologies may be used and why, the curriculum and methodology, but also the learners' needs and their ability with the technology itself. Finally, the divisions of labor consist of the different usages of technology by the various participants, based on their role within the action.

The study reported in this chapter provides a picture of this activity through the experience of three teachers to highlight how the peculiarity of the learners influences the way mobile technology is integrated into language education within this context.

4 The Study

The case study refers to a CPIA centre located in northern Italy providing language courses for migrant learners. As illustrated in the introduction, the courses were aimed at migrant beginner learners with the different profiles described by the pre-A1 syllabus. The centre constitutes an example of interest because its governance pushed the teachers toward technology, and various actions were undertaken to have them learn and use digital tools in their classrooms. Among such actions, in the years 2019–2021, the Institute for Educational Technologies (IET) of the Italian National Research Council promoted the development of a chatbot-based app to support language learning in CPIAs. The app, named CPIA-bot (see Ravicchio et al., 2021 for a detailed description of its development and experimentation), consists of different tools designed to variously support migrant learners; some examples of tools in the app are basic exercises (e.g., listen and repeat), a chatbot-based dialogue simulation, and a glossary with pictures. While it is not the subject of the present chapter, the field-testing of the app was the occasion for experts of the IET to support teachers in integrating technology into their teaching.

Following this scaffolding activity, a researcher from the IET conducted a series of structured interviews with three teachers from the centre. The teachers in the present study work in similar conditions and, as explained above, their learners attend language courses to achieve the necessary level required to obtain a residence permit. While they work in similar conditions, the teachers present some differences with respect to the way they use technology in their classrooms. An exploratory case study (Yin, 2003) approach was adopted to obtain a rich description (Geertz, 1973) of the phenomenon. The study is based on two sources of data: observations in the classes from November 2020 to January 2021 and semi-structured interviews conducted with the teachers after the course. The findings were compared with the model illustrated in the previous paragraph, in order to understand how some of the contextual factors influenced the way teachers use mobile technologies in their work with migrants and to identify potential needs for mobile teacher education.

5 Lessons Learned

As stated above, our starting hypothesis was that the peculiarity of the learners in the classroom constitutes a pivotal issue in MALL integration in the CPIA language classroom. The data elicited through the interviews with the teachers confirm this point and provide insight into the matter.

5.1 Vera

Vera is quite proficient in using technology and firmly believes in its centrality in today's world and, therefore, in language education. Vera claims she generally learns to use technology by herself and by trial and error. She manages to spot and exploit different affordances of different technologies for her work. For instance, during her lessons, she writes a Word® document projected on the classroom's interactive whiteboard, which she sends to her pupils once the lesson is over. Because mobile technology is widespread among all the participants, instant messaging apps constitute a viable solution for communication with the learners, who may not possess the necessary familiarity with more elaborate tools because of their age, their scarce literacy, or simply because they have access to no other device:

> For personal communication [I used] Telegram and instant messaging apps (…) I could see that the learners answered a lot, maybe with just an emoticon or a raised thumb… but they also interact a lot with one another. (…) I use Telegram to share materials (…) mainly because it respects people's privacy in that learners can connect to the group without sharing their numbers. Some of them had problems downloading and installing the app and we helped them…but all could use the app quite easily.

Interestingly, Vera manages to use instant messaging apps as a basic form of Learning Management System, through which she is able to communicate with her learners and share materials with them. However, an important issue emerges for the first time in her narrative: namely, a lack of confidence with technology on the part of some learners, notably the scantly literate ones, which may have severe implications, and will oblige the teacher to provide technical help with using digital tools.

Indeed, Vera's narrative stresses more than once the influence of learners' degree of literacy on how her pupils use technology. First, when discussing what an ideal tool would be like, she considers linearity and simplicity as the fundamental qualities of language learning software. To meet the needs of her learners, she explains:

> The [main] feature of software for my learners is that it should be as intuitive as possible, and that it should be linear; it should limit as much as possible those errors which hinder a learner's progress. This was an important limitation on the part of my most fragile learners… [they need something like] online forms; when you forget to enter a mandatory field, say, your phone number, and the page signals that it is missing, they need something very intuitive and which will prevent their making an error and they're being blocked when they commit an error (…) that's their weakness, when they do not know what to write they begin to say/write

> things that have nothing to do with the communicative situation. (…) In other words, if there are too many stimuli they have difficulty in understanding what they have to do and say.

Fragile learners, she argues, are likely to get lost or side-tracked if a tool presents too many options. Here we must notice a pivotal topic in Vera's narrative: illiterate learners suffer from a severe barrier in that they are not in the habit of learning through technology; hence, they lack the basic knowledge of how a learning activity works:

> They need simplicity and to be guided in a step-by-step fashion, otherwise, they do not understand what they have to do.

Therefore, learning activities, especially those performed in autonomy through technology, must be extremely simple. More elaborate activities and tools are simply beyond these learners, because they put a big cognitive load on them. A clear example is that of feedback, which, given the extremely low proficiency in the language, should take the form of a picture or emoticon. A point worth mentioning is the correlation between literacy and digital competencies.

> When they were using the CPIAbot app [which used a chatbot to interact with the learners], scarcely literate learners had difficulty in understanding that they were interacting with a machine. They thought they were talking with me (…) There are many weakly literate people who have a very… fanciful relationship with technology. They can use some tools, but they have a very weak understanding of how technology works.

5.2 Carla

Carla's main concern is about motivation, which, she observes, is a crucial issue in determining commitment and success in learning a language. She observes, in particular, that those students who attend language courses following a request by social workers and generally do so to obtain some sort of benefit are not truly motivated and are unlikely to improve their language level. Again, the heterogeneity of the classroom is a first-order feature of this learning context.

With respect to technology, Carla is also proficient, and she tried out different tools in her lessons. What is interesting in her experience is her critical stance toward technology, which emerges from a thorough assessment of each tool against the needs and limitations of her learners. For instance, she considers some activities as too childish or unsuited for adult learners.

> The XXX tool [a web-based software to produce and share learning activities] offers a good range of activities, but some of them are too childish [e.g., the "horse race" exercise, where a horse advances in a race based on the correctness of an answer] for adult learners.

The point here is the clash between materials produced for children learning Italian as a first language in primary school, which can be found and recycled on the website, and the actual needs of adult migrants. These activities are not always suited for adult migrants, for instance, a "watch the picture of an object and write its

name" exercise values the exact spelling of words, which is not always a priority for adult migrants learning vocabulary.

This observation puts the case for a peculiarity of CPIA learners, who use technology for basic exercises on such issues as phonology, vocabulary, or grammar. Here, she argues, the teacher's mediation is fundamental in helping the learners understand what the exercises require from them. Indeed, while some activities, such as flashcard games, are ideal for the learners' needs at the pre-A1 level, more elaborate activities, such as matching exercises, are difficult to understand. Carla, in short, returns a complex picture in which the balance among the different forces driving the learners in their usage of technology appears to be quite tricky and even thorny. Mobile technology, in her view, is most suitable when used as a support in the classroom; in particular, she finds the "listen and repeat" format ideal for her learners, who have difficulty in pronunciation. Interestingly, Carla found that it was older learners with limited proficiency who enjoyed simple "listen and repeat" exercises, the same ones that are welcomed by her students when there is a need to break the continuity of the lesson, perhaps when pupils appear to be distracted.

Finally, also in Carla's narrative, the literacy connection emerges clearly, when she explains that technology for her learners must be simple:

> They do not understand [more elaborate activities, such as] dialogue simulations (…) it is not that they don't like these activities, it's actually me who doesn't like them because I have to walk all around the classroom helping them, because they don't know what to do and get lost in the activities. (…) They get easily confused and randomly press options and I have to run round and round solving their errors: in the end, I lose patience.

Here, one can clearly see how the features of the learners (community) influence the work (division of labor) and, therefore, how technology is used in the teaching/learning process. Difficulty in managing activities that are too elaborate for the learners limits the technology to more basic and repetitive ones, which are more easily integrated into the teaching.

Also important is the teacher's familiarity with technology in that, independently of the learners' literacy level, technical problems are frequent and need tackling:

> There is a big problem with the students' devices: we must help them by setting up their phones; moreover, they do not have credit and we must help them with the wi-fi connection, or maybe they have left the phone at home to their children who must attend courses remotely.

5.3 Lisa

Lisa's narrative confirms that of her colleagues in many respects. For instance, she too observes that less literate learners are more problematic in understanding and using technology. With respect to her colleagues, however, her narrative is of interest because she places a special emphasis on the more linguistic aspects of her work with technology. For instance, she argues that learning new words without the support of pictures is not suitable for her learners, who rely on the connection between visual and auditory memory; therefore, if a tool does not fully support such features (as

was the case for the CPIA-bot app), it cannot be fruitfully used for introducing new vocabulary. With her Pre-A1 learners, she uses exercises and she also values linearity in design. Indeed, she integrates mobile and technology-enhanced activities in her lessons through a precise usage sequence based on her approach to teaching this target group: first, read and repeat exercises, then listen and repeat, and, finally, listen and write activities. When asked what features she considers important for her work with this target group, she says:

> The most important feature would be, without any doubt, to have immediate feedback. In other words, if you commit an error, you must immediately understand your error and how to cope with it. Many apps/tools give feedback once an exercise is finished but this kind of summative assessment is not useful, they need continuous feedback.

Here one may notice that basic exercises are not meant to be repetitive drills, but rather, tools that support language development in a proactive fashion.

Like her colleagues, Lisa is creative. First, she uses WhatsApp® also for homework, where she asks her pupils to read some words and share the audio with their mates. By exploiting the features of the tool, she manages to transform homework into some sort of game and thereby enhance her learners' motivation.

> I gave the students lists of words to read and record through a group in instant messaging, therefore also all the pupils could hear a student's answer (…) it soon turned into a sort of context, but actually, they focused on speed of pronunciation rather than accuracy; however, in the end, it was a fruitful experience.

Finally, technical issues are also a concern for Lisa, who observes that she tended to limit the number of online activities for homework because some of her learners did not have enough credit in their phones to complete them.

6 Discussion

A bird's-eye view shows that the investigated CPIA centre is a technologically dynamic environment in which different digital tools are integrated into teaching. This happens not only because the centre's governance fosters the usage of technology, but also because the teachers themselves have experimented and, above all, reflected on how technology can support the different learning processes in this specific context. The data, therefore, are of interest and, while they cannot yield definitive and generalizable results, they help draw a more precise picture of the action system of teaching with mobile technology in this context and envisage what tensions might arise. The data, in particular, help better define the nature of the contextual factors of the heuristic action illustrated above: namely rules, community, and division of labor.

Starting from the community, a theme that emerges from the data is that of the differences among learners. If today's educational institutions show great attention toward inclusion and special needs in many ways, we must remember that differentiation in CPIAs is not the exception, but the rule. Indeed, while target groups

in most language education contexts can generally be defined on the grounds of a shared number of needs and features (e.g., young adults in foreign language classes in a vocational course), as seen above CPIA classes are, by definition, heterogeneous in many respects and this heterogeneity has profound implications on teaching. As hinted above, mobile technology has often been associated with individualization and flexibility in language education and it comes, therefore, as no surprise that it has such an important role in CPIAs. Regardless of language proficiency, however, it is other factors, mainly literacy, that in the teachers' experience determine how the learners use technology, with less literate ones who may be unfamiliar both with language learning activities and with understanding technology itself. Therefore, we should update the community element and put differentiation to the fore, with a special attention to literacy, which confirms the choice of identifying four different subgroups for Pre-A1 based on this factor. Differentiation, however, comes at a price because, as seen above, it implies a greater attention to the different profiles and needs, which in turn influences the way technology is embedded within teaching.

Moving on to the "Rules" element of our heuristics, we should add our observation on how technology is used, a fact which is influenced not only by methodology and syllabus, but also by the features of the target population. The first, important usage of mobile technology is as a tool for communication, and occasionally file sharing, with the pupils, therefore as a rudimental Learning Management System. Indeed, some learners seem to have access to a limited number of devices, mostly mobile phones, and, further, some of them possess weak digital skills, which makes Instant Messaging an accessible alternative to more complete, yet elaborate Learning Management System tools. We also see that mobile technology has a primary role in the classroom too. As we have seen, because of the needs of the linguistic level, pre-A1, teachers resort in the classroom hours to linguistic exercises, for instance, activities aimed at consolidating phonology (e.g., read and repeat), orthography, or morphology. Such basic exercises as true/false, matching, and multiple choice are easy to implement through authoring software, and, most important, they are dichotomic, hence easily and quickly done on a mobile phone. In the CPIA context, handheld devices become pervasive in the classroom as well because they are easily and fruitfully integrated into lessons, a fact which warns us not to dismiss mobile technology simply as a tool for drills and to consider that neither all software nor all materials retrievable from the Internet can be used for this purpose. Some exercise types, e.g., horse race game, are sometimes too childish for adult learners who are literate. Materials produced for the same level but for a different target group (e.g., children learning Italian as a first language) are also actually unsuited for the learners, since they focus on needs such as spelling difficult and rare words, which are different from those of the target population. At the same time, however, activities that are not linear, i.e., activities involving more variables and a higher cognitive and linguistic load (such as dialogue completion), are too complex for illiterate learners, who do not understand them. As emerges from Lisa's narrative, exercises for adults are meant to support metacognition and, therefore, simplicity and linearity (for instance, by providing immediate feedback), these being two fundamental features of the software for this target group.

Finally, when coming to deal with the division of labor, we must once again observe the impact of differentiation and of the differences in literacy levels. Indeed, teachers must be aware of these differences and be capable of tackling potential problems, both technical, by providing support in using, setting up, and managing hardware, and pedagogical, by helping learners understand how to perform an activity, for instance, by providing more detailed instructions and/or by individually helping them. However, as noted above, this can be extremely time-consuming and may also hinder or even discourage the use of technology in such a context as Carla suggests.

7 Conclusion

The chapter has dealt with how teachers use mobile technology with learners in CPIAs. As seen, the CPIA context is rather peculiar for different reasons, the two most salient being that learners show a high degree of variability in literacy, which also influences their proficiency with the technology used, and that mobile technology constitutes an important tool.

From the standpoint of technology, CPIAs might be superficially dismissed as a difficult and peripheral context, but they are not. Indeed, as we have seen, technology can play a significant role and be fully integrated into this context's learning ecology. However, CPIA classrooms are more challenging if compared to other contexts because they are less monolithic with respect to global literacy and proficiency with technology. Therefore, since what characterizes this ambit is the heterogeneity of class groups, the teachers of this study adopt what we may define as an agile and versatile attitude toward technology. For example, if they cannot use a Learning Management System, they switch to a more agile Instant Messaging platform. From a pedagogical point of view, defining versatility as a central construct in MALL education for CPIAs once again confirms the importance of metacognition in teacher training (see, e.g., Duffy, 2006; Jiang et al., 2016). Knowing the needs and possible challenges of language teaching in this context is therefore fundamental, but this cannot be achieved, as Motteram et al. (2013) suggest, without considering how teachers interact in their own context. However, there is still much work to be done, and the present study has tried to contribute by defining a tentative list of topics of interest.

Although case studies do not aim to provide generalizable conclusions, the elements identified above help understand the importance of mobile technology for language education in CPIAs, and what tensions might arise in this context (e.g., a tension between learners, especially illiterate ones, and technology) and, consequently, the objectives of education for mobile technology in this specific context. We can therefore draw a tentative list of issues of interest in MALL training for CPIAs.

First, education for MALL should focus on the ability to manage heterogeneity in the classroom, with a special focus on less technology-skilled learners. This implies

the need to prepare for a quick assessment of the affordances, strengths, and weaknesses of the different tools. MALL education could therefore focus on such issues as assessing the potential of a given tool for a specific objective (e.g., pronunciation exercises) with respect to different learners' profiles and needs; assessing the feasibility of a given mobile-based activity with respect to a learner proficiency with technology and checking that the learners have understood an activity's mechanics and providing examples on how to do an exercise.

Second, since technical problems are quite frequent, education should develop teachers' ability to help their learners with the more technical and procedural issues and, possibly, to anticipate what problems could arise. Some issues of interest might be anticipating technical issues/problems, and also being able to work on basic technical issues (e.g., connection problems, keyboard settings on different devices).

Third, as we have seen, technology with the target group is often used in the classroom for exercises, and to a lesser extent, at home for the same purpose. MALL education should consequently devote adequate space to teaching the integration of the tools/activities during lesson hours. MALL education could therefore focus on such issues as designing or adapting exercises that are suitable and integrable with lessons dealing with Pre-A1 topics (e.g., exercises to work on pronunciation); assessing the potential benefits and limitations of different tools with respect to the topic or ability dealt with (see Lisa's comment on the limitations of vocabulary exercises without pictures) and, finally, providing directions and checking the understanding of the mechanics of an exercise.

Finally, because mobile technology may function as a substitute for a Learning Management System, MALL education should focus on using these tools for communication and could focus on such issues as creating and managing groups in instant messaging apps and file sharing through the same platform.

We may, of course, observe that some of these issues are already part of teacher training, while some others (such as the need to provide technological support) appear to be peculiar to this specific context. This list, far from being complete or accurate, could therefore constitute a base for reflection on how to adapt and develop teacher training for technologies in CPIAs or similar educational institutions.

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Chapter 12
Emergency Online Teaching: Voices of Hong Kong CALL Lecturers

Wenli Wu, Qing Ma, Huiwen Shi, and Esther Tong

Abstract Little attention has been given to computer-assisted language teaching (CALL) lecturers in community colleges in Hong Kong. In this chapter, we present a novel study of CALL lecturers' emotions and well-being while coping with emergency remote teaching (ERT) at a community college in Hong Kong during the COVID-19 pandemic. In addition, this study sheds light on emergency CALL teaching design and technical preparation, as well as synchronous and asynchronous online teaching and assessment in this context. We employed interviews to give vivid accounts of four CALL lecturers' inner voices. The resulting data were coded and grouped into themes, and we report the findings as narrative accounts from the representative lecturers and in-depth thematic descriptions. We found that, overall, the CALL lecturers were stressed and overworked, and their physical conditions, especially eyesight, were impaired due to long-term online activities. They were also concerned about the quality of delivery, student feedback, student learning outcomes, and privacy issues. The analysis further revealed practical strategies that the lecturers adopted to address the difficulties they faced during the pandemic. Based on these strategies and the interviews, we present a conceptual emergency adjustment (EA) model to help understand the experiences, emotions, and well-being of CALL lecturers in community colleges in Hong Kong under the impact of the COVID-19 pandemic. This research offers a significant contribution to the EA literature and

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the contextual adaptation of CALL lecturers in Hong Kong and elsewhere. In addition, the use of narrative accounts to present data could contribute to methodological developments in studying teaching and learning in an ERT environment.

Keywords Adjustment · Emergency remote teaching (ERT) · Job satisfaction · CALL teachers

1 Introduction

Many agree that 2020 is a year that is impossible to forget—not only because of COVID-19's direct impact on millions of lives but also because of how it has reshaped every facet of humanity. Without a doubt, the unprecedented challenges arising from the pandemic have also had significant impacts on the educational sector. As Tam and El-Azar (2020) claim, the novel coronavirus pandemic has transformed education, as most universities and schools around the world had to urgently adapt to online teaching to prevent the virus's spread. Different from planned online teaching adopted prior to the pandemic, online teaching in 2020 emerged as a type of emergency remote teaching (ERT) (Hodges et al., 2020). Similarly, Tafazoli and Meihami (2022) claim that it would be wrong to name the computer-assisted teaching in 2020 as "online teaching," because ERT is provisional and conditional. When the notion of ERT first appeared at the start of the pandemic, nobody could have predicted that this temporary shift was not temporary at all.

This study reports the ERT experiences of four computer-assisted language teaching (CALL) lecturers from a community college in Hong Kong under the impact of the COVID-19 pandemic, particularly their adjustment process. Several studies investigate CALL teachers' professional development (e.g., Tafazoli, 2021), their pedagogical adjustment in response to the COVID-19 crisis (e.g., Wu & Shi, 2021), or challenges that languages teachers have encountered due to the pandemic (e.g., Hashimoto, 2021), but most of these are descriptive. In addition, until now, little research has been done on emergency adjustment (EA) in post-secondary institutions, as triggered by the pandemic. Although the physical work setting and manpower remain unchanged at tertiary institutions, a crisis as impactful as the COVID-19 pandemic may force people to effectively adjust to new working conditions. Therefore, there is a need to investigate whether EA could yield benefits for CALL teachers and to what extent conceptualizing EA experiences can help these educators' work practices.

In our study, we set out to answer three study questions:

(1) What challenges did CALL lecturers experience from January to June 2020 in their ERT?
(2) What strategic responses did CALL lecturers adopt in response to the challenges they faced?
(3) What are the language lecturers' perspectives on their EA experiences?

2 Voices Already Heard

2.1 The Concept of Adjustment

Many scholars have attempted to define *adjustment* in educational contexts. For example, Black and Gregersen (1991) state that "adjustment has been defined as the degree of psychological comfort a sojourner has with the various aspects of a host culture" (p. 498), while Ramsay et al. (1999) claim that adjustment describes the fit between students and their academic environment. Similarly, French et al. (1974) found that adjustment involves a working process between a person and an environment towards a fit. Another concept put forward by Searle and Ward (1990) is that there are two dimensions of adjustment. One is the psychological dimension, which refers to psychological and emotional well-being (Ward & Kennedy, 1994). The other is the sociocultural dimension, where, if the individual can "fit in" and negotiate the interactive aspect of a new culture, they feel more comfortable and more at ease. These two adjustment dimensions have been widely accepted by researchers (e.g., Spencer-Oatey & Xiong, 2006; Yang et al., 2006). Schwartz et al. (2010) add that psychological adjustment could include aspects such as life satisfaction, anxiety, and depression, while sociocultural adjustment could include academic achievement, career success, social skills, and so on.

Schwartz et al. (2010) also propose a third dimension of adjustment: health-related adjustment. This dimension includes not only low levels of somatic symptoms, such as headaches and back pain, but also high levels of psychological well-being, physical activity, and healthy diet. Given the current pandemic situation, the health-related dimension becomes even more important and relevant, as it is a concern for people globally. In the educational context, the urgent switch to online teaching was aimed at preventing a public health crisis, and rightly so. However, if such an adjustment is not made properly, new health issues could arise due to ill adjustment. For example, Macintyre et al. (2020) report that ERT puts substantial stress on teachers which caused some health issues due to the inability to adjust to the new ERT situation.

2.2 Language Teacher Job Satisfaction

Given this study's focus on language lecturers' experiences transitioning to ERT during unexpected changes in their work, it is essential to present the notion of teachers' job satisfaction. As Nevid and Rathus (2013) state, "although work provides an important opportunity for personal growth and a sense of fulfilment, it also imposes on us many demands that require adjustment" (p. 508). A full-time job occupies much time in a person's daily life, so high job satisfaction is an important criterion of individuals' well-being. Saad (1999) claims that "job satisfaction is the degree to which one has a positive feeling toward one's work or job." Factors such as "good pay and fringe benefits, opportunities to perform personally fulfilling work

and to form social relationships with co-workers, availability of childcare services, sense of control over the work itself" are indispensable to job satisfaction (Nevid & Rathus, 2013, p. 508). Accordingly, when change occurs within the work context or individual, work adjustment is needed if one wants to have job satisfaction (Hesketh, 2017). Palthe (2001) defines work adjustment as an individual's "adaptation to new job tasks, work roles, and the new work environment" (p. 10).

2.3 Theoretical Voices: A Conceptual EA Model

According to Ma's (2017) application of Vygotsky's sociocultural theory in online language learning, language is one of the most important higher-level cultural tools. It is the use of language that connects each individual to their environment and mediates the relationship between a person and the world (Lantolf & Thorne, 2007). The pandemic forced drastic changes in individuals and the environment, and frontline CALL lecturers in Hong Kong have always helped their students connect with and make sense of their environment through language. In accordance with Engestrom (1987), who states that humans' most important cognitive activity is developed through social and material development, we propose that CALL lecturers, through interactions with tertiary students in instructional settings, are key to developing students' L2 (second language—in this case, English)—the most fundamental medium of cognition to acquire knowledge of their subjects. In Hong Kong tertiary settings, English is the official medium of instruction. Compared to university students, students admitted to community colleges are typically weaker in academic subjects and English. Therefore, an important role of language instructors in community colleges is to boost students' English proficiency to help them adapt to their subject courses.

Sociocultural theory and adaptation have provided guidelines for people to consider in any adjustment journey. In the context of this study, we regard EA as a fit between a language lecturer and the surrounding sociocultural environment. Our research considers a three-dimension EA model (see Fig. 1):

1. *Psychological adjustment:* considers levels of satisfaction with life, anxiety, and depression.
2. *Sociocultural adjustment:* relates to career success, job satisfaction, problem-solving, and interpersonal communications skills.
3. *Health-related adjustment:* includes physical activity and healthy eating.

What procedures are involved in an adjustment? According to Britannica Academic (2021a, 2021b), there are four parts in an adjustment process: "(a) a need or motive to change; (b) the nonfulfillment of this need; (c) activities or behaviours which are accompanied by problem solving; (d) response which removes or reduces the initial stimulus" (para. 2). Anderson (1994) echoes that adjustment is a process of overcoming and solving problems in a new situation. Furthermore, he elaborates

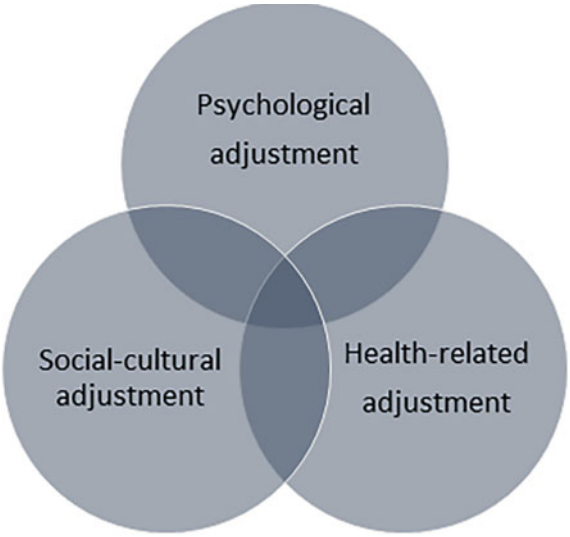

Fig. 1 The three-dimension model of emergency adjustment

that in the process of adjustment, an individual has four ways of reacting to the problems arising from the new environment, namely, changing oneself, changing the environment, not doing anything, or running away. For people who want to shorten the time it takes to reach the final adjustment stage of resolving problems, Lynch (1992) suggests three essential psychological preparations, also known as "adjustment engines": taking a risk, a flexible mind, and willingness to change oneself.

3 Methods

3.1 Research Design

In this study, we adopted a qualitative approach to examine CALL teachers' perspectives on their EA experiences of a sample of four lecturers who were teaching English as a second language in a community college in Hong Kong from January 2020 to June 2020. We adopted a case study approach because our aim was to develop an in-depth description and analysis of one case, namely, CALL teacher's EA experiences in the year 2020 (Merriam & Tisdell, 2015).

Table 1 Participants' profiles

Participant[a]	Age group	Family background	Gender	Educational background
Paul	35–45	Married with no children	Male	Holds master's degree, in the process of pursuing doctoral degree
James	35–45	Married with no children	Male	Holds master's degree, in the process of pursuing doctoral degree
Ann	35–45	Married with one child	Female	Holds master's degree
Alice	35–45	Married with two children	Female	Holds master's degree, in the process of pursuing doctoral degree

[a] All the names are pseudonyms

3.2 Context Under Investigation

The aim of this study was to explore CALL lecturers' EA experiences in Hong Kong from January to June 2020. It featured CALL lecturers who had needed to urgently adapt to ERT in a very short period of time[i], and who had a clear goal of teaching the students well and getting their job done satisfactorily.

The study took place at a community college in Hong Kong with over 200 full-time academic staff. It involved English language lecturers between the ages of 35 and 45, and who had at least 10 years' full-time teaching experience by January 2020. Each lecturer was required to deliver 15 h of teaching duties per week, plus at least three hours of consultation and other administrative work. Accordingly, four participants were selected because they agreed to participate in the study. The interviewees are all ethnically Hong Kong Chinese. Table 1 provides additional participant biographical details.

3.3 Data Collection and Analysis

In this case study, we used interviews as our main data collection method to explore the nature of the lecturers' adaptations to the emergency educational context over the initial six months of ERT. Four lecturers (two males and two females) from a Hong Kong community college's English language teaching team were selected as participants, as they were well-received by their students during ERT[ii]. Ethical issues were discussed with the four interviewees, and their consent to participate was obtained before the interviews.

The interviews were conducted in early 2021 and covered topics related to psychological adjustment, sociocultural adaptation, and health-related issues. The interviews were mainly conducted in Cantonese, with English as a supplementary language, to ensure the interviewees could express their exact feelings in the languages in which they felt most comfortable. The interviews lasted 60–90 min,

which allowed us to gain a deeper understanding of our participants' experiences and perceptions (Cohen et al., 2011). The first author conducted the interviews with all participants, which was advantageous because, as a researcher and lecturer of Chinese ethnicity, she is fully aware of the educational context of the community college and most aspects of Chinese culture. Hence, she adopted both "high-context" and "low-context" communication styles with the interviewees to hear the inside voice of each participant (Wood, 2017).

The interviews were initially coded and then condensed into themes. All of the codes fitted under three major categories (psychological adjustment, sociocultural environment, and health-related concerns) corresponding to the three EA dimensions. We adopted a semi-structured format, and our interview questions covered the following main themes: perceptions of the pandemic, adaptations during the class suspension, strategies adopted, difficulties encountered, and perceived well-being. The questions were developed by the researchers based on the literature (e.g., Cohen et al., 2011), and were reviewed by an expert who had rich experience in conducting research. To ensure the interview questions were clear and relevant, the first author conducted a pilot study with a colleague who had also experienced ERT in another college in Hong Kong. The interview questions were slightly revised after receiving suggestions for clarity and wording.

Our research assistant, who is a native speaker of Cantonese, helped us transcribe the interview data into English. The interview data were thick, so we hand-coded them and followed the steps commonly used in analyzing qualitative data, all while looking for themes (Creswell, 2012). Guided by the interview questions, we approached the data without prior codes. Reading the interview transcripts a few times over, we also wrote notes in the margins, such as "lecturers were given three days to learn video conferencing software." As recommended by Birt et al. (2016), all interview transcripts were sent back to the participants to see whether they wanted to correct, add or delete any information. Each participant was encouraged to examine the findings and suggest recommendations as well.

Other sources, such as post-teaching reports, college newsletters, college internal emails, meeting memos, student feedback questionnaires, and student assessment results, were used as supplementary documents to triangulate the interview data and to ensure their validity and reliability.

4 Lessons Learned

An overall analysis of the interview data and other supplementary documents reveals the following: all four lecturers had successful work adjustments during the ERT, and they received positive student evaluations. While the two participants without children were physically well and mentally satisfied with their EA, the two with children had health-related issues and were therefore not mentally satisfied with their EA experience.

4.1 What Challenges Did CALL Lecturers Experience from January to June 2020 in Their ERT?

The aim of this question was to identify the challenges that the CALL lecturers encountered when they faced the ERT crisis. The interview findings first suggest that all four lecturers were stimulated to make work adjustments because they were dedicated educators, and they hoped that their students were able to succeed in their studies with quality teaching. Second, all interviewees reported three categories of challenges encountered during the ERT: psychological, sociocultural (e.g., emergency online teaching and online assessments, interactions with students), and health-related. There were obvious differences between the participants who were working parents and who have no children, with the former reporting that they encountered more challenges than the latter. As full-time working parents, Ann and Alice had more family responsibilities, as their children could not go to school, and they had more childcare responsibilities than usual. Additionally, the extra time they spent on ERT deprived them of rest time and family hours, so they felt psychologically unwell, leading to less job satisfaction. This is in line with what we discussed before, as childcare services are an imperative part of job satisfaction (Nevid & Rathus, 2013).

The interview data show that all participants encountered three critical stages and strived to change, respond, and adapt to ERT. The results are presented in relation to the research questions. The specific challenges faced by the participants could be divided into three stages.

Stage one: Sociocultural and psychological challenges (January–early February 2020)

The participants reacted differently towards ERT at the beginning of the pandemic. While Paul and James closely monitored the spread of the virus in the news and proactively prepared themselves for the worst, Ann and Alice were anxious, always imagining the possibility of arranging make-up classes for students when the situation eased. When faced with uncertainties, the participants without children were positive and psychologically well-prepared. By contrast, the working parents were reluctant to recall these terrible memories because they felt powerless and traumatized by their initial experience.

Stage two: Job- and health-related challenges (mid-February–late April 2020)

The 100% online teaching yielded great challenges for all participants, among which difficulties in having meaningful *interactions with students* and the *design of online assessments* were at the top of the list. While the lecturers were eager to have simultaneous interactions with students in online classes, almost all students were unwilling to switch on their microphones to answer or ask questions in class, let alone switch on their webcams. It was also hard to check whether the students were taking the lessons online, as not many were willing to leave messages in chatrooms either.

Besides interacting with students in online classes, *setting take-home test questions* was another major challenge for the lecturers at this stage. Commonly used question formats, such as multiple choice and true/false, could not be used in online assessments due to concerns about cheating; instead, short open-ended questions were recommended by the senior management. The lecturers spent a large amount of time designing short questions within a tight schedule.

Additionally, although the lecturers felt that the online assessments went rather smoothly after working together with other lecturers who were teaching the same subject, they found that online marking was even tougher because they needed to learn new skills and buy new tools to do so. On the one hand, the lecturers had to attend pre-marking exercises to make sure the whole team's marking was fair and consistent; on the other hand, they needed to use iPads or handwritten notes to mark students' submissions online within yet another tight schedule. Ann mentioned that the challenges she encountered at this stage were the most pressing since she started her teaching career. She also worried that she could not reach the same teaching and marking standards as she did in face-to-face teaching.

Physical strain was another concern. Because of the long time spent in front of the computer, lack of physical exercise, poor diet, and extensive online marking, almost all interviewees confessed that they were not as healthy as before. Symptoms such as headaches, back pains, chest pain, and worsened eyesight were common complaints. In general, the working parents suffered more than the lecturers who had no children. Nevertheless, the lecturers remained motivated to teach well.

Stage three: Work- and health-related challenges (early May–late June 2020)

At this stage, the lecturers faced challenges mainly from online marking and plagiarism cases. All participants admitted that they were stressed and overworked for half a year, so their health conditions worsened, and they looked forward to taking a break in the summer.

4.2 What Strategic Responses Did CALL Lecturers Adopt in Response to the Challenges They Faced?

In this study, all lecturers were able to make swift work adjustments because of their passion for teaching, commitment to self-learning, and a very supportive learning environment. One common strategy among all four lecturers was that they watched tutorials on *YouTube* to discover new teaching tools and facilitate better online teaching. This helped them emphasize personal dedication and commitment. It should be added that all interviewees were full-time lecturers, so they also had pressure to improve coming from college management and their students. Although such pressure was not formally verbalized, the interviewees felt compelled to achieve excellence due to high expectations from different parties.

Another strategy adopted by the interviewees was learning the norms of work adjustment and receiving emotional support by *embracing a community*. In fact, their department offered training and sharing sessions in which colleagues exchanged ideas and offered mutual support to those who worked on the same team. Such a supportive community greatly contributed to the interviewees' completion of their tasks. Therefore, we argue that actively joining a supportive community is an important strategy in the adjustment process, as it is vital to life satisfaction and psychological well-being.

The third strategy that the lecturers employed was *receiving IT support* from the college. Shortly after the institution announced a policy of online teaching during early February 2020, all of the lecturers actively attended training sessions for synchronous and asynchronous online teaching and began to prepare for their own teaching. As it seemed necessary to switch to synchronous online teaching in just a few days, Ann and Alice spent a large amount of time learning different communication instruments (e.g., Microsoft Teams/Zoom) and other available software to cater to the new teaching demands.

All lecturers used different strategies to motivate their students to attend online lessons, such as using additional *online tools* like Poll Everywhere and Kahoot, to make online teaching more interactive. In addition to the official communication platforms recommended by the college, such as work emails and the Moodle platform, Ann and Alice also used more *personalized communication tools*, such as one-to-one phone calls and Facebook, to communicate with their students.

Other than strategies that they could adapt, the interviewees also mentioned that they had to be *proactive and flexible* if they wanted to have a satisfying job performance during the pandemic. They felt that if they wanted to receive emotional and professional support during the crisis, they must *let others know about their problems* first. They described the most important personal traits to facilitate adjustment as being (a) always ready to learn from others, (b) considerate, and (c) ready to take risks.

4.3 What Are the Language Lecturers' Perspectives on Their EA Experiences?

During the research, we constructed narrative accounts of the participants' experiences and, in most cases, discussed them with the interviewees. Paul and James were best characterized as exemplifying a more "satisfying" experience, while Ann and Alice had a hybrid experience. The examples below contrast fully satisfied and less satisfied EA.

Paul felt highly satisfied with his EA experience. Paul was a popular lecturer among students before the pandemic, and he was always thinking of using new technologies and innovative teaching pedagogy. Throughout the whole interview, he described himself as "confident" in his surroundings and, at the end of his interview,

looked back fondly on his ERT experience. Even when Paul was a child, his dream was to be a good teacher, so he has always put himself in his students' shoes and updated his teaching skills routinely by attending different training courses. Even before COVID-19 broke out in Hong Kong, Paul had started to collaborate with his teammates to design online teaching materials, so he was not worried when the college announced the switch to online teaching. As Paul and his teammates had started preparation earlier than other colleagues, they could even share their online teaching materials with those colleagues in the same discipline. Despite being a well-prepared and experienced lecturer, Paul did encounter challenges when his students were not willing to answer questions in the online lessons. He was quite disappointed when he found most of his students could not achieve the expected learning outcomes. He thus adjusted his teaching pace and showed great patience for his students' slow adaptation to the online learning mode.

Paul said that ERT provided an opportunity to adapt to quick changes, so he was sure the teaching methods he adopted were the most up to date. From Paul's perspective, the world was changing quickly, so individuals needed to prepare themselves well to embrace it. Paul also claimed that personal traits, such as being positive, proactive, and willing to take risks, are prominent features of high career achievers. Paul worked diligently and independently throughout the ERT period, but he also found that a supportive community was important for a person's well-being and job satisfaction. In addition, he looked forward to a new era in the education sector with the rise of online teaching.

Alice poses a contrasting example, one of less satisfaction with her EA. Alice was a caring lecturer, and she was popular among students even before the pandemic. She also thought of improving herself all the time, and she was working on a Doctor of Education degree on a part-time basis when the virus came to Hong Kong. As a caring and responsible educator, Alice panicked when she realized she had to switch to online teaching with her teammates. As a full-time working mother, a part-time doctoral student, and a conscientious language lecturer, Alice felt that she suddenly could not manage anything well. Her children were at home all day, so she needed to make childcare arrangements; tuition had been paid, so she had to take courses and do assignments for her EdD. She needed to design new teaching materials and online assessments in a short time, and she also spent time comforting her students and answering their questions via Facebook. Each of these tasks took time, so Alice had to sacrifice her sleep to finish them all.

Alice was popular among her colleagues as well, and she was in a supportive community during the ERT transition. In terms of work adjustment, she successfully completed her online teaching and assessment tasks. However, psychologically, she was overstressed all the time because she felt that she was not a good mother or a good student. She also commented that she paid a high price for her health in exchange for job satisfaction. Looking back, she said she wished she could rest more, as the pandemic taught her much about work-life balance.

5 Implications

From the participants' successful EA experiences, we deduced meaningful patterns to help the larger educator community adapt to any crisis-prompted changes in the future. Based on Fig. 1 and the narrative accounts we presented in the previous section, we developed a conceptual model to understand language lecturers' perspectives of their EA experiences (see Fig. 2).

The model incorporates EA as a process, starting with a motive to change (e.g., the COVID-19 pandemic), going on to the different types of activities which are involved with problem-solving, and concluding with responses which complete the EA. During the adjustment process, we consider challenges through sociocultural, psychological, and health-related dimensions. We also added personal traits, such as risk taking and willingness to change, as engines which could shorten the adjustment period.

We identified that a motive to change is the starting point of EA. All the interviewees chose to change themselves when they faced the emergent COVID-19 crisis, which partly explains why they could complete their teaching duties successfully and achieve job satisfaction.

Regarding the sociocultural dimension, we discovered that although all lecturers in this study perceived the changing social context as surprising or even annoying, after one year they realized as individuals that they had no power to change their environment, so they had to adjust themselves. All interviewees were proactive and flexible towards the new social context, and they were willing to learn and adapt, so they had more opportunities to adapt to new conventions, which helped their EA. This finding supports other studies (e.g., Church, 1982; Mendenhall & Oddou, 1985; Yu, 2021) that specify a willingness to communicate and to establish relationships

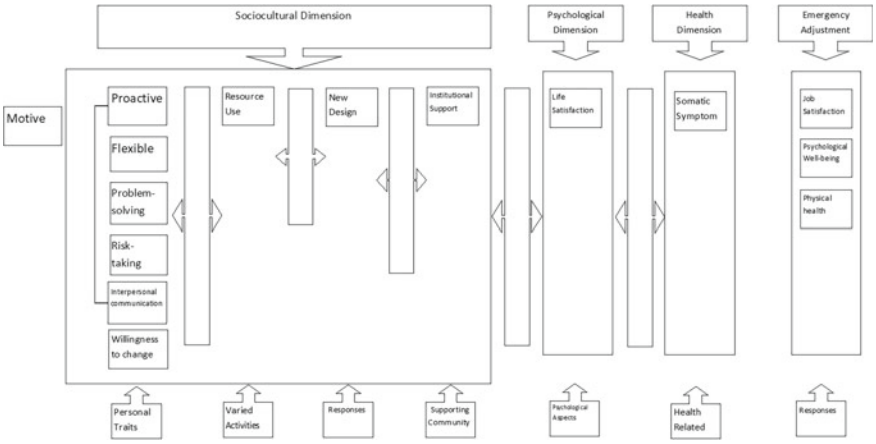

Fig. 2 A conceptual model to understand computer assisted language learning lecturers' emergency adjustment

as important variables for adjustment. These variables are categorized as "Personal Traits," grouped together under "Adjustment Engines," in Fig. 2.

Nowadays, nobody lives in a vacuum. Everybody is the result of a particular social, cultural, educational, and political context. As such, while people have a propensity to behave in a certain way, this can be reinforced by their environment. In contrast, the environment is perceived in different ways by different individuals. As Williams and Burden (2000) point out, "learners' perceptions and interpretations of their environments will affect their learning rather than the actual physical characteristics of those environments" (p. 192). What appear to be physical barriers to one group may thus be regarded as acceptable norms to another. In this same line, we found that Paul embraced the new changes exceptionally smoothly, because he thought it was an opportunity for him to meet the trend of new teaching pedagogy.

If an appropriate adjustment is a sense of well-being, satisfaction, and the ability to "fit in" and negotiate the interactive aspects of a new culture/environment (Searle & Ward, 1990), then the two lecturers who had no children in this study perceived their EA experience as mostly satisfying and successful. Admittedly, these lecturers may have felt disappointed with the lack of interaction with students, but they did not feel a deep sense of disorientation. All in all, they always had hope that they would soon physically see their students, since they expected ERT to last only temporarily. On the other hand, the two lecturers who had children were less satisfied with their adjustment, because psychologically they had experienced anxiety and even depression. Physically, they had headaches, impaired eyesight, and could not perform regular psychical activities due to the extra workload from ERT and "work from home" practices.

6 Conclusion

EA is a heated topic which, in recent years, has been brought about largely by the unexpected external circumstances of 2020. Successful work adjustment is crucial for survival in any industry. The existing literature on adjustment has established a good understanding that sociocultural and psychological dimensions are two fundamental components of adjustment that we should not ignore. Since EA requires quick responses, we add a third dimension—health-related adjustment—to our conceptual EA model (Figs. 1 and 2). Our research also shows that personal traits and supportive communities are paramount to the sociocultural dimension. For CALL lecturers who want to adjust promptly when they face crises as pervasive as the pandemic, they must possess personal traits such as problem-solving and interpersonal communication skills, as displayed in Fig. 2. In addition, joining a supportive community and committing to self-study are strategies that educators can employ during EA. Our newly developed model aims to facilitate better and smoother adjustments that can bring about both job satisfaction and psychological well-being.

It must be pointed out that our research was only conducted with four lecturers from one community college, so our conceptual model should be interpreted with great caution. Despite this limitation, we believe that our model can help policymakers, lecturers, and administrative staff in post-secondary institutions better understand CALL teachers' adjustments in future emergency contexts.

End Notes

i The announcement of the suspension of face-to-face teaching was made 2 weeks before the enactment of online teaching. However, lecturers were given only 3 days to prepare for synchronous online teaching using Microsoft Teams, which was the official online meeting tool adopted at this particular community college.

ii To evaluate teaching, the community college exercises student feedback questionnaires at the end of each semester. The four interviewees in this study consistently secured an overall grade of 4 out of 5 or above before and during the pandemic.

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Chapter 13
Teacher Beliefs About Emergency Remote Language Teaching in Early Childhood Education in Indonesia

Cristina A. Huertas-Abril and Muhammad Haikal

Abstract The emergence of the coronavirus pandemic has resulted in great challenges in various aspects of life across the world, including education itself, and Indonesia has also been seriously impacted by this health emergency. In Indonesia, English as Foreign Language (EFL) is one of the subjects in Early Childhood Education (ECE) that has been taught online in the context of Emergency Remote Teaching. Despite the impact of COVID-19 on English language education in ECE in Indonesia, limited research has been carried out to understand EFL teachers' beliefs regarding their performance during the pandemic. This exploratory qualitative study aims to investigate teachers' beliefs (n = 7) toward English language teaching and learning in ECE in Indonesia using semi-structured interviews. To analyze the data, content analysis was carried out. The findings revealed four major findings, namely technical problems (poor internet performance and unsupported teaching–learning devices), home environment and socio-emotional variables (necessity of building parent-teacher partnership, ensuring parental involvement in learning EFL), families' and teachers' skills and competences (low digital literacy), and teaching resources and strategies (use of interactive multimedia learning tools, playful learning, consistent language practice, and English learning sources).

Keywords English as a Foreign Language (EFL) · Emergency Remote Language Teaching (ERLT) · Early Childhood Education (ECE) · Language education · Indonesia · Qualitative study

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1 Indonesia: An Under-Represented Context in Foreign Language Learning

The status of foreign languages (FL) learning in Indonesia has increased incrementally due to its importance in the current globalized world (Mappiasse & Sihes, 2014). The status of FL learning is inseparable from the history of how foreign languages (Dutch, English, and German) were firstly introduced to or used only by people from particular backgrounds in the colonial era (Bulan, 2018). Inevitably, the mastery of FL among the natives during the Dutch colonial era became a sign of a high or respectable "social class." Dutch is no longer viewed as such on the ground that English as First Foreign Language in Indonesia can be comfortably accessed by all people coming from various backgrounds. This phenomenon has even emerged from the very first level of education in which English has been introduced to young learners in preschools, playgroups and kindergarten and elementary school, although it is still not characterized yet as a compulsory subject (Santoso, 2014).

According to the National Education Ministry's Law No. 26 of 2006 (Mendikbud, 2006), English is firstly taught at the junior high school level. Santoso (2014) highlights two main reasons for the implementation of English learning in education: (i) most science and technology developments are written in English, and (ii) current society has become more global, and it is no longer confined by distance or time. Hence, mastering English as a Foreign Language (EFL) opens doors for Indonesian citizens to interact with a global society—and this aspect of globalization establishes EFL to be taught in schools. The general belief that has been widespread all over society is to introduce EFL as early as possible, enabling children to acquire their English repertoire from a very young age.

In accordance with Law No. 20 of 2003 concerning the National Education System (Republik Indonesia, 2003), Early Childhood Education (ECE) is one of the ways for children from birth to the age of 7 through the provision of educational stimuli to help growth and physical and spiritual development, so that children have the readiness to enter further education. ECE performs a function as a developer of various potentials possessed by children which includes cognitive, language, physical (gross and fine motor) abilities, and socio-emotional abilities. Nowadays Bahasa Indonesia is not the only language used during the activity as it is also combined with English.

Unfortunately, learning at ECE institutions has been interrupted due to the world health crisis, as the pandemic derived from COVID-19 has paralyzed all sectors of life, including education. This eventually led to decision-makers to issue various regulations with the aim of adjusting the situation, and in Indonesian educational sectors this is to study from home. On-site school activities were no longer permitted, and home became the only option for both students and teachers to carry out the teaching–learning process. Emergency remote teaching (ERT) (Hodges et al., 2020) has arisen as an alternative learning approach adapting to this exceptional context. Nonetheless, this type of learning is a great challenge for the situation of Indonesia,

a country with thousands of islands with limited Internet access in remote areas. Apart from these technical issues, teachers have also been seriously affected by this situation, having to improve their digital literacy rapidly.

2 Voices Already Heard

The use of technology in both assisting and facilitating humans' life has obtained its notable status in the last twenty-first century as all technological advances have had an impact on many aspects of our lives, including education (Wong, 2015). The acknowledgment of technology has brought its trend in modern education, and teachers are now somehow "obliged" to guide learners in using technology, especially for teaching–learning purposes (Sadeghi & Dousti, 2013).

EFL teachers, for example, adopt digital technology considering its advantages to enhance effective learning and teaching quality for young learners in learning a language. Mudra (2020) asserted that the range of digital tools (i.e., internet, computers, smartphones, and online games) helps young learners improve their understanding of literacy since the presence of audio and visual guides them to recognize sounds, letters, and words. Moreover, Turula (2017) mentioned that allowing young learners to learn EFL through digital technology can lead them to be autonomous, as self-regulation is also promoted during its use. According to Jolls (2008, as cited in Mudra, 2020, p. 2), "digital literacy allows for accessing, analyzing, evaluating, creating and participating with multimedia messages."

The use of educational technology is currently very popular, especially during and after the pandemic of 2020 in order to accommodate and still benefit learning. Due to the threat of COVID-19, alternatives to on-site education have necessary emerged, although, as Hodges et al. (2020) emphasize, there are significant differences between "traditional" online learning and Emergency Remote Teaching (ERT):

> In contrast to experiences that are planned from the beginning and designed to be online, emergency remote teaching (ERT) is a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances. It involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated. The primary objective in these circumstances is not to re-create a robust educational ecosystem but rather to provide temporary access to instruction and instructional supports in a manner that is quick to set up and is reliably available during an emergency or crisis. (Hodges et al., 2020, par. 18).

In this unstable scenario, however, the continuation of teaching and learning processes has not been easy due to differences in technological access (Huertas-Abril, 2020), academic expectations (Whittle et al., 2020), and adaptation to online teaching in less-than-ideal circumstances (Hodges et al., 2020), among many other factors. Despite these issues derived from rapidly moving to online/remote teaching without a pre-planned strategy, educational institutions and especially teachers, have tried to maximize their students' academic learning (Huertas-Abril, 2020). In the case

of language learning, Emergency Remote Language Learning (ERLT) has a clear connection with Computer-Assisted Language Learning (CALL), which entails any application of technology for language teaching and learning (Tafazoli et al., 2018).

> CALL not only affords us a valuable vantage point from which to explore more established educational practices in language learning, but one from which we can interrogate normalized assumptions about the nature of education in general and the extent to which it can adequately prepare learners for the skills and knowledge necessary for the twenty-first century (Thomas et al., 2013, p. 4).

Teachers' CALL professional development has been able then to benefit from CALL advances, including materials design, learner autonomy, feedback and assessment, implementation in low-tech contexts, and pedagogical approaches (Huertas-Abril, 2020). Nevertheless, the change to ERLT was carried out rapidly and without previous planning, so it could not always take into account the importance of understanding learners' characteristics, including their developmental stages such as physical and physiological readiness before introducing educational technology in the lessons, as Kastuhandani (2016) suggests. Despite this situation, this author claims that educational technology can encourage learners' participation and reflect the diversity of culture and language. In an EFL learning context, even learners with limited knowledge of English can still engage in the excitement of the activities they do with the help of ICT. Since implementing educational technology in learning is believed to boost children's creativity, communication, and motivation—this can then assist their learning, and teachers can try to adjust the learning process to learners' interests (Dewi, 2019).

Considering the limited research on Early Childhoood (ECE) and English as a Foreign Language (EFL) education in Indonesia, and especially the opportunities and challenges that Emergency remote Language Teaching (ERLT) have posed to education worldwide, this research aims to explore teacher beliefs regarding ERLT in ECE in Indonesia. For this purpose, three research questions (RQs) are posed:

RQ1: What have been Indonesian teachers' strategies and resources to teach EFL in ECE during the pandemic of COVID-19 in Indonesia?

RQ2: What have been Indonesian teachers' main challenges to teach EFL in ECE during the pandemic of COVID-19 in Indonesia?

RQ3: What are Indonesian teachers' perceptions of teacher-family collaboration regarding ERLT during the pandemic of COVID-19 in Indonesia?

3 Methods

3.1 Research Design

This research aims to explore teacher beliefs regarding Emergency Remote Language Teaching (ERLT) in Early Childhood Education (ECE) in Indonesia. For this purpose,

an exploratory qualitative approach was adopted. According to Saunders et al. (2012), this type of qualitative research is applied to understand a research topic or preliminary idea of research in order to explore data and information about new topics or issues intended for further research purposes or to help determine the nature of problems. Based on the literature review, this exploratory qualitative study aims to analyze Indonesian EFL teachers' perceptions regarding the main advantages and hurdles found when teaching English to very young learners during the lockdown in 2020, emphasizing the lessons learned after applying ERLT.

3.2 Participants

The population of the research was determined by applying non-probability, purposive sampling. Vehovar et al. (2016) defined non-probability sampling as a sample selection technique that is not based on the law of probability, and therefore it does not require equal opportunities for members of the population to be selected. The selection is therefore based on certain subjective criteria, but these criteria must remain clear and not to cause bias. Besides, purposive sampling is a type of sampling technique determined deliberately by the researchers, although not purely based on the researcher's subjective criteria, but based on certain objectives and considerations, also addressed as "representative sampling." The sample of this qualitative exploratory study consists of seven Indonesian EFL teachers whose students range from 0 to 8 years of age.

Table 1 presents demographic information about the participants (i.e., gender, duration of teaching experience, the city where they work, and the number of students in their classes).

Table 1 Profile of the participants

Participant	Gender	Teaching experience	Place	No. students per classroom
Teacher 01	Woman	2	Tangerang city	15–20
Teacher 02	Man	2	Yogyakarta city	25–30
Teacher 03	Woman	3	Yogyakarta city	12
Teacher 04	Woman	7	Yogyakarta city	30–40
Teacher 05	Woman	3	Tangerang city	6–7
Teacher 06	Woman	3	Bogor city	28
Teacher 07	Woman	3	Bangka city	20–25

3.3 Context and Instruments

Semi-structured interviews were conducted to collect the data for this research. Cohen et al. (2011) claim that interviews are effective tools that enable research participants to share their feeling and experiences towards situations as well as how they see a specific phenomenon as part of their point of view. The interviews contained seven main questions for teachers which were intended to find out the general perspectives, beliefs, or opinions about learning a foreign language at young age, focusing especially on what situations they can see children are motivated to learn EFL. In addition, the interview aimed to see the specific challenges that teachers encounter during the ERLT as well as what practices they apply to overcome them. Lastly, the interviews did not only focus on the interview guidelines but in-depth interviews were also applied depending on the responses from the participants.

3.4 Data Collection and Analysis

Semi-structured interviews were conducted after the selection of the participants, who were contacted previously and who gave their consent orally after being informed about the purpose of the research. Before the interviews took place, participants were explained again the purpose of the interview, which would be voluntarily and anonymized. During the interview, participants' mother tongue (Bahasa Indonesia) was used with the aim of avoiding misconceptions. All seven interviews were eventually conducted through phone calls, considering the social distancing of the COVID-19 pandemic that still occurs, and all the calls were recorded. The interviews were conducted from December 2020 to February 2021, and on average each interview took around 15–20 min.

For the qualitative analysis used in this research, content analysis was used. The interviews were transcribed and then translated into English, and content analysis was performed. Holsti (1969, as cited in Prasad, 2019) argues that content analysis is a technique of creating conclusions by identifying the characteristics of certain messages objectively and systematically. The purpose of content analysis is then to describe the characteristics of communication of the questions: what, how, and to whom the message was conveyed, and to create conclusions, such as antecedents of communication, by mentioning the reasons for messages being conveyed and the consequences of communication by asking what the effects of the message were. In this light, according to Kerlinger (1986, as cited in Wimmer & Dominick, 2000), content analysis is defined as a method to study and analyze communication systemically and objectively to visible messages. Meanwhile, Drisko and Maschi (2016) asserted that content analysis is basically a technique to analyze message contents and process messages or a tool to observe and analyze the content of open communication behavior of selected communicators.

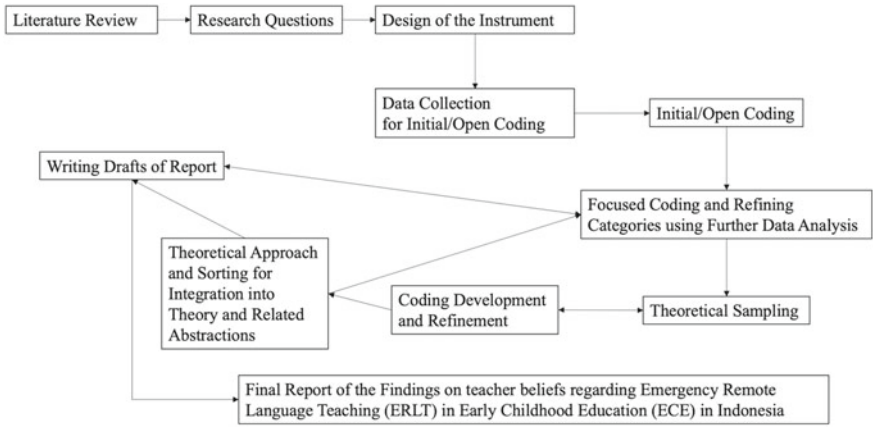

Fig. 1 Qualitative research process

For this exploratory study, the authors adopted the content analysis and open coding procedure to find out categories based on the collected data from the participants regarding ERLT in ECE. Following this framework, the authors established the stages of the research, from raising research questions to data collection and analysis. The research process is shown in Fig. 1.

4 Lessons Learned

This section contains a report of the research findings, in order to answer the three RQs of this study, which are related to strategies and resources (RQ1), challenges (RQ2), and teacher-family collaboration (RQ3) experienced to teach EFL in ECE during the pandemic of COVID-19 in Indonesia. Table 2 presents the categories and subcategories identified in the participants' responses after content analysis.

4.1 Technical Problems

The first category stated by the participants was related to the technical problems experienced when conducting English teaching and learning from home, and two subcategories were identified: poor internet performance and unsupported teaching–learning devices.

Regarding poor internet performance, Teacher 1 maintained that one of the challenging parts of the technical problems was the internet connection, that could impact on the learning infectivity in class.

Table 2 Teachers' beliefs about ERLT in ECE in Indonesia

Category	Subcategory
Technical problems	Poor internet performance
	Unsupported teaching–learning devices
Home environment and socio-emotional variables	Building parent-teacher partnership
	Ensuring parental involvement
Families' and teachers' skills and competences	Low digital literacy skill
Teaching resources and strategies	Applying interactive multimedia learning tools
	Establishing playful learning
	Conducting consistent language practice
	Providing English learning sources

> Usually, internet connection is the main problem students face because not everyone has a good connection. Especially, when it rains, the internet trouble keeps disturbing. Experiencing this problem during the class can cause unconducive learning at least that is what I saw from some of them. (Teacher 1)

In addition, Teacher 2 asserted that the unstable internet connection does exist either for the students or the teachers themselves.

> For internet problems, there must be problems for sure. Not only do the obstacles come from the school but also from the students and parents as well. So far if I have to calculates the obstacles, maybe around 10–20%. (Teacher 2)

Lastly, it was maintained that they normally experienced the poor connection when using online learning platforms such as Zoom or Google Classroom, which interfered with communication:

> We do have problems regarding technical things, especially internet. Using Zoom requires you to have a stable Internet connection. If it is down, we speak or sound like a robot. When it happens, I stop for a few minutes; two to three minutes, then continue again when it gets better. (Teacher 3)

The second subcategory addresses unsupported teaching–learning devices. As the teaching–learning process is conducted virtually, it is necessary to provide devices with certain specifications so that they can support the learning for both teachers and learners. Participants argue issues related to the memory storage of their devices. In the Indonesian learning context, especially during COVID-19, video-based learning in the curriculum is frequently used. In this sense, when students need to submit their assignments in the form of videos, they are normally submitted not only through a particular online platform, but also teachers' WhatsApp.

> Sometimes, some students are not in conducive learning situation due to the poor or unsupported devices. For example, when the activities should be presented in the format of video. Some students could not access it because they use phone instead of laptop. Although some students use laptop, but it is an old one or small RAM (Random-access memory) laptop. (Teacher 1)

> The learning is actually implemented both by my phone and laptop. I also have a problem with the memory storage of my phone as the homework or assignment was submitted through WhatsApp, so I have to makes sure there is always enough storage, but it's always full. (Teacher 7)

4.2 Home Environment and Socio-Emotional Variables

In this second category, two subcategories were identified and coded: building parent-teacher partnership and ensuring parental involvement.

Regarding building parent-teacher partnership, participants discussed their practices of establishing communication with the families, which they all consider essential.

Teachers 1, 4, and 7 opine that parents need to get involved in providing support for their children when they cannot adhere to class instructions, including the supervision of students' work submission.

> When a child does not understand, I ask parents to please encourage their children to follow for example what they should be learning. Indeed, sometimes there are children who do not understand instructions easily or quickly. Some of them still struggle. Usually, it takes the help of parents there and it is true that they play a vital role in children's learning. (Teacher 1)

> Before I deliver the lesson and give assignments, I always emphasize to parents if they have any inquiries related to children's learning, so they do not to hesitate to let me know. Sometimes they directly call me and ask some elements that have not been understood, and some also choose to text me. (Teacher 7)

Furthermore, Teacher 2 and Teacher 3 stated that creating a meeting virtually with parents can be one of the ways to cooperate together to maintain children's learning as well as see their development. In the meeting, all parents are welcomed to share anything they would like to, including problems and inquiries.

> I think it is necessary the cooperation between students, teachers, and parents. We normally do a video call, and, for me, I do it once every two weeks with the parents. By doing so, we can ask what the obstacles with their children at home are… do you have anything to share? So, building communication with parents is very essential. (Teacher 3)

Finally, Teacher 5 addressed her opinion about parents who might be busy and unable to attend online learning with their children. In this case, teachers are advised to inform parents about what things were learned, as well as the assignment or projects to accomplish.

Regarding the second subcategory, ensuring parental involvement, the results basically cover the information about how families and teachers should take part in children's learning during the pandemic.

Teacher 1 and Teacher 4 claim that children at such a young age do not understand how to use technology for learning purposes, so parents are expected to fill teachers' roles by providing direct assistance and examples for children' learning.

> I think the involvement of parents during online learning is very crucial. We can't expect more for children aged 3 to 4 years during this online learning because not all children they have a good understanding of how to use technology. I mean, at that age, all they know is only playing, watching YouTube, and other fun videos. (Teacher 1)

Besides, it is added by Teacher 3 and Teacher 7 that it is not always easy to make children stay focused by themselves during online learning. Families are still advised to spare some of their time to be with their children during the learning—and Teacher 7 also mentions that it can also be replaced by other caregivers.

> For parents, in my opinion no matter how busy parents are, they have to spend time with their children. At least fifteen to thirty minutes and especially at that age range, pupils cannot fully focus following the class probably for half an hour. (Teacher 3)

Similarly to Teacher 7, Teacher 5 mentions hiring a professional caregiver to stay and be with the children at home when parents are still busy and have to work. In this case, during school time, these children would be assisted by caregivers.

> When parents do not support the children, they cannot attend the school. Many parents in my class are busy, but education is still their concern. Although they cannot accompany their children in school time, they asked a nanny to do it. (Teacher 5)

4.3 Families' and Teachers' Skills

The third category addresses families' and teachers' skills and competences needed when teaching English, especially during the pandemic of COVID-19. A key subcategory was found to be low digital literacy skill.

As the teaching–learning activity has been conducted virtually during the pandemic, teachers are concerned about the use of digital devices inasmuch not only children themselves but also not all parents or caretakers are competent when dealing with digital literacy. From the teachers' perspective, it was mentioned by Teacher 3 that for young learners, it is not possible for them to do everything by themselves, especially when it requires digital literacy skills. Meanwhile, Teacher 5 emphasized more on parents' conditions taking into account that not all parents are digital competent, especially when it deals with online learning, and this might impact on children's learning outcomes.

> I think, in this case, children that age cannot do all the things together when dealing with the devices, following the class, and doing an assignment. As everything was done online and in electronical base, they should be assisted. (Teacher 3)

> …there are some parents who may be clueless or not computer literate about technology, and this is what sometimes gives me real 'homework'. (Teacher 7)

4.4 Teaching–Learning Resources and Strategies

The study revealed that teachers mentioned several strategies and resources that they applied during the online learning period, including (i) applying interactive multimedia learning tools, (ii) establishing playful learning, (iii) consistent language practice, and (iv) providing EFL learning resources.

Focusing on applying interactive multimedia learning tools, Teacher 2 had a fixed schedule to deliver the lesson through videos. This, however, needs to be in consideration—the videos should be interesting for children so that both teachers and children are to interact with one another.

> I have to create three videos per week and never forget that the videos must be adaptive. Designing a video should be attractive to get their attention, so we can interact with them. (Teacher 2).

Moreover, considering pupils are in ECE, ensuring their movement during the online learning was remarked by Teacher 3.

> …most children like to move in joining the classroom learning activity. As their own characteristic, they still like to play. We also provide learning materials or media which can lead them to have a movement activity both feet and hands. (Teacher 3)

Meanwhile, Teacher 5 highlighted the impact of online learning on children: they are less enthusiastic as they are limited to frequently moving their bodies during the class activity. To solve it, a short movie was added as one of the activity lists in the class session.

> I can see whether they are enthusiastic or eager to learn English when I show them a short movie. Especially with today's pandemic, I teach children from the age of 4-5 years. By watching a short movie, it prevents children from boredom due to an online learning from home. So, I present a short movie for the children to be enthusiastic and want to pay attention. (Teacher 5)

Regarding the subcategory of establishing playful learning, participants share the idea of delivering the lessons by using appropriate methods or strategies in responding to the global phenomenon derived from the COVID-19. In this case, Teacher 2, Teacher 3, and Teacher 4 consider that when teaching methods and strategies are appropriately decided, they can produce fun learning that allows children to have an active engagement both with their teachers and peers.

> Referring to the challenges is that we have to be as creative as possible in delivering the lesson in terms of material, teaching approach and methods in any form. Especially for elementary school children, the activities should be fun and not teacher-centered learning. They should be able to interact with the peers while they learn. (Teacher 2)

Conducting consistent language practice was the third subcategory identified here. Teacher 4 utters the importance of creating habits for children and their families at home, which can be undertaken through simple conversation.

> Learning English is a habit. What students received and learned will fade away without practice, as it is a need in everyday life. Parents can simply say, 'Son, please close the door please!' so it should be done at home. (Teacher 4).

This idea of having a conversation between parents and children was also explained by Teacher 5.

> I would recommend parents to have consistent practice with the children. It does not have to be like a difficult topic for sure. At least, inviting children in a simple conversation such as giving instruction is very suggested. (Teacher 5).

Teacher 6 mentioned that a good idea, in addition to conversation, is to memorize vocabulary.

> The simple practices that parents can also do are memorizing vocabulary or doing a roleplay. Doing such activities using English as the medium instruction I believe can help them acquire the language. (Teacher 6)

Finally, regarding providing English learning resources, participants claim that it must be borne in mind that teachers are not the only partner for children to learn EFL, but families also should take action to facilitate children with activities that can improve their English repertoire. In this sense, Teacher 5 claimed apart from English reading books; parents can also involve themselves in English conversation with children or bedtime stories if it is not possible to enroll their children in English learning.

Teacher 2 explained the advantage of using online applications or platforms as one of the sources for English learning. Parents can easily access them on Internet, yet they should adapt to children's capacity as well.

> For parents, there are currently many platforms or applications that we can use to learn English. I suggest parents to be more creative in exploring material on the Internet, such as YouTube because it is the same us as teachers. In creating English learning videos, we are always inspired by sources on Internet. Nevertheless, parents also need to filter the appropriate sources that are suitable with children's age and cognitive skill. (Teacher 2)

5 Discussion

This research has aimed to explore teachers' beliefs regarding ERLT in ECE in Indonesia during the lockdown derived from the COVID-19 pandemic.

Focusing on RQ1 *(What have been Indonesian teachers' strategies and resources to teach EFL in ECE during the pandemic of COVID-19 in Indonesia?)*, participants consider that play is an activity that should be included in the learning process—play-based learning. Suyanto (2005) argued that fun, exciting, and democratic learning would attract more children to be involved in every learning activity. In fact, children cannot just sit quietly listening to the lesson, but they need to actively interact with their peers or even various objects in their environment, both physically and mentally. To achieve this, play activities arise as interesting resources: play is a part of children's life as well as their natural desire since it is able to develop their self-identity.

Children's fun and love for playing can be used as an opportunity to learn concrete things so that children's creativity, imagination, and creativity can be well-developed (Syafei, 2002).

Wolfgang and Sanders (1981) concluded that playing is the most effective way to ripen the development of children by developing preoperational thinking and concrete operational thinking, both in the academic (cognitive) field, as well as in the physical and social-emotional aspects. By playing, children can learn to live with their environment, develop their social life, and play roles with others, accompanied by cognitive, affective, and psychomotor development of children.

Especially considering EFL perspectives, Saunders and O'Brien (2006) claimed that foreign language learning is not merely about exposure to native speakers, but also about interaction among peers should be considered. In this light, interactions can possibly be found in children's play. Play activity, the key to children's lifelong learning, is acknowledged as a setting where children are able to explore and develop their language/s. Some of their plays are established in different places, and school is one of the examples where teachers and peers as the interactants are involved (Deborah et al., 2019). The concept of play, according to Vygotsky, is a media which provides a place and conceptual perspective to help children in their language development. Besides, children between the age of 3–4 years old reflect their memory more through an experience such as play than imagination (Cheep-Aranai et al., 2015).

As children are different from adults in terms of learning concentration, they need learning boosters to make them more engaged with the class (McDonough, 2013). Another recurrent strategy that teachers implemented to adapt themselves to the ERLT situation was to combine activities with several learning media such as videos, movies, and songs. Teachers are also required to be able to design effective online learning by utilizing online tools and/or media (Harmani, 2020).

From the EFL learning perspective, the drawbacks of this policy have hindered children from developing their English repertoire, yet some ways are still possibly carried out at home. Hence, as suggested by teachers, thanks to the collaboration with parents, children can still have the chance with literacy activities as mentioned in this study's findings.

Moreover, the participants also highlight the advantages of using digital technology with very young learners. As Mudra (2020) defends, digital tools help young learners improve their understanding of literacy inasmuch as the presence of audio and visual guides them to recognize sounds, letters, and words. In fact, technology-mediated EFL activities can foster the development of oral communication competences among very young learners in the foreign language even when there is no possibility of face-to-face assistance (Alcalà, 2021).

Regarding RQ2 *(What have been Indonesian teachers' main challenges to teach EFL in ECE during the pandemic of COVID-19 in Indonesia?),* several challenges and obstacles have been found among the participants. Poor internet performance was revealed as a key barrier, as teachers sometimes had to deal with the unstable internet connection due to various causes. One of them is that Indonesia is not technologically advanced—hence, the possibility to experience poor Internet connection, especially

in some rural areas such as villages and small towns, is still high. This is in line with Batubara (2021, p. 452): "Many areas in Indonesia have not yet reached the technology facilities to support the implementation of the online teaching and learning process. Internet access is one of the main problems of various online learning regions in Indonesia."

Similarly, another key issue derived from technical problems is unsupported teaching–learning devices. The use of electronic devices for online learning is one of the first aspects to prepare by education stakeholders, as the absence of devices entails no class realization. In this sense, Subedi et al. (2020) stated that the majority of several developing regions in Southeast Asia do not even have devices. UNICEF (2020), in addition, declared that this had been an emergency situation in which most governments in Asia have been seriously reminded to take urgent measures, including providing tech-learning tools, especially in numerous remote areas. If measures fail to be taken into account, there will be more than 120 million children following the existing 240 million children classified as poor families who can no longer participate in school activities through remote learning (Berthelsen, 2020).

Moreover, the implementation of ERLT during the pandemic has resulted in a challenge for all educational sectors regarding ensuring parental involvement. Supported by Quinn (2020), teachers state that families' engagement strategies are to create effective learning from home, including supporting their social and emotional well-being, communicating the benefit of learning, personalizing realistic learning expectations, and monitoring school learning progresses and building parent-teacher relationships.

Drawing on our findings, some teachers still experience some challenges in using devices when teaching or helping children during online learning. Access to internet connection without disruptions is a technical aspect to be resolved, as it potentially discourages EFL teachers (Yadav et al., 2018). Despite the technical problems, Li (2014) also defends that the factors supporting computer-assisted language learning should be given due importance and addressed in a timely manner, both collectively and on an individual and contextual level.

Moreover, and despite the different strategies and resources utilized, there is no doubt that the opportunity for children to have direct interaction with their peers and teachers has been limited because of the health crisis. Social interaction is believed to improve language learning effectiveness (Harmer, 1991). In this sense, Vygotsky's theory (1979) defends that social interaction leads to new ideas and increases the intellectual development of children. Language development and learning occur in social contexts: through social interaction, adults act as intermediaries for what is in the world around them for children.

Finally, addressing RQ3 *(What are Indonesian teachers' perceptions of teacher-family collaboration regarding ERLT during the pandemic of COVID-19 in Indonesia?)*, participants agreed on the importance of communication between teachers and families. Especially during the lockdown, in which all children spend most of their time at home, including for learning purposes, these partnership practices should be thoroughly considered. This finding is supported by Loughran (2008): parent-teacher partnership completes each other's role in assisting children learning.

In this sense, LaRocque et al. (2011) added the significant image of parents in children's learning, and they can thus be nominated as teachers' collaborative partners in designing a supporting learning environment toward the possibility of always learning both at school and at home. Meanwhile, Vygotsky's theory (1978) declared children's life role models lie in their parents and teachers for guiding them to continuously look for new information and eventually place what they have obtained as their knowledge repertoire (Akbiyik, 2017).

6 Conclusion

The endowment of this study was to explore EFL teachers' beliefs and practices towards ERLT during the pandemic of COVID-19 in Indonesia. This type of study is still scarce in Indonesia, especially focusing on ECE. As ECE status is still classified as non-compulsory education in Indonesia, most of the studies mainly consider compulsory education. The implications of this study may encourage other practitioners and researchers to explore different practices to teach EFL to very young learners, even in those situations where face-to-face instruction is not possible.

Regarding the limitations of the study, as this research only has seven participants in order to know their deep beliefs, a quantitative approach with more participants would allow the phenomenon of teachers' beliefs on EFL teaching for ECE could be looked at from a broader view. Moreover, other education stakeholders could provide different approaches to the same phenomenon; this could be overcome by conducting a similar study by considering other agents (e.g., families, headmasters, administrators). Finally, it would also be interesting to compare results from two or more different countries, as it would be culturally, linguistically, and geographically interesting to analyze and compare how teachers deal with children's EFL learning during and after the COVID-19 pandemic.

Despite the limitations, however, this chapter is expected to provide a positive contribution to further research focusing on EFL for young learners in ECE with special emphasis on ERLT contexts.

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Chapter 14
Barriers and Opportunities in CALL PD in Romania: Judging the Effectiveness of Teacher-Led PD

Estela Ene and Victoria Șerban

Abstract The pandemic was a turning point in Computer-Assisted Language Learning Professional Development (CALL PD) in Romania, as very little had been done before March 2020. Teachers were ill-prepared for online teaching. The pandemic has not triggered a significant rise in PD programs from the Ministry of Education due to the country's laborious process of approval. Local and individual efforts such as county-level teacher meetings have become essential in CALL PD. Our research focuses on teachers' perceptions of the benefits and applications of CALL PD offered through such teacher meetings. Our participants were teachers of English in Sibiu County who teach in primary, middle, and high schools in both urban and rural areas. We analyzed survey-based data from 163 teachers who participated in four teacher meetings organized by the School Inspectorate in Sibiu, Romania. Survey questions probed the teachers' perceptions of the positive aspects of online teaching, obstacles encountered, useful CALL tools used, lessons learned, PD attended, and the need for further PD. Findings suggest that PD will continue to be necessary, as teachers have developed a sense of the value of CALL. We review best practices implemented by the teachers because of the PD received, and we offer suggestions for continued CALL PD.

Keywords Computer-Assisted Language Learning (CALL) · Professional development (PD) · English teacher · COVID pandemic · Romania

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1 Context and CALL PD Concerns

Even as we write this chapter, we are aware that it is unclear whether the COVID-19 era has ended or exactly when it will. In their editorial to a recent special issue on Emergency Remote Language Teaching, Jin et al. (2021) expressed a similar feeling to emphasize that we in education may not be done with Emergency Remote Teaching (ERT). ERT has been around long before COVID-19 in different forms, including radio education and DVD distribution during national or international crises in the past (Gordon et al., 2010; Houston, 2016; Lorenzo, 2008). In addition to causing great stress for both students and teachers at all levels all over the world (MacIntyre et al., 2020), the recent pandemic gave ERT global magnitude and marked the rise of more mobile and computer-assisted course delivery (Hodges et al., 2020). ERT will continue to morph as the pandemic subsides or resurges. Therefore, it is important to reflect on what we learned from the most recent global plunge into ERT, including with regard to the importance of CALL PD.

In March 2020, 138 governments around the world ordered their educational institutions to close, causing 80% of the world's school- and university-level learners to be unable to attend classes (McCarthy, 2020). Clearly, "the COVID-19 pandemic is not only a health pandemic but also an educational one, especially for developing countries" (Tafazoli & Atefi Boroujeni, 2022, p. 30). This is certainly true of Romania, which is technically a developed country based on its GDP of $249 billion in 2020 (World Bank, 2021) but continues to experience the pains of many recent reforms and stark discrepancies between urban and rural areas. When the COVID pandemic started in March 2020, all Romanian schools were closed for the remainder of the second semester, and very little teaching took place, especially in the months of March and April. The entire educational system came to a halt and then entered ERT mode. According to a technical report issued by the European Commission (Velicu, 2021), the following school year (2020–2021) was characterized by centralized decisions taken by health authorities rather than educational ones. This led to a prevalence of online schooling that was marred by a lack of infrastructure or appropriate digital content (Velicu, 2021).

This chapter provides an overview of professional development (PD) in Romania, with a focus on Computer-Assisted Language Learning (CALL) teacher training against the backdrop of the COVID pandemic and its aftermath. The pandemic was a turning point in CALL PD in Romania, as very little had been done before March 2020 (see also chapter by Schneider & Ene, this volume). Online teaching found teachers ill-prepared, and the endeavor to organize training for them has been inconsistent, allowing a lot of liberty for the teachers to choose their development path.

Since the end of the communist regime in 1989, Romania has taken steps to reform its educational system and teacher PD; however, these steps have been slow and even, according to some, a failure (Glava, 2019). For PD in general, Romania implements a system of credits that a K-12 teacher should acquire every five years starting at the beginning of their full-time employment. The ninety credits, which can be obtained by attending programs that are approved by the Ministry of Education,

have proven an incentive for the teachers who want to hold different positions as mentors or trainers but have also prompted teachers to attend any program that is approved, no matter its relevance.

By and large, CALL training has been insufficient in Romania. The pandemic has not triggered a significant rise in the number of programs offered through the Ministry of Education due to its laborious process of approval. Instead, the practice of creating and distributing Open Educational Resources (OER) that can be accessed, used, adapted, and redistributed at no cost under an open license, began growing steadily, especially in the pandemic context. Digital textbooks had gradually been introduced by the Ministry of Education starting in 2014 at the primary and middle school levels. Different local inspectorates and other independent enterprises such as didactic.ro and digitaledu.ro had attempted to collect and promote such resources. During the pandemic, these efforts intensified, and new platforms like livresq.com and digital.educred.ro, developed as part of a European financed project entitled "CRED—Curriculum relevant, educație deschisă pentru toți" (Relevant curriculum, open education for all), became available to teachers.

In parallel, teachers have turned to other institutions as well as Massive Open Online Courses (MOOCs) or webinars to fill the CALL PD void they were faced with. Local and individual efforts such as county-level teacher meetings have become essential in CALL PD. For example, since the onset of the COVID-19 pandemic, county-level pedagogical meetings in Sibiu, Romania, which are organized separately for high school teachers of English and respectively for primary and middle school teachers, have taken place exclusively online, which has led to an increase in attendance by approximately 30% compared to pre-pandemic times. In a context in which CALL PD for teachers is neither habitual nor structured, it is important to understand how CALL PD is accomplished and how effective local efforts are. We explore this question by probing the perceptions of teachers who participated in CALL PD during COVID-19, as detailed below in the description of the research design.

2 Voices Already Heard

The benefits of CALL have long been established through the documentation of positive developments in the areas of discussion, participation, collaboration, motivation, and reduced anxiety, among other factors (Ortega, 1997; Warschauer, 1997). Online language instruction has been proven to be pedagogically effective as well as advantageous from a financial, accessibility, and enrollment-shaping perspective (as reviewed by Jin et al., 2021, p. ii). Computer-mediated communication (e.g., instant messages, chat rooms, forums, podcasts), as an aspect of CALL, resonates with younger generations and may be used as part and parcel of an English language curriculum (Luke, 2006). Thanks to such merits, it is important for teacher training on CALL to be systematically developed and implemented through a deliberate process that ranges from obtaining teacher buy-in to creating the institutional conditions for

continued PD and CALL implementation (El Shaban & Egbert, 2018). As Tafazoli et al. (2017) note, computer or electronic literacy is essential for both teachers and students (also see Hubbard & Levy, 2006).

Unfortunately, as Jin et al. (2021) point out, "faculty lack readiness for ERT, due to either negative attitudes toward online education (e.g., McMurtry, 2013; Ortagus & Stedrak, 2013) or lack of training and support for online teaching (e.g., Houston, 2016; Trust & Whalen, 2020)" (p. ii). Lack of faculty readiness may in turn exacerbate learners' resistance toward CALL, jeopardizing its outcomes (Park & Son, 2020). Conversely, when language teachers are exposed to CALL, even if that exposure and practice come in the form of ERT, those teachers become more confident in their own abilities and willing to implement technology in the future (Jin et al., 2021; Xu et al., 2021a, 2021b).

Both CALL and CALL PD research in Romania is scarce. In alignment with CALL scholarship from the U.S. and other countries (reviewed in the introduction above), Romanian sources available to us laud CALL for its potential to support a variety of domains (academic, administrative, information technology), languages (English, Romanian, Slovenian, Italian, Croatian, and Spanish), and types of learners (students, teachers, and administrative staff) (Dimulescu & Nechifor, 2022). Andron and Kifor (2021) acknowledge the many pedagogical merits of CALL that go much beyond the affordance to access information, software, and pedagogical materials, into the affordance to stimulate, apply, (self)assess learning, and competencies related to information literacy, teamwork, and self-efficacy.

Despite the positive nudges from research and administration, educational professionals are concerned that computer-mediated education does not meet the needs of all Romanian students. In a country confronted with the digital divide (Warschauer, 2012), student access is a barrier to successful computer-mediated instruction (Nicolau et al., 2020). Even some teachers' lack of CALL preparation or reservations about adopting CALL may stem from the digital inequities present in their context. During the pandemic, research conducted in other parts of the world showed that in the most challenged areas there is little teachers and students can do to bridge the digital divide unaided by the larger system, but when support is given, the curriculum can be accessed and the teaching/learning process can unfold (see, for example, Back et al. (2022) about Peru).

The lack of teacher preparation for technologically supported and online teaching in general is a major concern (Dina & Ciornei, 2013). Romanian researchers also underline that learners' success depends on their teachers' preparedness and comfort with CALL (Dina & Ciornei, 2013; Năstase, 2020). Before the pandemic, Dina and Ciornei (2013) recommended continued CALL PD for Romanian teachers. More recently, Stroe (2021), in light of her findings regarding Romanian instructors' perspectives on computer-mediated undergraduate instruction during the COVID-19 pandemic, recommends that Romanian educators receive specific training on various computer-mediated educational platforms and programs. Similarly, Mihaeş (2022) warns about the ineffectiveness of any technology implemented without appropriate training. Also, on the tail end of the pandemic, Romanian scholars from the field of teacher education proposed a template for a CALL course to be added to the

teacher education curriculum, noting that teachers accumulated substantial and valuable experience in 2020, and that experience is ripe for application now and in the future (Andron & Kifor, 2021).

As implied by the studies cited in the previous paragraph, before the pandemic CALL applications in Romanian education were rare. In this, Romania is by no means unique, even compared to developed Western European countries or the U.S. Reporting on a national study in the Italian context, Perla and Scarinci (2021) relay that the digitization of university teaching in Italy had been a largely uncoordinated grass-roots effort which eventually resulted in the diversification of applications in 2020. In a large-scale study conducted in Spain, Regueras et al. (2019) examined the use of the course/learning management systems from more than 3,000 courses at a virtual campus of a Spanish public university. They found that most of the instructional use of the online platform was passive/inactive, focused on content presentation (54%), with only 14 and 9% of the courses, respectively, using technology reactively or communicatively to foster interaction. It is apparent that, in the words of Italian colleagues Perla and Scarinci (2021), "The adoption of technologies in teaching, therefore, requires individual and institutional changes and investments in infrastructure and technological equipment, as well as the skills of teachers for the use of technologies for the promotion of innovative and student-centered teaching" (p. 28).

Beyond documenting the need for CALL training and PD, it seems that the literature offers proposals for how to address this need rather than research on completed implementations. For example, Paesani (2020) suggested that national research centers and similar bodies can try to address teachers' needs by organizing virtual PD sessions, disseminating teaching "tips of the day," highlighting teaching successes and curating inventories of resources for teachers. She advocates for goal-directed, collaborative, experiential, scaffolded, and sustainable teacher development in the future, as well as increasingly customized PD for various levels of technological proficiency. In the same collaborative vein, Obradović-Ratković et al. (2021) illustrate how creating a teachers' learning community of practice helped them and their colleagues cope with having to learn CALL on the go (as initially advocated by Hanson-Smith, 2006). Focusing specifically on low-resourced contexts, Karatay and Hegelheimer (2021) highlight a number of strategies that such contexts can use to promote CALL PD: online discussions among teachers, critical reflections on attitudes towards technology, Open Educational Resources (OERs), and shared participation in free international training like the CALL-based Global Online Course (GOC) on using technology in the English classroom.

Given the importance of CALL and CALL PD, especially in under-researched global contexts, this study aims to illuminate the current state of CALL knowledge, CALL PD, and Romanian teachers' needs in the area.

3 Methods

3.1 Research Design

To investigate teachers' perceptions of CALL PD, we designed an exploratory, action research, survey-based study. Action research is implemented by a teacher—in this case, a teacher of teachers—in an instructional context—in this case, CALL PD sessions led by the Romanian co-author of the study. The goal of teacher-led action research is to gain a deeper understanding of a context for the purposes of improving instruction in the future. According to Johnson and Chen (1992), teacher or action research is authentic, relatable, non-traditional, and anti-consumerist; "implies a deep respect for the everyday practical knowledge of teachers" (p. 213); is driven by a desire to grow professionally and empower teachers; and meant to be assessed on the basis of " 'its goodness-of-fit with the institutions of the teacher community'" (Myers, 1985, p. 5, as cited in Johnson & Chen, 1992, p. 222). In addition, Banegas & Consol (2020) highlight the highly contextual, interventionist, subjective, and reflective nature of action research, which is often used in an ecological manner "to solve local problems that teachers want to address" (Brown, 2014, p. 30). One of the main uses of action research is in teachers' professional development (Wyatt & Dikilitaș, 2016). Through action research, teachers, and learners (including teachers in training) "understand each other's roles, their duties, and the limitation and opportunities of the specific educational context. This perspective allows us to accept the limitations derived from contextual conditions. Findings are not expected to be generalizable or replicable, as they are context-bound, but action research experiences may resonate with other settings with shared values, concerns, and interests" (Banegas & Consoli, 2020, pp. 181–184).

Also, in accord with the above-mentioned features, the design of this study includes a teacher-trainer-researcher-co-author who is embedded in the context we aim to understand and share. The survey questions used in the research were designed to collect information about Victoria's peer trainees' perception of their own CALL PD, with the goal to assess the state of CALL PD and potentially improve it in the future. Furthermore, survey questionnaires are frequently used in action research. Survey questionnaires are useful for obtaining both descriptive content (e.g., what is the content of a course or program) as well as teacher or learner perceptions about that content (Johnson, 1992). We collected the latter.

Given the novelty of the COVID-19 crisis and ERT, much research produced during it was rather reactive, contextual, and focused on self-perception (Jin et al., 2021), trying to make sense of the ongoing situation as quickly as possible. Thus, our research falls in the category of such emergency research, and its value resides in documenting the lessons learned. The study participants were teacher trainees who willingly participated in CALL PD, and thus constituted a sample of convenience (Johnson, 1992, p. 111).

3.2 Context of the Study

The study was conducted around the CALL PD meetings for English language teachers in Sibiu County, Romania, during the pandemic. Four PD meetings occurred between May 2020 and December 2021. The PD meetings were led by teacher trainers in collaboration with the local school inspectorate. The PD leaders are teacher trainers. Their main roles are to identify areas of interest and develop a session plan after gathering presentation proposals from various teachers and teacher trainers, who then deliver the presentations. The responsibility of the Inspectorate, which is a county-level chapter of the national Ministry of Education, is to suggest content based on needs analysis, approve the proposed sessions, and provide support in terms of infrastructure and expertise if needed.

The Romania-based co-author of this study (Victoria) was a PD leader of two of the above-mentioned sessions and participant in the other two. She led the sessions for high school teachers and took part in the primary and middle school sessions as a participant and presenter in April 2021. Her presentations during this time focused on online education: platforms, PD programs, assessment, and OER. As a high school English teacher in the Romanian education system and provider of PD for her peers, Victoria provides the emic, or insider's perspective (Johnson, 1992, pp. 144–145) to this research and analysis. The other author, currently based in the U.S., has an active research agenda in Romania, where she completed her undergraduate studies as a double major in English and Romanian. Thus, she is familiar with Romanian education but also brings a more objective, etic perspective to the study.

3.3 Participants

Our sample of participants consisted of the teachers who attended the two December 2021 PD sessions, one designed mainly for high school teachers, the other for elementary and middle school. In Romania, most schools have both elementary and middle grades (through eighth grade). It is customary for a teacher to teach across levels of education, as even some high schools also have a middle or even elementary school incorporated.

Our participant sample was stratified, as it comprised participants from different levels of education as well as settings. A total of 163 teachers from both urban and rural areas of Sibiu County participated in the survey. As shown in Table 1, seven taught only elementary school, 14 taught only middle, and 32 taught only high school. In total, 110 teachers taught a combination of various levels (elementary, middle, and high school) and answered the questions for all of the levels that applied to them. Six teachers were male, and 157 teachers were female. They ranged between 24 and 60 years of age. This study included 126 teachers from urban schools, while the remaining 37 taught in rural areas.

The teachers' professional experience is illustrated in Table 2.

Table 1 Participants demographics

Level(s) taught	Total	Male	Female	Urban	Rural
Elementary school	7	0	7	4	3
Middle school	14	1	13	10	4
High school	32	1	31	32	0
Elementary + middle school	87	5	82	57	30
Middle + high school	23	0	23	23	0
Total	163	7	156	126	37

Table 2 Participants' professional experience

Professional experience	0–5 years	6–10 years	11–15 years	16–20 years	21–25 years	26–30 years	Over 30 years
Number of teachers	45	23	27	26	25	5	12

3.4 Data Collection and Analysis

Data was collected from the survey delivered prior to the December 2021 PD sessions, which were led by Victoria for high school teachers and another colleague for primary and middle school teachers. The survey, presented in the Appendix, was delivered electronically using Google forms. The primary purpose of the survey was to collect information that would be useful to the PD session designers so they could make the sessions more useful to the participants based on their feedback. The questions referred to the quality of online teaching, difficulties encountered, CALL PD teachers have benefitted from, and their needs for further programs, as well as predictions about digital tools they will continue to use and implement in their future teaching, especially the ones they will bring in the physical classroom. The survey consisted of multiple-choice, open-ended short-answer items, as well as Likert-type scale items. Permission was obtained to use the survey results for this chapter.

The survey questions yielded quantitative results, which are presented below. The open-ended answers were segmented when they were made up of multiple parts. The segments were counted along with other items from the same categories, as is typical in thematic qualitative analysis (Nowell et al., 2017). To illustrate, the comment below, which was an answer to the question "What digital tools did you start using while teaching online and you think you will continue to use in the future?", was placed in a category defined in the question—namely, new digital tools teachers will continue using; furthermore, it was segmented into topic-based sub-themes as follows (Table 3).

Table 3 Sample comment analysis

Comment	Tool mentioned	Pedagogical use
At the beginning of the course, digital tools can be useful to find out what the students' expectations are, what their level of knowledge is, what concepts they associate with a certain word or to what extent they agree with a statement (e.g., Mentimeter)	Mentimeter	Needs assessment Diagnostic Vocabulary Comprehension
Kahoot is a very good tool for testing the knowledge of all the students, in real time, in class	Kahoot	General
Quizlet allows the creation of flashcards, very useful for the learning process, as students can assess themselves and decide what information needs further study	Quizlet	Practice Testing Self-assessment

4 Lessons Learned

The first question in the survey probed the status quo in online teaching at the time the survey was taken, which provided an insight into the baseline the training was to start from and how high the level of need still was. We asked the teachers to assess the quality of (their) online teaching on a scale from very low (1) to very high (5). The question was asked in the general sense, understanding that, because the respondents were teaching online at the time, their answers would be reflective of their perception of their own teaching. Among the high school teachers, 43.6% of them answered 3, or neither high nor low, and 54.5% chose 4, or high. Primary and middle school teachers answered similarly: 45.4% indicated the quality of online teaching was a 3 (neither high nor low), and 42.6% chose 4, or high quality. The slightly lower percentage of primary and middle school teachers who chose 4 as well as the 1.9% who chose 1 and the 5.6% who chose 2 may be due to the fact that, while all high schools in Romania are in urban areas, primary and middle schools can be found in rural areas as well, and 34.2% of our respondents teach in villages, where technology is much more scarce, as shown in Fig. 1.

The difficulties that teachers of all levels identified in the open-ended part of the question were, according to 20% of the high school participants and 20.3% of the primary and middle school teachers, primarily technical ones (e.g., poor connection, lack of good quality devices). These challenges were coupled with students' lack of motivation which, in the teachers' perception, had led to an increase in absenteeism (25.4 and 20.3%, respectively); lack of stability due to a constant change from face-to-face to hybrid and online teaching, and inconsistencies in the decisions of the government (27.2 and 22.2%, respectively), which led to stress and even burnout.

Regarding CALL PD courses, 58.2% of the high school and 55.6% of the primary and middle school teachers, respectively, indicated that they had a sufficient number of such courses. The sources of their learning about how to teach online were as follows.

As it can be seen in Table 4, due to a rather inconsistent effort from the Romanian government to provide CALL PD, teachers of English in Romania relied mainly on

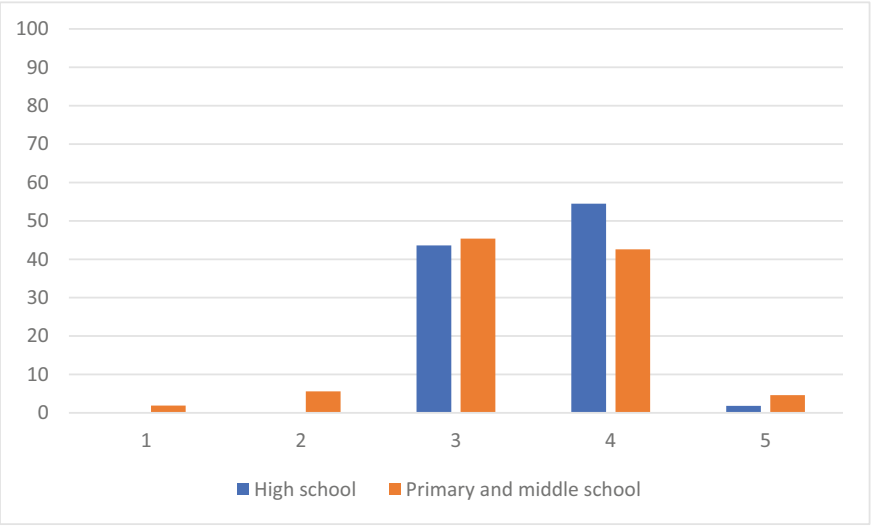

Fig. 1 Quality of online teaching

themselves to obtain the knowledge they needed. An overwhelming percentage of the participants depended on individual study (87.3 and 88.9%, respectively), local initiatives (65.5 and 63%, respectively), as well as courses and webinars offered by different institutions in Romania (63.6 and 55.6%, respectively) or abroad (49.1 and 37%, respectively), which they could find available on the internet.

Another question that was included in the survey asked the teachers if they perceived that they had a need for more PD programs in the field of face-to-face as well as online teaching. As shown in Fig. 2, 34.5% of the high school teachers indicated needing more PD for online teaching, and 56.4% for both face-to-face and online teacher training. Additionally, 29.6% of primary and middle school teachers felt that they would need training for online teaching, while the percentage of those in need of training in both modalities of teaching was 63% (as represented in Fig. 3).

Table 4 Sources of CALL PD

Main ways teachers learned how to teach online (during the pandemic)	High school teachers (%)	Primary and middle school teachers (%)
Training courses accredited by the Romanian Ministry of Education	36.4	30.6
Courses, webinars offered by other institutions in Romania	63.6	55.6
Courses, webinars offered by foreign institutions	49.1	37
Local pedagogical meetings	65.5	63
Individual study	87.3	88.9

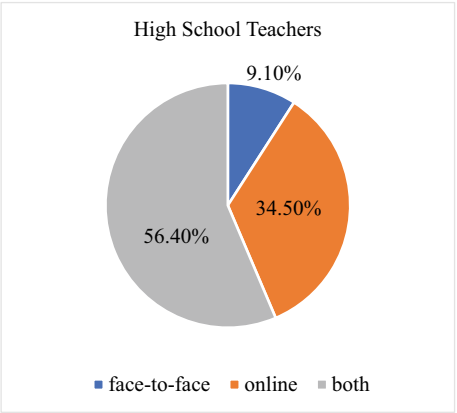

Fig. 2 The need for more PD programs—high school teachers

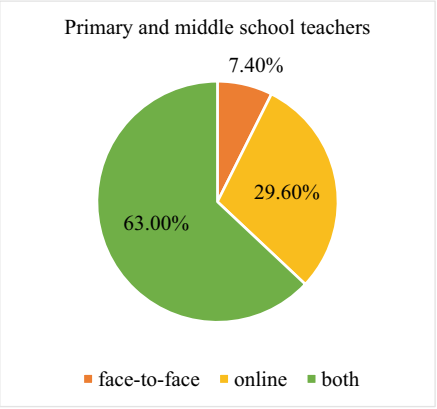

Fig. 3 The need for more PD programs—high primary and middle school teachers

The highest percentage of answers from both the high school and the elementary and middle school teachers indicated the need to be further trained for teaching in both physical and virtual classes. This may be because over 20% of the teachers were in their first five years of teaching, with some in their first or second year of teaching, having to deal with face-to-face, hybrid, and online classes during a single school year. Novice teachers, who are also observed and evaluated in class as part of different exams taken to obtain permanent positions or teaching status, have had to undergo a tremendously difficult learning and adaptation process in the last two years. On the other hand, irrespective of their level of expertise, teachers always recognize the need for improvement and development, especially nowadays when society tends to be in a continuous transformation.

In the open-ended portion of the question about what PD they needed more of, 10.9% of the high school teachers and 19.4% of the elementary and middle schools teachers suggested practical, interactive, and interdisciplinary activities both in the

face-to-face and online environment, online evaluation (16.3 and 12.9%, respectively), online safety (5.4% of the high school teachers), and digital tools to be used in the physical classroom (4.6% of the elementary and middle school teachers). Other topics mentioned referred to students' motivation (10.9 and 9.2%, respectively), emotional intelligence (5.4 and 4.6%, respectively), and emotional support (3.6% of the high school teachers). The teachers' concern, especially regarding the online and hybrid classes, was with the students' well-being and how we, as teachers, can overcome the divide a computer screen can create between teachers and students as well as among students themselves.

One important advantage of the recent and rather forced immersion into the digital world has been the teachers' realization that, if used appropriately, computers and other digital devices can be a powerful ally in helping our students learn a foreign language in a meaningful and practical way. Among those surveyed, 85.4% of the high school teachers and 90.7% of the elementary and middle school teachers of English in Sibiu County, Romania, consider that in the future, they will continue to use different digital tools they adopted during online teaching even if or rather when they return to face-to-face classes exclusively.

A total of 138 teachers (84.6%) answered an open-ended question about such tools, mainly just mentioning them, with 8 teachers offering more complex answers that explained what they use the platforms for. Their comments included 11 pedagogical uses as follows: diagnostic, vocabulary, comprehension, revision, self-assessment, and general (9% each); needs assessment, practice, collaboration, and testing (18.1% each); and increasing motivation (36.3%). All 138 teachers mentioned at least one digital tool. Table 5 shows the variety of digital tools mentioned by the teachers from the most to the least frequently mentioned.

The array of digital applications mentioned is likely thanks to the fact that the pedagogical meetings of teachers of English both at high school and primary and middle school levels in Sibiu, Romania, in April 2021, had been dedicated to presenting and encouraging teachers to create and share OER resources. Thus, the result of the CALL PD already attended is apparent.

5 Discussion

The answers the teachers gave to the December 2021 survey suggest that CALL PD in our Romanian context has taken huge steps in the past two years. Our research illuminated evidence that the participants in the study acquired new knowledge and applied it after participating in CALL PD (Jin et al., 2021; Xu et al., 2021a, 2021b). Teachers' appreciation of the quality of online teaching before the pandemic was over was high, even though support had been sparse before, and teachers continued to have to rely on themselves to find the CALL PD opportunities they needed. As they learned, the participating teachers continued to want to learn more and in more depth. Their focus shifted from knowing about CALL applications and online teaching to wanting to understand how to use technology to get to the heart of learner success

Table 5 Digital tools adopted and to continue using after CALL PD

Digital tool	Frequency of mentions (%)
Google GSuite (Classroom, Meet, Jamboard, Forms, Docs, Slides in combination with Pear Deck)	35
Quizziz	32
Kahoot	29.7
Wordwall	23
Mentimeter	17
OER (Open Educational Resources)	13.7
Padlet	13.7
Liveworksheets	13
Nearpod	13
Romanian digital textbooks	8.6
Learningapps	7.9
Canva	7.2
Zoom	6.5
YouTube	5.9
Microsoft teams (Notebook, Forms)	5
Quizlet	3.6
TedED	2.8
Coggle	2.1
Genially	2.1
Vooks	2.1
iSLCollective	2.1
British Council online resources	1.4
Neolms	1.4
Slido	1.4
Socrative	1.4
Ed puzzle, Calameo, Wordle, Prezi, Animoto, Wordart, Pixton, Bookcreator, Answergarden, Bubble.us, Storyjumper	Less than 1

by incentivizing motivation and well-being. Students' motivation had become quite low during the long months of online teaching as they started missing face-to-face communication, and some considered it a kind of semi-vacation. As a result, the teachers' job was even more difficult, and they felt they needed guidance in order to stimulate their students in the digital environment. To this end, the organizers of the PD sessions in Sibiu, applying the findings from this action research, have gone on to tackle these issues in subsequent local pedagogical meetings, with a December one focusing on soft skills, emotional intelligence and health/well-being.

Regarding the teachers' reliance on individual study and their personal responsibility when it comes to choosing webinars and courses on offer, there have been

positives and negatives. While this situation has had a positive impact on empowering teachers as individual and independent learners, leading them to create an active online community that shares information and ideas in Facebook groups, email, and WhatsApp, it also has led to information overload that has been difficult to sieve through. Although Romanian teachers have made impressive progress in the CALL area, they have done so in a chaotic, stress-inducing way that has taken a toll on them. Subsequently, many respondents have also mentioned stress and burnout among the difficulties encountered. This too is in line with the findings of other studies from around the world (Back et al., 2022; Jin et al., 2021; Paesani, 2020). After the big albeit forced push towards CALL brought on by the pandemic, it seems that teachers may be off to a good start, but continued efforts should be invested into focusing and refining CALL PD.

In the light of teachers' answers to the survey, it has also become quite apparent that they have understood the importance of CALL education and implementation. Although some of them might associate online and computer-assisted education with the COVID pandemic when, together with their students, they struggled due to various factors, which we elaborated on in the findings section, and they will return to their old methods of teaching, a significant proportion showed interest in using digital technology in their face-to-face classes. It is indeed true that due to a lack of resources, especially in rural areas, some might consider that CALL education does not meet the needs of their students (Nicolau et al., 2020), but the global pandemic has proven that nowadays, it is impossible to disregard its usefulness and the part it plays in preparing students for the future.

6 Conclusion

When faced with an unprecedented situation that required total reliance on technology, it was obvious that, apart from providing the necessary equipment, it was the Romanian teachers who needed preparation in CALL to be able to instruct students in computer-mediated education. According to our research, teachers of all levels and contexts sought out a large variety of resources to help build their electronic literacy, so that their students may continue to stay motivated and learn throughout this shift in educational environments. This independent CALL training was unstructured, individual-based, and stressful, but it is showing promise to continue even after the end of the pandemic. Like other studies (Jin et al.,2021), our research concludes that even if this surge in CALL PD was prompted by the pandemic, the teachers' growing understanding and usage of digital technology in Romania would continue beyond strictly online teaching.

Appendix

Name …

Email …

School …

What level do you teach?
Elementary/middleHigh school

How did you teach this semester (September-December 2021)?
Face-to-face in the physical classroom
Hybrid system (some classes/students online, the rest face-to-face).
Synchronous online activities
Asynchronous online activities

How do you appreciate the quality of (your) online teaching?
Very low 1 2 3 4 5 Very good

What are some difficulties you have encountered so far this school year? …

Do you consider that you have benefited from enough CALL PD programs/training courses since the beginning of the pandemics?
Yes No

What were the main ways you learned how to teach online?
Training courses accredited by the Romanian Ministry of Education
Courses, webinars offered by other institutions in Romania
Courses, webinars offered by foreign institutions
Local pedagogical meetings
Individual study.
Other (explain)

What digital tools did you start using during online teaching and you think you will continue to use in the future? ….

In the present context, what kind of teaching do you feel you need more PD programs in?
Online Face-to-face Both

What other PD needs do you have? Mention some concrete areas to be addressed. …..

Mention one example of good practice you would like to share with your colleagues in our next PD meeting.

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Chapter 15
Challenges of Teacher Education Programs in Thailand: Voices of CALL Instructors from an Under-Represented Context

Chayaporn Kaoropthai and Atipat Boonmoh

Abstract Due to the COVID-19 pandemic, all schools and universities have been required to adopt an exclusively online instruction. Because online instruction was still something new, there have been certain challenges faced by CALL instructors teaching in teacher education programs. The aim of this study was to voice the challenges they faced and how they would adapt themselves and the ICT course they had to teach. The participants were eight CALL instructors from eight "relatively new" Rajabhat Universities (formerly teacher colleges) across Thailand. Four of them were CALL instructors with strong ICT backgrounds, whereas the other four had strong ELT backgrounds. The semi-structured interview technique was employed for data collection. The interview results indicated that both groups of CALL instructors tended to have more problems with both pedagogical knowledge (PK) and pedagogical content knowledge (PCK). Unsurprisingly, those with strong ELT backgrounds are also faced with technological knowledge (TK). Additionally, instructors' teaching experiences contributed to their online instruction management. The more teaching experiences they had, the fewer problems they would have. A few CALL instructors suggested that the ICT course will be more successful and effective when it is co-taught by both ICT and ELT instructors.

Keywords CALL instructors · Next normal · Teacher education · Technological Pedagogical Content Knowledge (TPACK) model

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1 Introduction

The COVID-19 pandemic has drastically changed almost all areas of our lives. Like in most countries, in Thailand, the third wave of the pandemic (starting in early 2021) has made almost everything go online. Schools and universities have been required to teach entirely online. Because most instructors were not prepared for these unanticipated situations, it has been a big challenge for them in managing effective exclusive online instruction.

In Thailand, teacher education program is offered in many recognized public universities. Among these universities, the 38 Rajabhat Universities have played a significant role in supplying primary and secondary school teachers, especially the local area schools. Rajabhat Universities are universities which were formerly teacher colleges located all around the country. Although their main mission is to be a leading university in all fields for the development of the local community, each Rajabhat University still continue their teacher education programs, which was their original area of expertise. Because they are relatively newly-established universities, many Rajabhat Universities are still facing the problem of inadequate infrastructure and human resources. In this long-lasting COVID-19 pandemic situation, it is interesting to explore what were the challenges the CALL instructors in Rajabhat Universities faced when they previously taught the ICT course and how they would adjust themselves and the course to match the emergency needs in the Next Normal. Their voices, from which are under-represented contexts, need to be heard, and actions must be taken in order to support them.

2 Voices Already Heard

2.1 Teacher Education Programs in Thailand

Among all 170 higher education institutions in Thailand, the 38 Rajabhat Universities across all regions of Thailand have played an important role in teacher education. All of these institutions started as teacher colleges or teacher training schools (specialized senior high schools). The main mission of Rajabhat Universities is to be a leading university for the development of the local community and to continue the teacher education program, which has been their original expertise. The teacher education program is thus one of the major programs in every Rajabhat University. Consequently, Rajabhat Universities have played a significant role in producing elementary and secondary school teachers in Thailand.

It is evident that teaching practicum is one of the core components of the teacher education program. As such, the common four-year program was not appropriate, as teacher education students needed more time for teaching practicum. To resolve this program, in 2002, the teacher education program was expanded to be a five-year program, so that students could spend one extra year doing teaching practicum,

and still have four full years for coursework (Jamjuree, 2017). To comply with the Standards of Thailand Qualifications Framework for Five-Year bachelor of Education Programs and Teachers' Council of Thailand Accreditation Standards, a minimum of 160 credit hours of coursework are required. Additionally, students have to do 240-h teaching practicum in school for one academic year and conduct classroom research during the practicum period. Upon completion of the program, successful graduates will be automatically awarded an official "Teacher License" (Jamjuree, 2017).

Every Rajabhat University has its own teacher education curriculum, but all of them have one common required ICT course. The analysis of these ICT courses revealed that, although the course titles are not exactly the same, their course descriptions are quite similar and are rather general ICT course descriptions. The following are some examples of the ICT course description from Rajabhat University's teacher education programs:

Information Technology Application for Teaching English

> Principles, concepts, theories and application of information technology in teaching English; selection, evaluation and management of information technology in teaching English.
>
> (Kamphaeng Phet Rajabhat University, 2022)

Information and Communication Technology for English Language Teaching

> Internet application for English language teaching, computer-mediated communication and integration; the World Wide Web and applications to English language classrooms; emphasizing upon designing learning tasks; exploring and evaluating innovations, textbooks, and websites appropriate to English language teaching.
>
> (Nakhon Pathom Rajabhat University, n.d.)

Innovation and Information Technology for Education

> Principles concepts design applying and evaluating media innovation and information technology for learning and ability to apply information technology for communication and focus on update study and learning process.
>
> (Dhonburi Rajabhat University, n.d.)

Innovation and Information Technology in Education

> Concepts and principles in educational innovation and technology that assist the quality of learning; Information technology and communication for teachers; Learning sources and learning networks; The application of computer programs in education; analyses of problems and solutions in educational innovation and technology: The design, the development, the application, the evaluation and the improvement of innovations; Innovations for learning. (Suan Sunandha Rajabhat University, n.d.)

Although the curricula of these teacher education programs were designed to adapt to the accelerating change in technology and last updated before 2019, the ICT course had not been designed to prepare student teachers to be able to cope with the unanticipated situation such as the COVID-19 pandemic, when they needed to undertake exclusive online instruction. To fill this gap, the study was designed to explore the challenges the CALL instructors were facing and how they would adapt themselves and the ICT course content.

2.2 Online Learning Instruction

The COVID-19 pandemic has drastically influenced our lives in all areas. In education, schools and universities were necessitated to adopt exclusive online learning. It has been supported that online learning can promote students' engagement and increase their motivation (Chapelle, 2007). The use of electronic devices, namely smartphones, tablets, and other technological tools, allows "learners to go beyond the time and space limitations and make learning more enjoyable and interactive" (Demouy et al., 2016). Additionally, online learning instruction, like onsite teaching, is able to promote students' academic outcomes (Magagula & Ngwenya, 2004) and satisfaction (Palmer, 2012). Nonetheless, online learning instruction often faces problems of accessibility to teaching and learning materials, family matters and commitments, and individual limitations (Bailey & Lee, 2020; Bates, 2005; Johnson, 2015). There are also certain differences between the online and onsite learning environments; thus, a specific instructional design is needed (Hung et al., 2010; Roddy et al., 2017). For effective online instruction, teachers must be able to "create resources and activities and apply appropriate technology-based content and tools to teach and evaluate the teaching to feed into further better practice" (Tafazoli, 2021, p. 5).

Recently, several studies have explored the challenges related to online learning instruction during COVID-19 pandemic. Aditya (2021) explored whether teachers were ready to conduct digital learning. The study employed an online questionnaire and semi-structured interviews to gather data from teachers in 27 schools in Yogyakarta, Indonesia. The study revealed that most of the teachers perceived that they were ready for online learning instruction. In an EFL context during COVID-19 pandemic, the challenges that faced the teachers included: "teaching methods, social aspects, infrastructure, computer skills, coordination, assessment methods, and willingness" (Hijazi & Alnatour, 2021). A study in Peru proposed a working methodology consisting of three stages of online learning instruction: "diagnosis, design, and training, to strengthen instructional and digital competencies" and "support techno-pedagogical monitoring" (Martin-Cuadrado et al., 2021).

Lambert and Rennie (2021) described the experiences of teaching staff and students in remote teaching for a module in engineering. They employed a variety of methods: "self-reflection, summative, formative, and focus-group student feedback." The results showed that learning outcomes were fully met. Students enjoyed the benefits of remote learning approach that offered "both asynchronous content and synchronous sessions."

In Thailand, online learning was initially developed to solve distance learning purposes (Tananuraksakul, 2016). However, there were several challenges faced by teachers. Investigating how English as a foreign language (EFL) teachers in three Thai universities acquired information and communication technology (ICT) literacy for online learning instruction, the thematic analysis results revealed that "EFL teachers acquired ICT literacy through self-exposure to existing tutorials, peer-to-peer learning, student-to-teacher collaboration, ongoing teaching practice, expert-to-teacher learning, and engagement in formal workshops" (Kanchai, 2021, p. 282).

Another study by Puttinaovarat (2021) employed online learning to "Geoinformatics with streaming and video-based learning approach via Cloud application and other tools." The results showed that most learners (more than 90%) achieved good and very good levels.

Although there have been a few studies investigating different aspects of online learning instruction during the COVID-19 pandemic in Thailand, the literature review revealed that very little has been focused on teacher education. It was thus the aim of this study to explore the challenges faced by Rajabhat Universities' CALL instructors when they taught the ICT course and how they would adjust themselves and the course to cope with the changing needs.

3 Theoretical Voices: TPACK Model

The Technological Pedagogical Content Knowledge (TPACK) model was proposed by Koehler and Mishra (2005). TPACK was developed to extend Shulman's (1986) Pedagogical Content Knowledge model, by adding the technological component into it. TPACK, thus, involves the combination and interaction of three different types of knowledge: TK (Technological Knowledge), PK (Pedagogical Knowledge), and CK (Content Knowledge). The combination and interaction in the model then include TCK (Technological Content Knowledge), PCK (Pedagogical Content Knowledge), TPK (Technological Pedagogical Knowledge), and TPACK (Technological Pedagogical Content Knowledge). According to Koehler and Mishra (2005), TPACK (see Fig. 1) is the unified model employed to relate pedagogical and technological knowledge in teaching a specific content area (Özgür, 2020).

Tseng et al. (2020) reviewed research on TPACK in language teaching from 2011 to 2019. The results from all 51 studies were divided into four areas: "exploring TPACK, assessing TPACK, developing TPACK, and applying TPACK." For research on exploring TPACK, results revealed that "while teachers had varying levels in their TPACK competence, their TPACK indicated the dominant use of technology in traditional teacher-centered teaching" (p.1). More recently a few research studies (Adipat, 2021; Kanchai, 2021; Özgür, 2020; Raygan & Moradkhani, 2020; Srisukong & Buaraphan, 2021) have also used TPACK as a framework for their studies, involving how teachers could make optimal use of technology in their teaching. As can be seen, TPACK is currently a very useful conceptual framework that can capture all combinations and interactions of the three different forms of knowledge.

4 Methodology

As the primary objective of the study was to amplify the perspectives of under-represented contexts, semi-structured interviews were used to obtain data. The research was designed to explore the challenges of CALL instructors who taught

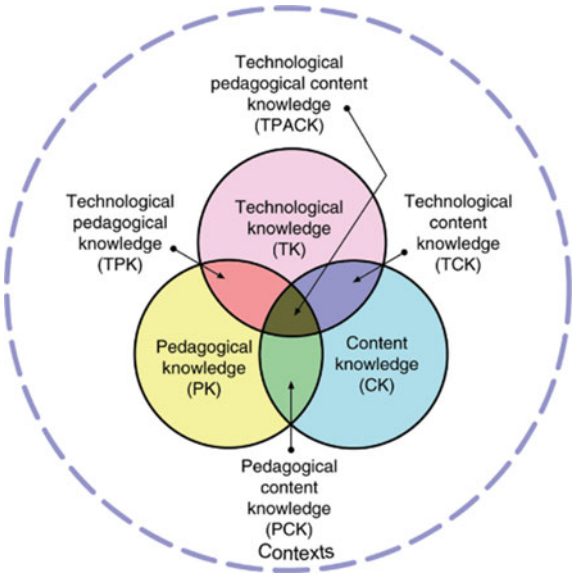

Fig. 1 The TPACK model (Koehler & Mishra, 2005)

the ICT course in teacher education programs during the COVID-19 pandemic to prepare their student teachers for the teaching practicum course. The study focused on CALL instructors' experiences and challenges and how they adapted themselves to teach in the emergency online context, as well as how they adjusted the contents and materials to meet the changing needs.

4.1 Participants

The participants were eight CALL instructors from different Rajabhat Universities across Thailand: three from the Central, two each from the North and the Northeast, and one from the South. They were Thai and had varied teaching experiences ranging from one to 17 years, with an average of 5.75 years. The participants were chosen using the convenience sampling technique (Creswell, 2014; Merriam & Tisdell, 2016). Each participant was contacted via email informing them about the research project, together with an informed consent form. To protect the confidentiality of the participants, their personal information was not identified, and pseudonyms were used in the data analysis section. CALL instructors must theoretically possess ICT literacy, pedagogical literacy, and language literacy (Tafazoli, 2021). Unfortunately, it is interesting to note that half of these CALL instructors were originally English language instructors and the other half were ICT-oriented instructors. In this context, it was problematic because the majority of CALL instructors lacked qualifications in both areas. The demographics of the participants are displayed in Table 1.

Table 1 Demographics of participants

Pseudonym	Gender	Qualification	Teaching exp
Priya	Female	ELT	6
Sarah	Female	ELT	2
Justin	Male	ELT	1
Alex	Male	ELT	1
Natalia	Female	ICT/EdTech	17
Frank	Male	ICT/EdTech	10
Anika	Female	ICT/EdTech	7
Eva	Female	ICT/EdTech	2
			M = 5.75

ELT = English language teaching or related field
ICT = Information and communication technology
EdTech = Educational technology or related field

4.2 Research Instrument

An interview technique was employed as a research instrument to investigate CALL instructors' practices and challenges in teaching the ICT course in teacher education programs during the COVID-19 pandemic. The interview could also reflect the voices from under-represented contexts such as an ASEAN country. The interview data were collected using a semi-structured interview via Google Meet and Zoom. A semi-structured interview was an especially powerful instrument for data collection as it facilitated participants in answering the question freely and encouraged them "to do so in a relatively extended manner" (Borg, 2015). The interview (see Appendix) was designed to gather participants' personal information and investigate their experiences and challenges in teaching the ICT course. The interview began with "open-ended questions followed by extended questions relevant to the research question" (Creswell, 2014).

4.3 Data Collection and Analysis

The participants were contacted via email, and the date for each interview was set based on each participant's convenience. The data collection period lasted two months (October−November 2021). Each interview took 30−45 min, depending on the participants' experiences. Because all participants were Thai, the interviews were conducted using their first language (Thai) to ensure mutual understanding. The main interview questions attempted to seek responses to answering the research questions.

The interview data were examined in accordance with Creswell's (2009, 2014) methodology. Each interview was transcribed and analyzed based on the adopted

Table 2 The frequency of problems faced by CALL instructors

Qualification		ELT				Total	ICT/Ed.Tech				Total	
Participant		Priya	Sarah	Justin	Alex		Natalia	Frank	Anika	Eva		Total
Teaching Exp		6	2	1	1		17	10	7	2		
TPACK	CK	0	2	1	1	4	0	0	0	0	0	4
	PK	0	6	5	3	14	0	0	3	2	5	19
	TK	0	4	3	1	8	0	0	2	0	2	10
	TCK	0	0	3	2	5	0	0	2	0	2	7
	PCK	0	2	1	4	7	0	0	2	2	4	11
	TPK	0	1	1	2	4	0	0	0	0	0	4
	Total	0	15	14	13		0	0	9	4		55

TPACK framework for emerging themes. To determine the challenges each participant experienced with each type of knowledge, the frequency of their difficulties with each type of knowledge was recorded. Selected emerging themes were translated to show the challenges faced by the participants. The data were then analyzed to explore different emerging themes from the interviews. A comparative data table was constructed to show common themes among the eight interviewees (see Table 2).

5 Lessons Learned

As this study purposed to investigate the challenges faced by the CALL instructors and how they would adjust themselves and the course they had to teach to match the emergency needs in the New Normal, the findings are presented to respond to the two research questions.

5.1 What Were the Challenges the CALL Instructors Faced When They Previously Taught the Course?

As stated previously, the qualifications and teaching experiences of the CALL instructors included in this research vary. Thus, it was obvious that a few of these CALL instructors lacked the qualifications required to teach the course.

The first half (Priya, Sarah, Justin, and Alex) of the CALL instructors in the study had a qualification in English language teaching (ELT), whereas the second half (Natalie, Frank, Anika, and Eva) had a qualification in educational technology (ICT/EdTech). As the challenges appeared to be related to these backgrounds, the authors used them as references. The findings were reported based on the TPACK framework.

From Table 2, instructors with ELT qualifications tended to face more challenges than those with ICT qualifications. Interestingly, Priya, Natalia, and Eva's interview data did not reveal any serious problems they faced. The findings thus reflected that teaching experiences might significantly contribute to their abilities to cope with changing situations. These instructors had teaching experiences from 6 to 17 years. Anika, on the other hand, although had 7-year teaching experience, still faced certain problems in coping with the circumstances. She admitted that she was comfortable teaching in class, but when she taught online, she could not help much when students had problems in downloading the programs.

As shown in Table 2, what the CALL instructors lacked were as follows:

1. ***Content knowledge (CK):*** the knowledge about content which is the main components of the course that learners have to master. Some instructors had not taught the course before, and were assigned to teach it despite their lack of expertise in the course. They stated that

> I have been assigned to teach this course accidentally, and had to learn at the same time with the students. Fortunately, I got an instructional file from a colleague and some instructional materials from an open university for students to read. (Sarah)

> I don't focus on digital media because I myself am not competent enough. (Sarah)

> I have a qualification in ELT, not ICT, and haven't taught this course before. I have been teaching for more than one year, teaching an ESP course. (Justin)

> I have just transferred to this university and don't have much background, so I have to learn by myself. (Alex)

These instructors have not had any ICT qualifications, so they had to learn at the same time as the learners, ignoring the content they were not familiar with, or inviting a guest lecture to teach it. These findings are in line with previous research which found that instructors with insufficient ICT backgrounds need to upgrade themselves through peer-to-peer learning, students-to-teacher collaboration, and expert-to-teacher learning (Kanchai, 2021).

2. ***Pedagogical knowledge (PK):*** the knowledge about processes, method, and strategies in managing different learning activities. Many instructors had not taught this ICT course before, so they lacked knowledge and techniques for teaching in the COVID-19 pandemic situation. They admitted not having sufficient PK for teaching the course.

> I didn't know how to design the course for the emergency situation. I just asked students to make a video clip of what they would teach, create exercises, and make an instructional video clip. (Sarah)

> There were a lot of contents to cover, so I just shared the screen and delivered a lecture, and students often complained that they didn't understand. (Justin)

In online learning, it was difficult to provide group activities for students due to the instructors' inability to effectively utilize the platform. The instructors with ICT qualifications could usually prepare their students before they started using the supportive devices:

> I taught the program such as testing so that students could practice. And since students hadn't known one another before, I had to train them how to collaboratively work in groups. (Anika)

3. ***Technological knowledge (TK):*** the knowledge about how to utilize various technological devices to stimulate learners by using different applications and other technological devices. Some instructors just delivered the lecture or sent the lecture clip for students' self-study, rather than using different devices.

> Used the application for the Midterm and the Final because of not knowing how to use Google form. (Sarah)

> The lecture part will last one hour, followed by activities provided in the handout; for example, when teaching ICT for entertainment, Kahoot, Live Worksheet will be used and students do peer teaching. (Justin)

Instructors who lacked sufficient ICT backgrounds and teachers in rural areas tended to encounter more technological problems (Aditya, 2021; Kanchai, 2021).

4. ***Technological content knowledge (TCK):*** the knowledge about how to selectively use appropriate technology for the content. Some instructors still lacked knowledge and understanding in using different appropriate technological tools for different contents; they thus used the technology they know.

> A disaster for both the instructor and students. The problem faced was the technical problem of microphone and camera misfunctions. (Justin)

> It was difficult to adjust activities for the content. Many students also had a problem about poor Internet signal. (Justin)

> Learned to use Google Meet and Zoom by myself. Purchased Zoom to use because I liked to write on iPad and Breakout rooms. (Alex)

> Emphasized online collaborative learning in breakout rooms, standing by to answer students' questions. (Anika)

Each platform has its own strengths and weaknesses. Instructors have to learn to make ultimate use of it; e.g., in Google Meet, Breakout rooms can also be applied. Unfortunately, many instructors prefer to use instructional packages which are convenient to use.

5. ***Pedagogical content knowledge (PCK):*** the knowledge about how to properly integrate PK with CK for effective online learning.

> Teaching method was changed from lecturing to Q&A and asked for feedback from students, and had a break every 45 minutes. (Alex)

> Online learning reduced students' motivation because they didn't choose to learn but forced by the circumstance. (Alex)

The instructor did not know how to manage his online teaching. He just set more frequent breaks to make students less stressed, and lessened his workload by having students do in-class assignments instead of homework.

6. ***Technological pedagogical knowledge (TPK):*** the knowledge about the influence of new technology and pedagogy over online learning procedures, and how to properly integrate them. Many instructors just made lecture clips with PowerPoint for students' self-review.

> Used Google Meet because it could be recorded for further review. (Sarah)

> Used a commercial textbook because it was convenient. Learned how to use Google Meet and Zoom. Also used Breakout room. (Alex)

Most instructors did not use TPK in teaching the course. They mainly used technology as a platform for online teaching. Instructors with insufficient ICT backgrounds and TPACK knowledge were not able to effectively manage online teaching (Aditya, 2021; Kanchai, 2021; Koehler et al., 2013; Özgür, 2020; Raygan & Moradkhani, 2020; Srisukong & Buataphan, 2021; Whittle et al., 2020).

In sum, as shown in Table 2, both CALL instructors with ICT backgrounds and CALL instructors with ELT backgrounds appeared to lack pedagogical knowledge (PK) and pedagogical content knowledge (PCK). In addition, CALL instructors' teaching experiences seemed to significantly contribute to their abilities in managing online instruction. The three experienced CALL instructors (Priya, Natalia, and Frank) did not reveal to have any problems.

5.2 How Would the CALL Instructors Adjust the Course to Match the Needs in the "Next Normal"?

From interview results, it was evident that CALL instructors would have to adjust themselves and the course in three different aspects: employ Blended Learning, adjust the course contents, and revise the assessment scheme.

Firstly, Blended Learning should be employed because teacher education students need not only to learn the principles and theories, but also to practice teacher professional skills.

> Face-to-face discussion with students is more beneficial than letting students learn from a recorded clip alone. It is better to work face-to-face with students before their online learning. (Priya)

> Effectively use both synchronous and asynchronous learning. (Alex)

> Students should learn some of the contents through the Moodle, and practice the teacher profession skills in class so that they will be able to confidently conduct a class and have a feel of being a real teacher. (Natalia)

> The use of Flipped Classroom is appropriate for 21st century learning and is especially important for teacher education students. (Natalie)

> In Blended Learning, students can learn and absorb some teaching characteristics from their teacher in class, and when learning in class students will normally feel less stressed. (Frank)

> It is difficult for students to effectively practice teacher professional skills online. By nature, teacher education students tend to enjoy seeing classmates and doing activities together. (Frank)

Because teacher education students need to have hands-on experiences, it is obvious that 100% online learning might not be the best approach. Nevertheless, the compulsory online learning during the COVID-19 pandemic has made instructors appreciate its benefit for using in Blended Learning. Instructors can therefore prepare video clips for students to learn about principles and theories in advance before in-class discussion and having hands-on experiences in developing the teacher professional skills. For teacher education students, onsite learning as part of Blended Learning will be able to better develop them than the use of exclusive online learning.

Secondly, in terms of course contents and instructional design, interviewees suggested that a variety of updated technological tools and applications should be emphasized, so students can properly use them for their own teaching in the future.

> It's also important for students to be able to develop hand-made media rather than online media because many of them may have to teach in rural schools. (Natalia)

> In revising the curriculum, students must be prepared to well cope with any situations they will face. Although principles and theories may not change much, technology and Innovations are changing rapidly all the time. (Frank)

> It's important to make online learning as interactive as possible. (Frank)

> In developing instruction media, students need to learn about technology, innovation, and psychology. To reach the goal, instructors have to guide them along step by step. (Frank)

The participants suggested that instructors should include more contents on technological tools and applications for student teachers to selectively use in their teaching, because they will be assigned to teach in many different schools. Additionally, teacher education students should be able to properly use different online learning platforms such as Google Meet, Zoom, and WebEX. Importantly, the overall curriculum and content of the teacher education program should be revised to solve problems such as insufficient number of study hours, inadequate courses for specific English skills, outdated curriculum, and inapplicable content to the real life (Oeamoum & Sriwichai, 2020).

Thirdly, for assessment scheme, the participants recommended that instructors must be aware that students are from different socio-economic backgrounds. Some

students may have all necessary devices, whereas others may have just one mobile phone. The assessment scheme must thus be adjusted to accommodate all the students.

> The assessment scheme must be adjusted to be more flexible to accommodate all students. In working on some projects, more than one device was required and students had to go to a game shop and spent a lot of time there. Many students didn't have a notebook and they had to use Canva on mobile phone. (Justin)

> One student had to help his parents do house work and just had one mobile phone to use Unfortunately, both parents died of COVID-19 and he himself was confined in a field hospital. (Eva)

In online learning, home environments and individual problems are also important factors affecting students' learning and assessment (Aditya, 2021; Lambert & Rennie, 2021; Whittle et al., 2020).

6 Conclusion

The current study was designed to explore the challenges faced by teacher education in Thailand. The study mainly focused on the challenges that CALL instructors faced and how they adjusted themselves and the course to meet the emergency needs in the Next Normal. Interviews of eight CALL instructors from Rajabhat Universities across the country were conducted by the authors. The interviews were transcribed and validated by two experts to ensure accuracy. The thematic analysis technique was employed to analyze the data. The TPACK model was used as a framework to identify the challenges faced by the CALL instructors when they taught the course online. The findings indicated that CALL instructors with strong ICT backgrounds tended to better prepare student teachers in terms of using CALL to support their teaching practicum, but they faced challenges when they were required to assist student teachers with the teaching contents. On the other hand, CALL instructors with strong ELT backgrounds reported being confident in their ability to provide student teachers with appropriate techniques for teaching the subject matter, but being much less confident in their ability to train them to use proper technological tools and applications. General, instructors with ELT backgrounds, tended to face more challenges than those with ICT backgrounds. Based on the TPACK framework, they lacked content knowledge (CK) of the ICT course and were not able to apply their pedagogical knowledge (PK) to plan and manage learning activities. As expected, most instructors with ELT backgrounds needed more knowledge related to technology: TK, TCK, and TPK. Additionally, instructors' teaching experiences seemed to significantly contribute to their ability to adapt themselves and adjust the course contents. The instructors with considerable experience tended to better respond to varying situations. A few instructors also suggested that the course should be co-taught by both ICT and ELT instructors. Additionally, improvement must be made not only by CALL instructors but also by the higher-level administration, such

as the chair of the program and the dean of the faculty. To adapt themselves and the ICT course to match the emerging needs of the New Normal, their suggestions included: Blended Learning, emphasizing the content on technological tools and applications, and adjusting the assessment scheme.

These findings contributed to the existing research area of online learning instruction during the COVID-19 pandemic situation. However, as the main purpose of the ICT course was to enable student teachers to successfully apply what they learned in their teaching practicum, the focus of the ICT course must be on the practical component, so student teachers can apply it in their own teaching. Because this study was qualitative research employing semi-structured interviews with eight CALL instructors, further mixed-methods research is highly recommended. Furthermore, the scope of the study should be extended to include all universities which have teacher education programs, so the findings can be more generalizable.

Appendix: Core Interview Questions

1. What courses are you teaching this semester?
2. Please tell me about your experiences in previously teaching the ICT course online.
3. What challenges did you face? In what way?
4. What are the differences between face-to-face teaching (before the COVID-19 pandemic) and online teaching in this course?
5. What do you think about your online teaching?
6. As COVID-19 situation is still going on, how should you adapt yourself? How will you adjust the contents and materials of the course?

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Chapter 16
Developing Approaches to CALL Teacher Education in Palestine: Problems, Possibilities, and Paradigm Shifts

Hidayat Abu Elhawa

Abstract This chapter offers research-based information on developing Computer-Assisted Language Learning (CALL) teacher education programs in settings characterized by disruption, inequity, and disadvantage. It presents findings from a qualitative exploration of the emergency transition to fully-online curriculum delivery during the pandemic-induced halt to in-person instruction at a university ELT program in Palestine. Valuable lessons for CALL teacher educators emerged from this study of the perceptions and beliefs of five EFL teachers moving from a context featuring minimal technology implementation to teaching entirely online for over one academic year. Key findings indicate that the design and delivery of effective CALL teacher education programs in developing countries commonly require strategies for overcoming practical, political, and socio-cultural obstacles. Teachers must train to face disruption with equanimity and seek creative solutions to challenges uncommon in privileged settings. Particularly in tradition-bound societies, digitally-mediated learning must be validated and normalized, and prospective CALL teachers equipped to move beyond reconfiguring practice into reconsidering and restructuring their customary roles within teaching spaces and relationships.

Keywords Computer-Assisted Language Learning (CALL) · Technology-Enhanced Language Learning (TELL) · CALL teacher education · CALL professional development · Online education

1 Introduction: Life and Learning in a Context of Conflict

The Occupied Palestinian Territories (OPT) and Palestinian people have been subject to a century-long settler-colonial project that has left Palestine "torn by multifaceted political divisions, socioeconomic inequalities, and geographical fragmentation" (Seidel et al., 2021, p. 2). A degraded economic status affecting nearly all sectors

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of society has resulted from violent colonial domination and economic pacification designed to produce social fragmentation and economic inequalities, thereby strengthening overall colonial control over the population (Dana, 2021).

According to the April 2022 World Bank *Macro poverty outlook for the Middle East and North Africa: Palestinian Territories*, 2021 poverty rates reflect 29.7% of Palestinians living below the upper-middle income poverty line ($5.5 per day as measured in 2011 dollar purchasing power parity). Beyond the difficulties of daily life in a country marked by structural oppression imposed in a condition of deteriorating political and economic conditions, teachers and students in Palestine struggle with the disruptive effects of the Israeli-Palestinian conflict. Frequent mobility restrictions and school closures are the status quo in the OPT (Kayed, 2013). More than 700 road obstacles and checkpoints hinder the movement of school staff and students (Haddad, 2021). The 700 km Israeli-constructed separation wall cuts through cities and villages, creating a barrier to movement and separating teachers and students from their education institutions (Haddad, 2021). The ever-present specter of violent conflict between Israeli Defense Forces and Hamas militants threatens and limits the education and training opportunities available to Palestinian students and teachers.

2 E-learning in Palestine: A Tentative Embrace

Palestinian educators have long called for the adoption of e-learning as a response to conflict-related disruptions (Kayed, 2013; Shraim & Khlaif, 2010). Founded in 1985 in Amman, Jordan, and established in the OPT in 1991, Al-Quds Open University (QOU) is the Arab World's first open and distance learning university. QOU seeks to "spread open learning and E-learning in particular, not only in Palestine, but also in the entire Arab world" (Al-Quds Open University, 2022b, para. 5). This focus on e-learning positioned QOU as a regional pioneer in Computer-Assisted Language Learning (CALL), and the QOU Faculty of Arts now offers blended and fully-online courses leading to bachelor degrees in Arabic, English, and Hebrew language and literature; French is available as a minor (Al-Quds Open University, 2022a).

Both blended and fully-online CALL models are potentially very useful in the Palestinian context, and QOU offers a commendable example of a regional initiative. Unfortunately, political and conflict-related problems, in addition to financial challenges and other factors, present frequent disruptions to the development and delivery of CALL and related teacher education and professional development opportunities at most other Palestinian higher education institutions. Viewed within this overall context, the COVID pandemic emergency was merely another disruption, but it served to highlight implications for any CALL-related efforts in the region.

When the pandemic struck in March 2020, Palestinian authorities declared an emergency lockdown and the Ministry of Education immediately launched a National Response Plan based on distance education (United Nations Educational, Scientific and Cultural Organization, 2020). In a model known as 'emergency remote teaching'

(ERT)—the process of transforming classes to a virtual mode without changing curriculum and methodology or addressing teacher preparation needs (Bozkurt & Sharma, 2020)—the pandemic emergency forced all Palestinian EFL teachers to become CALL teachers.

This could be viewed as an opportunity to explore CALL pedagogy and associated teacher professional development possibilities. However, even without a global pandemic, challenges abound in Palestine. Electricity brownouts and outages are common, particularly in the Gaza Strip where an electricity crisis has been ongoing for years (Al-Gherbawi, 2022; Moghli & Shuayb, 2020). Internet penetration was 64.8% in the West Bank and Gaza as of June 2021 (Miniwatts Marketing Group, 2021), and homes in remote villages often lack internet connectivity (Dweikat & Raba, 2019). Moreover, a survey of 27 academics and administrators at leading Palestinian universities revealed that IT departments are not well-equipped to support any sort of digital initiatives (Obaid et al., 2020). Taken as a whole, conditions in Palestine are generally not conducive to the effective delivery of any form of CALL or related teacher training activities.

3 Voices Already Heard

Wilson and Acheampong (2014) investigated teachers studying at 4 African teacher education institutions where CALL teacher training consisted of 3 mandatory ICT courses. Trainees had low levels of technological literacy and were not exploring tools available to support their personal and professional development. The majority merely wanted to pass the required courses and believed that knowing how to use a computer comprised the integration of technology into language teaching.

A study of Iranian EFL teacher trainers' experiences delivering CALL teacher education in undergraduate TEFL qualification programs (Meihami, 2021) revealed inertia, ignorance of training strategies, insufficient time to address CALL as a curriculum component, insufficient infrastructure, and lack of established training standards and methodology. The EFL teachers were also not motivated to participate in CALL training programs.

Tafazoli (2021b) studied Iranian EFL teachers undergoing the transition to pandemic ERT. They viewed it as a shock, had limited pre-pandemic experience with technology-enhanced teaching, were not prepared to transform their practices, and lacked knowledge of tools and strategies to help them move their practices online. With limited access to professional development resources, most teachers worked independently to develop the skills needed to handle online teaching. Infrastructure deficiencies also posed a problem.

In Palestine, action research by Fassetta et al. (2017) involved designing and delivering online teacher training for newly-graduated teachers of Arabic to speakers of other languages. Immobilized by Israeli restrictions on Gaza Strip residents and preparing to search for online work, participants found that commitment to sustaining

communication and investment in building human relationships in a learning community enabled them to overcome technological and linguistic challenges and move from a teacher-centered didactic model into a more equitable exchange between trainers and trainees.

Few studies focus on strategies for preparing and empowering CALL teachers in disadvantaged settings and particularly in the challenging context of the Middle East and North Africa (MENA) region. This study contributes to filling that gap by providing longitudinal insights into teachers' perceptions of and adaptations to the implementation of e-learning-style CALL at a Palestinian higher education institution.

The study aimed to (a) investigate the beliefs, understandings, and experiences of Palestinian EFL teachers involved in the implementation of online ERT methodologies, (b) identify and describe factors that affected the teachers' adoption and use of e-learning under ERT conditions, and (c) contribute to an ongoing institutional initiative of expanding the use of educational technology. The study's significance lies in its detailed examination of the rapid integration of CALL methodologies in a context where overall adoption of digitally-mediated education is at a very early stage.

The following questions guided the research:

1. How do Al Istiqlal University ELT teachers view the adoption and use of e-learning as a pedagogical tool under the conditions of ERT?
2. How did the rapid transition from traditional face-to-face teaching to the use of e-learning methodologies impact the professional practices and personal lives of the teachers?
3. How did the experience of ERT affect the teachers' beliefs about the use of e-learning in Palestinian education?
4. How does the landscape of challenges and possibilities in the adoption and use of digitally-mediated teaching methodologies as pedagogical and professional-development tools for the Al Istiqlal University ELT program appear viewed through the lens of pandemic ERT?

4 Methods

The study reported here was framed by a constructivist epistemology. From this perspective, qualitative research outcomes are not truth claims or descriptions of the way things really are or work "but instead represent meaningful constructions that individual actors or groups of actors form to 'make sense' of the situations in which they find themselves" (Guba & Lincoln, 1989; p. 8). In this case, I was interested in new realities the research participants constructed while working to make sense of their sudden transformation into fully-online CALL teachers.

The researcher accepted the perspective of Guba and Lincoln (1989), who view positivist claims and efforts related to validity, reliability, and objectivity as axiomatically incongruent with the constructivist paradigm. Recognizing that "The ultimate

test of the validity of any inquiry findings is that they should describe reality exactly" (Guba & Lincoln, 1989; p. 86), the researcher relied on prolonged engagement with the topic of inquiry while working to achieve data saturation, verifying credibility and authenticity of findings by reviewing relevant literature and conducting member checks of the data and findings with the research participants, providing rich description to support transferability of the findings, and maintaining a reflexive stance at all times (Creswell & Poth, 2018; Guba & Lincoln, 1989).

Ethical guidelines from the British Educational Research Association 2018 publication *Ethical Guidelines for Educational Research* (4th ed.) were adhered to at all times. All appropriate institutional permissions and clearances were obtained. The participants were all experienced professional teachers recruited on a completely voluntary basis after giving fully-informed consent to be included in all aspects, aims, and objectives of the research activities and reporting. All data were kept confidential, and participants are herein referred to pseudonymously.

4.1 Research Design

The study was designed as a qualitative case study per Yin's (2018) definition: "an empirical method that investigates a contemporary phenomenon (the 'case') in depth and within its real-world context" (p. 56). The primary data collection instrument was a set of four interview protocols (see Appendix) used to guide semi-structured interviews ($N = 18$) conducted during the pandemic lockdown period in Palestine. This type of interview affords the researcher some control while avoiding restriction of the interviewee or predetermination of results (Cook, 2008).

4.2 Context and Participants

At the research site, Al Istiqlal University, computer technology was integrated into curriculum delivery in 2017 as an initial aspect of an effort to expand existing ICT facilities and apply them in support of creating, then facilitating the use of, digital libraries and e-learning curricula. Due to conflict-related disruptions and pandemic restrictions, the university entered 2020 without reaching program objectives, leaving Google Meet, Google Classroom, and institutional email as primary online teaching tools during the pandemic lockdown.

EFL teachers from the Al Istiqlal ELT program comprised the research sample ($N = 5$); all had 3−14 years of service in higher education institutions (see Table 1). Participants were selected based on their positions as colleagues of the researcher and their willingness to contribute to the study. Therefore, the sampling method is categorized as purposive and convenience sampling.

Table 1 Participants' demographic information

Participant	Gender	Total teaching experience	ELT teaching experience	Higher education teaching experience	Pre-2020 online teaching experience
Omar	M	14	14	14	No
Ahmed	M	22	22	14	Yes
Mohammed	M	21	21	11	Yes
Abdullah	M	11	11	5	No
Sara	F	3	3	3	No

Note Experience is listed in years

4.3 Data Analysis

I applied standard qualitative thematic analysis procedures as outlined by Braun and Clarke (2012), Creswell and Poth (2018), and Yin (2018) in an effort to extrapolate meaningful patterns in the data and thereby identify themes relevant to the research questions and objectives. Analysis began after each interview as manual "pawing" through the data (Ryan & Bernard, 2003, p. 2) during the processes of review and transcription of the audio-recorded interviews. During this initial work, I used word analysis in the form of looking for word repetitions and key-words-in context (Ryan & Bernard) to drive physical manipulation of the data. This took the form of noting and extracting pieces of data that appeared relevant to the research questions and/or suggested commonalities between the participants' experiences and placing this data in rough storage categories created in an MS Excel spreadsheet. Analysis continued via NVivo 12 Mac qualitative analysis software in an effort to further develop the initial categories identified and create additional categories (nodes).

Moving from computer analysis to repetitive manual data reviews, I searched for emergent themes, coding and sorting data into various categories, creating, discarding, and merging codes and categories, visualizing the data in new ways, returning to the literature for insight and direction, and checking with the participants for clarification and correction. This continued until I achieved data saturation and no longer found new information that added to an understanding of the research topic (Creswell & Poth, 2018). The results took the form of meaning-based themes representing relationships between the data and the research questions as per Braun & Clarke's (2012) model of thematic analysis.

5 Lessons Learned

The findings of this study represent answers to the research questions and make implications regarding the processes of becoming a CALL teacher and delivering digitally-mediated curricula in the Al Istiqlal University ELT program and the Palestinian context in general. This fulfilled the research objectives, including making a contribution to the Al Istiqlal University educational technology initiative. This overview focuses on six primary themes.

5.1 Lack of Adequate Basic Digital Literacy

A majority of the participants (3 out of 5) in the present study were engaging with the intensive use of educational technology and digitally-mediated course delivery for the first time. "*We are not accustomed to this system of teaching previously. And most of the teachers did not take sessions or training courses*" (Abdullah). Beyond specific CALL training, some lacked the general technological literacy needed to execute their e-learning objectives with ease.

> We need some training I think, especially those who are old aged or more than 50 years old, need to know how to teach E-learning, I mean how to use computers, how to use books from the Internet, how to download books. (Omar)

Sara indicated a lack of even the most basic skills often taken for granted in privileged settings: "Well, if anyone can type instead of me, that would be appreciated. This is the thing. Yeah, that's it. I can handle everything with no assistance needed but only in typing." Sara also noted that "The preparation takes more time in eLearning."

5.2 Shortcomings in Institutional Support

Mohammed, experienced with online teaching at QOU, described enduring an enhanced workload with insufficient institutional support. For example, lack of any pre-developed content:

> How can I teach without preparation? So, this takes time and effort from the teacher to prepare himself. I have to prepare to set some PowerPoint slides to support the idea with some videos from YouTube to download it to prepare things. In case there is some trouble here and there, I have to manage it all.

Ahmed, the other experienced online teacher, supported these observations:

> I pay much effort and spend a lot of time to search for videos, recordings, images, and so on to involve and motivate my students. But if I have technical support in this area, it will be much easier for me.

It is clear that launching a fully-online curriculum without prepared curricula and appropriate content inventories places high demands on even experienced CALL instructors.

These experienced teachers found the institutional support that was available to be of little use. Mohammed expressed frustration with administrators' directives:

> They give us a lot of instructions that also trouble us, definitely they trouble us and these instructions are really not in its place, ok? Because it is repeatedly, they are asking for the same things and this irritates the professor in general.

Mohammed reported a lack of proficiency on the part of university ICT support team members: "*My first problem when I started to use Google Classroom was that the technical staff or academic advisors do not know how to include or use applications such as Google Meet and Google Classroom proficiently." Mohammed observed,* "*The university is not experienced enough in e-learning. This is a very important point, compared with other universities such as QOU*". Such observations of institutional shortcomings were not confined to the veteran e-learning CALL instructors. Omar was very direct in stating, "*They don't support, they don't pay more, they don't look at I think, this is very difficult task, using Internet, especially for those who are old age*."

5.3 Pedagogy Shock and Forced to Go Beyond Reconfiguring Their Practices to Reconsidering and Restructuring Their Roles

As in Tafazoli (2021b), these teachers viewed the switch to ERT as a shocking transition. "*We have started using the online courses in the middle of the semester. And that was a huge confusion for me at least and of course, I think most of us have been confused*" (Sara). They were unprepared to easily take on the challenge of implementing an e-learning-based CALL pedagogy. "*I have known some of my colleagues who really suffer from using technology in teaching, so long they got used to the traditional ways in teaching*" (Abdullah). Even Mohammed noted that "*Teachers are overloaded with the 12 credit hours so the department should focus on shortening or decreasing the amount of hours that every faculty member should teach.*"

In the Palestinian context, online learning still represents a break with tradition:

> In Palestinian education context, the villages were so traditional where the students are passive and the majority of the time was allotted to professors. Online learning was integrated as a kind of breaking this routine and I think it was a big shift. (Mohammed)

This impacted the professional practices of the Al Istiqlal University ELT teachers as they were forced to reconsider and restructure their roles within the teaching space and teacher/student relationship.

> There has been a tremendous change. My role as a professor inside the classes and now delivering lectures online is quite changed. At the very beginning, it was a professor who speaks all of the time in traditional classes. The professor is the store of knowledge that has to give every aspect himself present to students, the audience. And I can say that it was a kind of spoon-feeding method, but now there's a shift in the techniques I use in delivering my sessions. Moreover, there's a change in the way I address the students. (Abdullah)

This teacher role-shift was accompanied by a movement toward greater student autonomy: "*I think the main difference between e-learning pedagogy and traditional face-to-face teaching is that e-learning is more flexible. Students can learn, can study by themselves at home or even on their way to work*" (Mohammed). There was general recognition among participants of the benefits of student autonomy and self-directed learning: "*With the help of online teaching and learning, the students discuss projects with groups and I can say that they are learning by discussing or by doing*" (Abdullah). But Sara expressed frustration with a perceived inability to control and monitor students in the virtual environment. "*Students are more controllable when we have face-to-face instruction, but in e-learning, there is no guarantee that students are focusing or concentrating, or that they can get what actually we are explaining or debating*" (Sara). This matter of control over students was significant to the participants, and each at some point referred to frustration with the sense of lacking hands-on influence on events. "*I have some comment about using the e-learning that maybe you are not able to control the students inside the virtual classroom because you need to control them and some people might be cheating*" (Omar).

The teachers' personal lives were impacted in various ways by the rapid transition from traditional F2F teaching to the use of e-learning methodologies. As Mohammed exclaimed, "*First of all, we have family, ok? Like, as a professor, it's sometimes your kids come across a problem and you need to do something. This is one issue [with online teaching].*" Sara was comfortable enough with me to discuss her personal financial situation:

> I have a problem with my laptop keyboard. There are some keys that are not working. So, I'm trying to do something about that and that takes time for me. And due to the economic situation and financial issues, I can't buy a new one.

5.4 Socio-Cultural Impacts

For three teachers with no prior e-learning or CALL experience, this foray into ERT was formative in shaping their beliefs about the use of e-learning in the Palestinian context. Sara expressed a simple belief: "*Honestly, honestly, I hate it. I hate it. Really, I don't like it at all.*" Omar reflected that "*My experience of teaching and using e-learning through the last year, to some extent, is not so good. Face to face is better than e-learning.*" Along with such immediate reactions, the data also revealed more contextualized teacher beliefs about e-learning; these stemmed from viewing various socio-cultural factors as a source of challenge to the implementation of online CALL in Palestine.

Mohammed noted, "*Students are accustomed to a teacher-centered class. I think they are used to not being the center of the class in my face-to-face or traditional way of delivering the content or pedagogy.*" Students apparently had difficulty taking responsibility for their own learning, having only experienced the role of the passive learner in traditional teacher-centered classrooms. Sara reported instances where students seemed to appear for online class sessions but were not attending to the work:

> I might see that they are online, they access Google Meet or Zoom or whatever, but they are not there, I can see that. I have faced a situation many times that, whenever I call a certain student, they are not there.

In Palestine, monitoring such situations is complicated by Islamic culture:

> Due to cultural restrictions or the norms here in Palestine, if you ask the students to open their cams in order to contact them face-to-face, they are reluctant to do that. They don't automate cameras and so you don't know what the students are doing while you're giving the lecture. (Abdullah)

Another cultural factor was evidenced by Sara's observation of online education as vulnerable to disruption when teaching and learning must be carried out in small, non-private home spaces. **"***Are they [students] focusing or not? Are their environments helping them? Can they participate or not? Do they have their individual room or are they sharing the same room, for example, for five or three sisters?"* Sara also felt that the nature of Palestinian family relationships and the demands of life in the impoverished country comprised a barrier: "*There are families who really do not cooperate with their sons or daughters that they have to attend the courses, attend lectures.*" Sara went on to note that students' parents were, in some cases, resistant to the adoption of e-learning to the point of questioning the validity of attending online courses:

> I can see that the parents disagree with e-learning and they say that it is not useful, so they are using their kids or their family members all of them whether they are students and they are asking them to do some stuff, anything they require in the home, rather than giving them the opportunity to take lessons or participate in the lessons.

Similar to the situation observed by Tafazoli (2021b) during the shift to pandemic ERT in Iran, where "parents did not trust online teaching" (p. 401), some Palestinian parents did not see value in online education. Sara reported that male students might be encouraged by parents to help support the family rather than spend time in online studies. Moghli & Shuayb (2020) validated this impression: "Male students were most reluctant or unwilling to join or commit to distance learning, perhaps drawn to paid work" (p. 2).

5.5 E-learning Effects on Students' Motivation

Participants believed the lack of traditional teacher-centered class structure may influence student motivation to participate in e-learning. Some appeared to enjoy

online learning: "*Actually, there are the students who are really motivated to use the internet and they are motivated to participate. They are not reluctant to take part in the activities*" (Abdullah). However, motivation was lacking in many other cases: "*I think not all students are highly motivated to participate in online learning. A number of them are de-motivated because they don't know how to engage in the [student-centered] classroom*" (Mohammed). Sara consistently indicated the necessity for strong teacher presence and control in the class space: "*Even face-to-face, when you are in the class, in the lecture they are watching the time and when the lecture is going to end. If students lose motivation during face-to-face learning, how can they be motivated when e-learning?*".

5.6 Community and Institutional Infrastructures

Pandemic ERT served to illuminate challenges and possibilities regarding the use of digitally-mediated teaching methodologies as pedagogical and professional-development tools for the Al Istiqlal University ELT program. Basic practical challenges related to community infrastructure were ever-present. Sara frequently mentioned how "*Many students lost connectivity and lost electricity. Power is cut off, and so on.*" Mohmmed reported that this problem can be an ongoing issue rather than a temporary outage: "*Some of the students, they don't have electricity in their areas*." Disruptions in course delivery were frequent:

> Some of the students say 'Ok, we have some problems with receiving the material.' Maybe they ask can we send them once again. 'What's the problem?' I ask them, and they say 'Oh I didn't receive this material.' or 'The internet is the problem.' (Mohammed)

Internet connectivity problems in the OPT are random and can be localized or widespread, but all of the teachers in this study noted this as an issue: "*Sometimes the Internet is off. So, this is a problem here. I think you cannot avoid this problem because sometimes you find your electric current or you find the Internet lines are off*" (Omar).

The experienced online teachers described the need for properly-developed institutional infrastructure. "*These days, there is no excuse for the university administration to say no, we don't have a platform. They should create their own platforms*" (Mohammed). Mohammed also noted shortcomings associated with the use of public web-based platforms: "*Google Classroom is not highly interactive, compared with platforms such as Moodle that are used* et al.*-Quds Open University and in the Turkish University we visited a year or so ago.*" As for institutional soft infrastructure, Ahmed recognized the need for institutional professional development resources: "*I think all the faculties should attend, obligatory I mean, a training session with the practical hours so that the academic affairs would guarantee the quality of their teaching*."

6 Discussion

This study revealed some obvious, commonsense findings; for example, the need for and frequent lack of a minimal level of appropriate community and institutional hard infrastructures to deliver any type of technology-enhanced learning in less-privileged settings has been well-documented (See, e.g., Tafazoli, 2021b). Also necessary is the soft infrastructure of human resources, stakeholder support, digital literacy, and associated teacher/student training and development opportunities, content, curricula, pedagogies, and more. In less-privileged settings, if challenges in the community context can be overcome, then individual institutional-level infrastructure, including complete hard and soft support systems for e-learning and CALL must be developed to the greatest extent possible (Muhammad et al., 2017). In all cases, trainers need to focus on preparing CALL teachers who are well-trained contingency planners, always ready to face changing circumstances calmly and creatively.

The tendency in Arab cultures to devalue online education and dismiss it as prone to fraud and cheating made an appearance in this study; it is a well-documented fact (Abdulla Al Ghurair Foundation for Education, 2020). Establishing and supporting the validity of digitally-mediated learning modes in traditional societies calls for careful consideration of cultural factors, including matters difficult to address in the contemporary environment of political correctness. It is important to establish program gravitas and reify appropriate teacher/student roles and identities in contexts where traditional paradigms hold sway. Teachers must also be prepared to embrace, develop, and value their new identities as facilitators of digitally-mediated learning. They must accept the need to consciously relinquish control, particularly in fully-online environments (Dron, 2007); for many such role-shift presents a threat because it involves a re-envisioning of the professional self in a way that appears to undermine the ontological security of their academic identity (Hanson, 2009). Teacher resistance to integrating technology in their practices is well-documented and, as Tafazoli (2021a) notes regarding CALL teacher training, teachers' preferences, and concerns must be accounted for—"Unless language teachers feel reassured that they are supervising their professional development, there might be the risk that the teachers resist technology and such professional courses" (p. 12).

Related to this, obtaining stakeholder buy-in at all levels is essential to the success of any new education initiative and more so for innovative CALL strategies. Parental resistance had been described above, community acceptance—for example, among students' employers—must be earned, and it is a mistake to think even ongoing institutional support can be taken for granted. In the present study, even though online teaching appeared and mostly succeeded as a much-needed solution to a dire situation, Mohammed remarked that "Through my experience, the university where I teach and work, they will immediately go back to face-to-face teaching and they won't accept this online teaching I think." Addressing stakeholder resistance to the integration of digitally-mediated education and CALL is not a simple matter in any context; in developing countries, careful planning, perseverance, and a lot of patience may be required.

7 Conclusion

This research, though situated in the Palestinian context, served to highlight prerequisites, conditions, and demands associated with delivering CALL in any context where technology-enhanced education remains in a liminal state or fully unexplored because of a lack of development or other disadvantages. The findings have implications for the design and delivery of CALL teacher education and professional development programs in these settings.

The findings suggest that digitally-mediated education delivery of any type offers the maximum advantage only when a program is developed and launched within a complete support framework. Such a framework begins with reliable basic utility infrastructure and full stakeholder buy-in at the extra-institutional administrative level, extending through appropriate institutional infrastructure support both hard and soft, on to effective instructor and curriculum development practices, and finally to properly trained and equipped students supported by educated and aware family members and other concerned stakeholders.

COVID-19 forced teachers and students in Palestine and many other locations to rely on networked educational technology and digitally-mediated teaching and learning in an unplanned, often-chaotic experiment if any form of schooling was to be maintained. Doing so exposed layers of digital inequality arising from differential access to resources, and variations in digital literacy tied to social, economic, and cultural contexts (Beaunoyer et al., 2020; Carrillo & Flores, 2020). These matters should be starting points for reflection by CALL program developers and a source for critical lessons about combatting educational disadvantages generated by digital inequality. This learning should be baked into philosophies of CALL teacher education as a foundational layer every bit as important as technological fluency if we hope to offer the benefits of CALL to teachers and learners who have so far been unable to explore what Marc Prensky (2018) refers to as "a world of post-academic, empowerment, accomplishment-oriented education—the education of the future, now emerging around the world" (p. 1).

Appendix: Semi-structured Interview Protocols

Interview 1

Question 1: What are your views about using e-learning for ELT?

Question 2: To what degree do you feel confident using the Internet in your teaching?

Question 3: What makes you feel more or less confident in your use of e-learning?

Question 4: How do you benchmark your level of confidence in using e-learning?

Question 5: What are the key issues that you face when using e-learning in ELT?

Question 6: Could you comment on the ability of your students to make use of e-learning?

Question 7: Do you feel that the university supports you in your use of e-learning?

Interview 2

Question 1: Please give a brief comparison from your viewpoint of online teaching or e-learning as compared to traditional face-to-face instruction

Question 2: What has been your biggest difficulty or challenge in relation to our sudden adoption of online course delivery?

Question 3: How has your role as a teacher changed since your courses have become part of the ICT integrated program?

Question 4: How do you think delivering English language classes online impacts student motivation?

Question 5: Has using online learning methodologies had any appreciable effect on student performance or brought about any improvement? Why or why not?

Question 6: What factors do you consider when planning an online lesson?

Question 7: What specific new pedagogical strategies have you applied in order to adapt your instruction to the online environment?

Question 8: What do you think about Google Meet and Google Classroom as platforms for our e-learning courses?

Question 9: Have you ever used Google Breakout Rooms in your online teaching? Why or why not?

Question 10: Now that have more experience in teaching with technology, why do you think the university decided to invest in a language lab?

Interview 3

Question 1: How would you define quality teaching in terms of teaching with e-learning tools in a digital age?

Question 2: How have your conceptions of what knowledge is and what students need to know changed since our transition to the e-learning mode?

Question 3: Can you comment on the relationship between subject-related content/knowledge and the development of necessary technical skills in your courses?

Question 4: How do you think students' relationship with technology specifically influences their views of studying and learning?

Question 5: What are your general impressions of your students' feelings about the new style of learning experience they have been engaged in since the change to online teaching and learning?

Question 6: Can you identify major differences in the way students react to and approach the online learning experience as compared to their reaction to the traditional face-to-face classroom experience?

Question 7: Please comment on any changes in your students' relationship with knowledge and the acquisition of knowledge that you have noted since transitioning to e-learning.

Question 8: How do you think the concept of student-directed learning or student generation of knowledge fits into a model of online English language teaching?

Question 9: Please offer a general summary comment on the effects this past year of e-learning has had on your students in terms of their views of knowledge and learning and their motivation to study and learn

Interview 4

Question 1: From your perspective, how has our recent intensive ICT use impacted institutional teaching standards?

Question 2: How would you rate the performance of ICT management within the university during this emergency transition to e-learning?

Question 3: What is your vision for ICT use within the university going forward?

Question 4: How do you balance the use of synchronous and asynchronous e-learning activities?

Question 5: Now that you know more about using Google Breakout Rooms, are you more willing to use them? Why or why not?

Question 6: What are some techniques or methods you use to increase student motivation and willingness to stay engaged with you, the course materials, and the other students?

Question 7: How do you deal with students' silence when you pose questions in an online format, either during voice interaction or in discussion/chat boards?

Question 8: How have your students been performing on collaborative tasks in particular during their online learning?

Question 9: What if any specific strategies have you used in your online teaching to stimulate and teach higher order/critical thinking skills among the students?

Question 10: In relation to language teaching specifically, when teaching online, how do you check students' performance in and mastery of the four language skills?

Question 11: What special strategies and methods are needed to teach and support EFL students in a setting where only online instruction is being used?

Question 12: What methods do you use to offer technology support to your students?

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Chapter 17
Exploring Microlearning for Teacher Professional Development: Voices from Hong Kong

Lucas Kohnke and Dennis Foung

Abstract Online and blended learning (OBL) requires a different skill set than face-to-face teaching. The ability to facilitate student-centered teaching by integrating technological information and communication technology (ICT) in pedagogically effective ways is urgently needed. This study explored the microlearning experience of twelve English as a second language teachers at a Hong Kong university as a form of teacher professional development (TPD) to prepare them for the transition to OBL during the COVID-19 pandemic. Qualitative data was collected through semi-structured interviews to capture a holistic overview of teachers' experience with bite-size, practical, and easily digestible TPD directly relevant to teachers' practice. The findings indicate that teachers found the microlearning TPD activities to be quick, relevant, and engaging; they provided practical knowledge and confidence. Such activities are suggested to create favorable conditions to equip teachers with the necessary skills in OBL. Effective TPD for English as a second language teachers should focus on improving digital competence through short learning activities situated in the specific teaching context and providing input through activities in various modalities.

Keywords Microlearning · Teacher professional development · Online blended learning · COVID-19 · English as a second language

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1 Introduction

The COVID-19 pandemic has forced teachers of English as a second language around the world to adopt emergency remote teaching (Hodges et al., 2020). The need to create synchronous and asynchronous student-centered learning environments (Carillo & Flores, 2020; Moorhouse & Kohnke, 2021a) has put the spotlight on teachers' digital competence (Starkey, 2020) and their ability to utilize technology and digital pedagogy. While it has long been recognized that teachers need professional development in technology to prepare for the digital transformation of higher education (Curwood, 2014; Moorhouse, 2021), the outbreak of the pandemic has made this need more urgent than ever before. Although online and blended learning (OBL) are often part of courses in Hong Kong, the sudden transition to digital learning necessitated by the pandemic revealed that teachers struggle with digital pedagogy, selecting the 'right' tool for their circumstances and adapting existing course materials (Moorhouse & Kohnke, 2021b).

Traditionally, language teachers engage in professional development by attending conferences, seminars, workshops, or short courses (Guskey, 2000; Richards & Farrell, 2005). Unfortunately, these modes of teacher professional development (TPD) often fail to address the complexities of the OBL environment and the individual needs of teachers (Ranieri et al., 2019). English language teachers both embrace and struggle with OBL after attending traditional TPD (Moorhouse & Kohnke, 2021a). This is the case in Hong Kong, where technology is integral to teaching and learning (Hyland & Wong, 2013). However, there is a misalignment between what universities consider effective TPD (in terms of content and delivery) and what teachers need and value (Kohnke, 2021).

Furthermore, TPD in Hong Kong is generally delivered through 60- or 90-min generic lunchtime seminars or workshops at the Educational Development Center, aimed at faculty members across the university. Topics include 'How to use Blackboard features', 'Using learning analytics for review and enhancement', and 'eAssessment'. They often do not focus on pedagogy or how to facilitate effective OBL for English language teaching using a hands-on approach (e.g., Cheung, 2021; Hubbard, 2018). The topics are chosen without input from teachers on the skills they want to improve, such as technological and pedagogical skills situated in the classroom context. Consequently, teachers continue to criticize existing TPD as inadequate; after taking part in it, they cannot integrate technology or OBL pedagogy into their practices.

In the current educational landscape, TPD opportunities must provide teachers with individually tailored and meaningful technological and pedagogical skills. Ideally, they would be learning experiences that did not pull teachers away from their work for an extended time but would allow them to explore a particular topic in reasonable depth. Microlearning delivered through mobile phones is emerging as a way to offer teachers relevant and engaging training in high-impact, bite-sized nuggets that focus on small and specific learning goals. Microlearning refers to short-term learning activities (i.e., 1–6 min) based on videos, podcasts, infographics, and

similar media (Reinhardt & Elwood, 2019) that allow teachers to learn new skills quickly and apply them immediately.

This chapter provides an overview of the benefits of microlearning based on a case study at a Hong Kong university. It also offers practical steps for constructing microlearning professional development opportunities for teachers.

2 Voices Already Heard

2.1 Teacher Professional Development

Higher education institutions often depend on TPD to keep teachers well informed about their teaching subjects. Throughout their careers, teachers participate in a wide variety of TPD activities to increase their knowledge and improve their skills. These activities lead to professional growth and increased student learning. There are several TPD frameworks and models that have contributed to the existing understanding of TPD. Desimone (2009) argued that professional development should contain five critical features of effective professional development (content focus, active learning, coherence, duration, and collective participation), as well as an operational theory of how TPD works. Her framework postulates that when teachers experience the five elements, their knowledge and skills increase and their attitudes and beliefs improve, enhancing their teaching and eventually increasing student learning. In 2015, Desimone and Garet revised the framework to place a greater emphasis on individual professional development and leadership. Consuegra and Engels's (2016) framework is similar to Desimone's (2009) but adds three elements: an appreciative approach based on individual strength, a school-based system of TPD that is integrated into teachers' daily routines, and an ownership approach (in that teachers are expected to identify their own needs and interests).

However, despite the availability of TPD frameworks, TPD continues to be condemned, predominantly by the teachers it was designed to serve, for failing to consider the complexity of teachers' actual classroom situations (Knobel & Kalman, 2016; Richards & Farrell, 2005). Further, TPD has been unable to provide deep and meaningful learning opportunities (Appova & Arbaugh, 2018) and therefore has failed to generate teacher change (Guskey, 2002) or help teachers to integrate technology pedagogically after taking part in development activities (Tondeur et al., 2016). Teaching and learning are contextually situated; TPD activities must be embedded in teachers' working conditions (Opfer & Pedder, 2011). Yet it is often a decontextualized, intermittent event that relies on a transmission model that emphasizes the role of knowledge-possessing specialists who assist knowledge-deficient teachers (Kennedy, 2016). Numerous researchers have noted the limitations of the conventional modes of delivery of TPD (Darling-Hammond et al., 2017; Lawless & Pellegrino, 2007), pointing out that when there is a mismatch between the professional needs of teachers and existing forms of TPD, the probability of favorable

impacts on student learning may be low (Kohnke, 2021). Teachers likewise perceive mismatched TPD activities as ineffective if not wholly irrelevant (Egbert & Borysenko, 2018). Consequently, identifying appropriate TPD activities to help language teachers to gain the technological and pedagogical skills they need is essential to meeting the needs and changing expectations of the higher education landscape.

Teacher Professional Development for Online and Blended Learning

Previous studies have found that higher education institutions need to provide better TPD and resources for teachers if they are to attain the necessary ICT and pedagogical skills to deliver OBL (Rijst et al., 2019). Recently microlearning has received increased attention for its ability to rapidly provide teachers with the immediate skills they need (see Corbeil et al., 2021). Microlearning can improve TPD by providing quick training on relevant and immediate tasks—often those related to applications and tools in the curriculum (Jomah et al., 2016; Nikou, 2019; Nikou & Economides, 2018).

Integrating technology into higher education has become the new norm (Redmond, 2011), and OBL is perhaps the fastest growing area of educational technology (Means et al., 2013). In the past 10 years, higher education institutions have developed online learning programs to decrease their costs and allow students to attend from a distance (Means et al., 2013). Given the prevalence of OBL courses, the necessity for TPD in information and communication technology (ICT) is apparent. Earlier studies have established that teachers transitioning from face-to-face teaching to OBL realize that more is involved than placing course materials on a learning management system (Moorhouse & Kohnke, 2021a). During the COVID-19 pandemic, language teachers have had to use synchronous and asynchronous tools to promote and facilitate OBL (Moorhouse & Kohnke, 2021b; Kohnke & Moorhouse, 2020). Teachers' pedagogical roles are transformed when they teach in a new environment such as OBL (Redmond, 2011). Teaching OBL courses requires a different skill set than face-to-face teaching (Salmon, 2011), and the skills are not necessarily transferable (Wolf, 2006). Consequently, it is important to provide relevant and engaging TPD in OBL tools and pedagogy so that teachers can develop their competence in the application used in the curriculum. In the present study, we explored how teachers felt about microlearning lessons related to OBL tools and pedagogy as a form of TPD.

3 Methods

3.1 Research Design

A qualitative approach was followed in this study, as we wanted to arrive at a rich understanding by collecting interview data (Creswell, 2008). Thus, this explorative case study investigated Hong Kong University English as a second language teachers'

perception of microlearning as a form of TPD in OBL. Such a design is particularly useful for researchers to understand a particular case (Stake, 1995), i.e., a university English teacher in Hong Kong, when not much is known about a given context (Yin, 2009). The research was carried out through semi-structured interviews to capture the participants' lived experiences and perceptions (Cohen et al., 2011).

3.2 Participants and Context

Twelve English language teachers at a public university in Hong Kong participated in the study. We employed convenience sampling: 46 teachers were sent an email invitation to participate. The final participant selection criteria focused on identifying teachers with comparable levels of TPD experience. The study used a qualitative design within the interpretive framework (Creswell, 2008). The interviews explored how tertiary English language teachers perceive, describe and explain the value of TPD activities for developing ICT skills. Names have been changed to pseudonyms to protect the participants' privacy.

At the time of the study, the 12 participants' overall teaching experience ranged from 6 to 25 years. Three of the participants were very experienced (20–25 years; Debra, Larry, and Roy), seven had reasonable teaching experience (10–20 years; Robert, Marilyn, John, Brian, Karen, Pamela, and Sandra) and two had a relatively lower amount of experience (6–8 years; Donald and Wayne). All participants had worked in English language centers in Hong Kong for at least 3 years before participating in the study (Table 1). Letters outlining the purpose of the study and the procedures were sent to all participants, and the author sought consent from all stakeholders.

Table 1 Demographic of Interviewee (N = 12)

#	Pseudonym	Academic rank	Years of teaching experience
T1	Donald	Instructor	6
T2	Wayne	Instructor	8
T3	Robert	Teaching fellow	10
T4	Marilyn	Instructor	11
T5	John	Instructor	14
T6	Bryan	Teaching fellow	14
T7	Karen	Instructor	16
T8	Pamela	Instructor	18
T9	Sandra	Teaching fellow	20
T10	Debra	Instructor	22
T11	Larry	Instructor	24
T12	Roy	Teaching fellow	25

Table 2 Sample microlearning TPD tools and topics

Tools	Podcast	Brainscape (flashcards)	EdPuzzle (video)	Canva (infographics)
Example topic	Pros and cons on how to use Zoom breakout groups (4 min)	Ways to encourage students to talk in OBL	Introducing communicative language teaching in OBL (5 min)	Step-by-step instructions for how to set up and use Mentimeter and Kahoot!

3.3 Microlearning TPD Activities

The activities described below illustrate how microlearning TPD was developed and implemented to demonstrate how self-directed TPD through multimodal learning fosters teachers' digital competence. In essence, microlearning should meet teachers' needs through individualized, flexible learning delivered in bite-sized chunks (Jahnke et al., 2019). To this effect, we developed several microlearning TPD activities by taking into consideration (1) what does the teacher need to know or learn? (2) will the teacher find this resource helpful? and (3) how will it affect the teacher's teaching? Further, to ensure that the microlearning activities would be easy to create, use and promote task motivation (Nikou & Economides, 2018), we employed Podcast, Brainscape EdPuzzle, and Canva (see Table 2).

Teachers are faced with an overwhelming volume of information. These tools make microlearning activities simple and effective way while simultaneously deepening the learning process. Because they are short, teachers can quickly revisit them, which will improve retention. The activities were stored on the common learning management system so that teachers could access them easily—for example, during their lunch break or while commuting to work.

3.4 Data Collection and Analysis

Following the interpretive paradigm (Richards, 2003), we obtained a rich and multifaceted description of ICT TPD events within the framework of the semi-structured interviews. The interviews probed the participants' experiences of obtaining skills and knowledge of ICT for use in their teaching practices and allowed interviewees to "speak in their own voice and express their own thoughts and feelings" (Berg, 2007, p. 96). Three teachers who were not part of the study sample piloted the interview protocol to generate feedback on the effectiveness of the interview questions. All of the interviews, including the pilots, were performed by the author for consistency. The interviews were conducted in English in the participant's chosen setting, and each interview lasted 24–38 min. Below are some of the questions asked in the interviews:

- What are your views of the microlearning TPD and why?
- What did you find most useful about the microlearning TPD and why?
- Do you think that microlearning activities prepare you better for OBL than traditional TPD?

The interviews were analyzed thematically using a flexible method (Reicher & Taylor, 2005), following Braun and Clarke's (2006) notion of a theme being something interesting about the data. As the sample size was relatively small, the data were analyzed manually, allowing me to work with them closely. The analysis process occurred in three consecutive phases: (a) seeing (i.e., picking up themes in the original data), (b) encoding or "seeing as" (i.e., getting a sense of patterns and groups), and (c) interpreting the themes with respect to a particular framework. To improve the dependability of the qualitative coding, we employed a code-recode strategy (Anney, 2014). After the first round of coding, we waited for 2 weeks and then recoded the same data following the same method. The results of the two rounds of coding were nearly identical, demonstrating that the findings were dependable. Finally, we selected quotations that captured the participants' experiences, perspectives, voices, and meanings to reinforce the main observations. The participants were also given the opportunity to review the interview transcripts, results, and discussion through two member checks (Merriam & Tisdell, 2016). No participant requested additions or offered suggestions.

4 Lessons Learned

Three themes emerged during the analytical process that showed the challenges faced by English as second language teachers in traditional TPD and the affordances offered to them by microlearning TPD (see Fig. 1). Broadly, the interviews revealed that teachers found traditional TPD too time-consuming, and it did not provide quick and relevant solutions to their immediate OBL needs. In contrast, microlearning TPD permitted them to find answers to their specific questions and apply them in OBL teaching. The discussion below presents excerpts from the twelve interviews to reveal teachers' experiences with microlearning TPD.

4.1 Quick and Relevant

The dominant theme revealed in the analytic process was the predominantly positive attitude toward microlearning. It was perceived as a method offering skill-building, as well as quick and relevant learning opportunities that could be used to enrich lessons. This is particularly important in the current teaching climate, given the rapid transition to OBL that gave instructors little time to hone digital pedagogy and technology skills. Several participants felt that they had to spend a significant amount

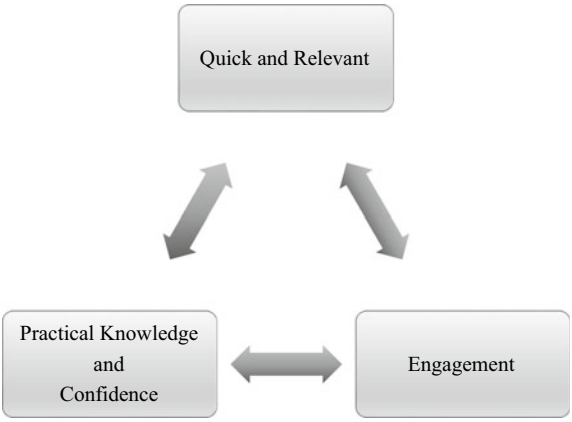

Fig. 1 Final thematic map illustrating the four themes identified in the analysis

of time staying informed about new technologies and trying to understand how to utilize them in their OBL. John shared, 'there is always a new tool. I feel like I spend most of my time playing catch-up, and it is quite stressful'. Sandra added, '…I need to update my skills constantly'. Others reiterated these points, adding that they used most of their time and energy trying to 'figure out how to use something' (Larry) and working to 'not look inept in front of their students' (Wayne). Brian expressed the discomfort that he and some of his colleagues felt about perceived shortcomings in their technical skills and abilities: 'I'm afraid I don't know what I'm doing in online teaching, and my students will judge me… "Look at the teacher; he can't get Kahoot! to work"'. These findings were consistent with those of previous studies that exposed weaknesses in digital competence among teachers (Lindfors et al., 2021; Starkey, 2020).

There was a consensus among the participants that short microlearning TPD activities provide immediate knowledge and skills. As John explained: 'I wanted to use Mentimeter, so I accessed the infographic and quickly understood how to use it. I liked that I could just follow the step-by-step approach to set it up and that it also provided suggested activities'. Karen expanded on this point: 'I wanted to learn how to use Padlet! And the 4-min PowToon video was beneficial. I watched it during my lunch break, and in my afternoon class, I used it with my students to create thinking maps'.

These two excerpts suggest that the microlearning activities were easy to digest and apply in OBL contexts. Additional participant statements support this point, such as Sandra's: 'I listened to a 6-min podcast where teachers shared how to increase interactivity in the classroom, and this gave me instant inspiration for what I could do in my classroom'. Most of the participants used TPD activities that helped them quickly select the right tools and apply new OBL skills. They felt that when engaging in microlearning TPD, they had the time and energy to explore new content in reasonable depth within their daily working routines. Thus, microlearning complies with

Desimone's and Garret's (2015) recommendations for TPD: it should emphasize individual professional development and be embedded in teachers' working conditions (Kohnke, 2021; Opfer & Pedder, 2011).

4.2 TPD Engagement

Another trend that emerged in the interviews was that the teachers felt more engaged with the skills and knowledge presented in the microlearning lessons than in traditional TPD. Pamela said, 'You don't have to sit through 45 or 60 min of someone talking on a topic that may not be directly relevant to you. Instead, I pick what I am interested in and need, which is more efficient'. Many participants echoed this sentiment. Brian noted that microlearning 'made learning more interesting' and 'spoke to [his] needs'. The teachers said that most of the TPD activities (e.g., workshops, seminars) arranged by the university were time-consuming and did not show them how to use OBL tools. Roy, for example, wondered about the point of sitting through an hour-long workshop or seminar. When asked to elaborate, he shared, '…Um, I guess, um, afterwards, I'm still not sure what to do because they cover so much'. Roy gets right to the heart of the issue: what teachers desire is TPD that is short and teaches them something that can be used immediately.

The teachers were candid that they were already under a great deal of stress. As Wayne said, 'I need something that I can quickly scan, get some ideas, and implement'. Participants highlighted that they felt the microlearning activities were more engaging than traditional TPD (see King, 2021; Corbeil et al., 2021) and provided the nuggets of information that they needed to improve their digital competence. This is broadly in line with Lindfors et al.'s (2021) findings on the conditions for professional digital competence.

4.3 Practical Knowledge and Confidence

Numerous participants named practical experience with technology and the confidence to use it with students as the main benefits of microlearning TPD. This is a positive finding as the pandemic provided teachers with little time to create an OBL student-centered learning environment. Participants mentioned ways that they transferred existing face-to-face teaching materials to the OBL format. Robert described listening to a podcast that explained 'how to create an interactive worksheet using Wizer' and then 'access[ing] the infographic on the topic'. Together, these provided him with the 'know-how and confidence to create a suitable worksheet'.

The frustration of trying to create interactive material was discussed at length. Donald expressed that he initially felt confused and lacked confidence in his ability to deploy OBL but found that the microlearning TPD 'was very focused and didn't overwhelm me at all'. While it was clear that the teachers had found the transition

to OBL challenging, all of them said that microlearning TPD had made it more manageable. Karen commented, 'I'm pretty confident now in OBL, and if I'm unsure of anything, I can quickly watch a video or check out an infographic'. Her words demonstrate that teachers access microlearning TPD when they need it.

TPD should be practical and realistic and aid teachers in integrating technology routinely into instruction (see Tondeur et al., 2016). Otherwise, teachers may not consider it a useful and meaningful opportunity to enhance their pedagogical skills (Philipsen et al., 2019). Marilyn noted that she 'now [doesn't] see teaching online as a big problem'. The interviews demonstrated that the participants' perceived that their pedagogical skills and proficiency with technology had increased. Through the relevant and immediate training provided by microlearning TPD, they were able to add to their skill base and keep pace with technological advances without feeling overwhelmed.

5 Conclusion

Based on the responses of the participants in this study, microlearning TPD activities can equip teachers with needed OBL skills. The COVID-19 pandemic has required teachers to rapidly improve their digital competence to deliver effective OBL lessons. If such lessons are designed appropriately, teachers can quickly explore new content that targets their individual OBL needs in reasonable depth, leading to development in their practices.

Regarding the implications, the findings suggest that a microlearning approach in TPD is suitable for preparing English language teachers for OBL. There was a consensus that microlearning TPD was more effective in providing teachers with the necessary skills (e.g., selecting the right tool and using it confidently) required for OBL than traditional TPD. This explorative case study revealed that microlearning TPD activities are understandable, easily absorbed, and equipped teachers with the technological and pedagogical skills necessary to succeed in this new teaching environment. By focusing on practical and realistic technologies and skills required in their teaching contexts, teachers could develop their digital competence (see Seufert et al., 2021).

The adoption of microlearning TPD requires careful planning and the reimagining of traditional TPD approaches. The key tenet of microlearning is to provide individual learning paths by deconstructing topic concepts into digestible chunks so that teachers can select what they would like to focus on. For example, instead of attending a one-hour workshop on using student response systems (e.g., Kahoot!, Mentimeter, etc.) (see Moorhouse & Kohnke, 2020; Kohnke & Moorhouse, 2021), teachers could learn about quiz or word cloud creation through short, impactful lessons containing step-by-step infographics or short videos. Similarly, they could listen to a short podcast in which others share best practices when using various Zoom functions (e.g., breakout room, emojis, etc.) to gain new ideas for their teaching.

One can reasonably conclude that the sudden transition to OBL left many teachers stressed and feeling inadequate (see Moorhouse & Kohnke, 2021a). With limited time to engage with traditional TPD, they were often unprepared to implement tools independently at the end of a session (see Küfi, 2022). The ability to facilitate teacher change and provide deep and meaningful learning opportunities with a direct focus on teachers' immediate tasks should be the primary aim of TPD. This would help teachers transition with the confidence and skills required to optimize student learning in OBL. Microlearning has the potential to revitalize professional development by giving teachers what they need in the form of bite-sized chunks of learning content available on demand. To achieve effective microlearning, it is important to incorporate videos and other visual components, keep all learning elements simple and, to avoid cognitive overload, incorporate only what is essential. Remember: *less is more*. However, the lessons still require high-quality content and specific learning objectives. For example, a new coursebook could be broken down into small, manageable chunks that teachers could quickly access to become familiar with the latest teaching materials. The microlearning lessons could include a two-minute podcast or narrated slide presentation providing an overview of the topic, followed by step-by-step infographic suggesting activities and suitable tools for each unit. These resources could be made available to teachers to help them remember what to do or show them the process of teaching an activity. Each TPD microlearning lesson should have a single learning goal.

This is a relatively small case study; nevertheless, the findings provide a starting point for future research; few studies have explored the role of microlearning TPD in preparing teachers for OBL. Future scholars may consider inviting a larger number of teachers to participate and incorporate questionnaires, observations, and reflective accounts through either quantitative or mixed-methods methodology.

As shown in this explorative case study, microlearning TPD has great potential to lead to more engaging and effective TPD and OBL. In summary, this study contributes to professional development by introducing a novel way of targeting teachers' individual needs: bite-sized lessons that serve the immediate requirements of today's English language teachers.

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Chapter 18
Online Flipped Tasks and Universal Design for Learning: A Means to an Inclusive and Motivating EFL Learning Environment

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Abstract Online flipped learning is an innovative pedagogical approach prioritizing an active, dynamic, and interactive learning environment. The Universal Design for Learning (UDL) framework enables the instructional design to effectively address diversity through differentiation and inclusive educational practices. However, the relationship between UDL and flipped learning is underexplored. Hence, this qualitative case study investigates four English as a Foreign Language (EFL) preservice teachers' experiences regarding the online flipped task design for the pre-class and in-class phases and their task design challenges. Additionally, the alignment between the flipped tasks designed by preservice teachers and the UDL principles was scrutinized to discover the task features. The participants were engaged in designing and implementing flipped EFL grammar lessons for eighth graders at a private middle school in Ankara for ten weeks. The data were collected via teacher logs and flipped lesson plans and were analyzed through content analysis. The findings suggested that despite some pedagogical challenges regarding the online flipped task design, the preservice teachers indicated a boost in their teacher self-efficacy, agency, and autonomy, as well as enhanced pedagogical digital competence. The study also showed a considerable alignment between flipped tasks and UDL principles, which was conducive to learner engagement, differentiation, and inclusive classroom practices.

Keywords Flipped learning · Universal design learning (UDL) · Preservice English teachers · Task design

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1 Introduction

Flipped learning as a contemporary approach has attracted considerable attention over the past decade. According to He et al. (2016), the growing interest in flipped instruction is due to its ability to combine active learning and online instruction. To that end, researchers have conducted many studies to explore the impact of the approach on student achievement and other educational variables. Birgili et al. (2021) conclude that flipped learning has been shown to improve student performance and has a favorable impact on their cognitive, affective, and soft skills. Likewise, flipped learning has also been a major area of interest in English language teaching (ELT). It has been indicated that active learning approaches are today deemed to be more effective than teacher-centered approaches in English as a foreign language (EFL) teaching. Therefore, the flipped classroom model has been enthusiastically embraced by researchers and educators thanks to its potential to meet the dynamic needs of the modern age and learners in line with advancing instructional technologies (Turan & Akdag-Cimen, 2020).

There is no doubt that task design is of paramount importance when it comes to ensuring the success of a flipped classroom. In that sense, teachers need to be competent in designing, engaging, and effective learning tasks, assigning tasks for pupils to perform independently, and achieving knowledge creation in the task-driven method (Sun & Wu, 2018). In such a design, students undertake learning tasks using the task-driven technique, progressively developing their capacity for learning and exploring in an independent and autonomous manner (Zou & Xie, 2019). Zhao et al. (2021) emphasize that current research has highlighted a task-driven educational strategy within the scope of flipped instruction. However, teachers are supposed to hold a theoretical background and competence in practice while designing such classes, which underscores the significance of preservice teacher education. In that sense, introducing innovative approaches to preservice teachers and providing them with ample opportunities for classroom practice are quite significant so that they can successfully implement such approaches and make the most of them when they start their careers.

It is noteworthy to highlight that flipped instruction has been practiced in higher education settings where learners regulate their own studies and have access to equipment and resources to practice flipped learning. However, when the number of limited studies in K-12 settings is concerned, it is seen that those studies are also designed to investigate mostly the achievement and perceptions of teachers and students. Indeed, as the current study dwells upon task design, not adequately represented in most of the studies, it might contribute to our understanding of CALL by shedding light upon both K-12 online flipped instruction and vital components of the approach. To that end, the current study aims to scrutinize the online flipped task design experiences of English as a Foreign Language (EFL) preservice teachers, its impact on their lesson planning and online implementation, challenges they go through during the design and implementation phases, as well as potential contributions of flipped instruction tasks to their techno-pedagogical competence and the alignment of their

tasks with the principles of UDL. To that end, the study addresses the following research questions:

1. How do English as a Foreign Language (EFL) preservice teachers experience the online flipped task design process?
2. What are the challenges that English as a Foreign Language (EFL) preservice teachers undergo in task design at different stages (pre-class phase and in-class phase) of online flipped instruction?
3. Do the online flipped tasks created by English as a Foreign Language (EFL) preservice teachers align with Universal Design for Learning principles?

2 Voices Already Heard

2.1 The Synchronous Online Flipped Learning Approach (SOFLA)

Flipped learning is an innovative pedagogical approach where traditional instruction is reversed via the presentation of new concepts prior to the class session, devoting more class time to collaborative, active, differentiated, and individualized learning through critical thinking and problem-solving tasks (Chuang et al., 2018; Hung, 2017; Webb & Doman, 2020; Zou & Xie, 2019). The Synchronous Online Flipped Learning Approach (SOFLA) (Marshall & Rodriguez Buitrago, 2017) was developed to align flipped learning principles with online instruction (Marshall & Kostka, 2020). SOFLA adopts the same sequence as flipped learning with out-of-class work in the asynchronous space and in-class work in the synchronous space. It reflects the interactive and dynamic features of the flipped learning approach (Marshall & Kostka, 2020) and fosters an online teaching presence. Students can be involved in peer interaction in real-time course sessions in SOFLA. Similar to face-to-face flipped learning, the teacher acts as a facilitator who has a "pivotal but not central, powerful but not controlling, and spontaneous role" for the effective online instructional design, assessment of student work, feedback provision, and the achievement of learning outcomes in online flipped learning (Marshall & Kostka, 2020, p. 4) (see also Apedoe et al., 2017; Morris & Wilson, 2017). The integration of gamification into flipped learning environments is regarded as conducive to deep information processing and students' self-confidence (Lin et al., 2018).

2.2 Flipped Learning in ELT in Turkey

It is widely known that flipped learning has been examined for a considerable amount of time around the world, whereas, in Turkey, the studies in various disciplines that scrutinize flipped learning have shown an increase within the last few years. To that

end, recent meta-synthesis studies highlighted the positive effect of flipped learning on the students' academic achievement, motivation, and metacognitive awareness (Kozikoğlu, 2019; Şensöz & Erdemir, 2022) (see also Adnan, 2017; Bakla, 2018 for case studies in the Turkish context). Specifically, the majority of the studies in Turkey have been conducted in higher education (Arslan, 2020; Tütüncü & Aksu, 2018), while studies that cater to primary and secondary education are limited (Turan & Akdag-Cimen, 2020). Considering the context of ELT in the country, a recent systematic review of graduate theses by Şensöz and Erdemir (2022) suggests that the advantages of the flipped classroom approach outnumber the disadvantages emphasizing some novel challenges for teachers and students. Moreover, the study identified a remarkable paucity of research in terms of K-12 levels of education. A close look into the national literature reveals that K-12 settings are understudied and underrepresented with regard to the implementation of flipped classroom and research.

2.3 Design Factors in Flipped Learning

Considerations for Material/Activity Design

What is important in flipped task design is "not the technology but the change of instructional models that are fruitful to help students gain more instructional support" (Arslan, 2020, p. 42). The reviewed studies related to flipped learning underline the importance of incorporating hands-on class activities involving higher-order thinking skills (Webb & Doman, 2020). Previous studies indicate that when lectures and assessments are shifted to out-of-class activities, students may be more meaningfully engaged in course content via interactive tasks and activities (Black et al., 2017). Furthermore, the reviewed studies pointed out that the flipped classroom material design needs to have open-ended and incremental design features that motivate students to reflect on their own learning process (Morris & Wilson, 2017).

Considerations for Assessment Design

Flipped classroom implementations enable teachers to align their assessments with the course goals via formative assessment tools (Apedoe et al., 2017). Formative assessment permits the continuous monitoring of the student's work. By reporting the students' progress in relation to the course goals, it enables teachers to make adjustments whenever needed (Adnan, 2017; Chen et al., 2014). Formative assessment tools can serve as a guide for teachers' classification and ordering of the course content if they are aligned with the course goals and Bloom's Taxonomy of thinking skills in flipped classrooms (Jensen et al., 2015).

3 Theoretical Voices: Universal Design Learning (UDL)

Universal Design for Learning (UDL) is a framework for "designing flexible instructional environments and proactively integrating supports that address learner variability" (Rao & Meo, 2016, p. 1) to provide equal opportunities for all learners (CAST, 2013). The increasingly diverse learner profiles of the 21st-century underlined the importance of a more inclusive curriculum design and the integration of inclusive practices into the learning environments to promote learners' educational progress (UNESCO, 2017). Accessibility of instruction to a wider range of learners is postulated as the basis for UDL, with multiple means for students' access to information as well as their processing and internalization of it (Rose & Gravel, 2009), which poses a global challenge for the 21st-century educators. UDL is considered a pedagogical approach to help respond to this challenge.

Flipped learning and UDL can support the creation of an inclusive learner-centered classroom and curriculum. In fact, both approaches tend to incorporate "a technology-rich environment with groups of networked learners" (Dinmore, 2013, p. 23), individualized and group instruction, autonomous, self-pace, reflective, and flexible learning. There are three main UDL principles: multiple means of representation, multiple means of expression, and multiple means of engagement (CAST, 2013). Multiple means of representation indicate the provision of diverse ways of information and knowledge acquisition for learners. Multiple means of expression are related to the provision of alternative ways for the learners' demonstration of their knowledge. Multiple means of engagement are concerned with tapping into learners' interests to foster their connection with the new knowledge and enable them to communicate effectively. It is shown to lead to improved student outcomes as well (McClenney et al., 2012). As preservice teachers cyclically engage in identifying learning goals and objectives, developing instructional strategies, and designing tasks, the UDL principles can equip them with a systematic structure to build flexible pathways into flipped lessons. By linking UDL to the interpretation of the nature of online flipped tasks, it is intended to neatly portray the prominent features of the lesson planning phase and its distinctive challenges in terms of predetermined categories.

4 Methods

4.1 Research Design

In this study, a qualitative research approach was adopted to gain insights into the preservice teachers' experiences of the online flipped task design process and the alignment of their lesson plans with UDL. As Creswell (2014) indicates, qualitative studies "explore a problem and develop a detailed understanding of a central phenomenon" (p. 16). In line with this, being commonly used in qualitative research,

an exploratory case study approach was employed since it "is a transparadigmatic and transdisciplinary heuristic that involves the careful delineation of the phenomena for which evidence is being collected (event, concept, program, process, etc.)" (Van Wynsberghe & Khan, 2007, p. 2).

4.2 Context and Participants

The study was conducted at a private middle school in Ankara, Turkey. The school promotes differentiated instruction, inclusive practices, and the integration of technology into ELT. The K-12 students with whom the preservice teachers had flipped lessons were two male and eight female students below 18 years with an English proficiency level of B1, studying in the eighth grade. The K-12 students participated in the study on a voluntary basis upon receiving parental approval as they needed some instructional support to develop their knowledge of English grammar. They joined five flipped lessons within the scope of this study for ten weeks. The flipped lessons were implemented every two weeks by the preservice teachers.

The participants of the study were four senior EFL preservice teachers, selected based on purposeful sampling, in a practicum course who were involved in an Erasmus + project on flipped learning called *Flipped Impact (FIP).* As the participants would need to handle a variety of processes and fulfill various responsibilities within the scope of the study, we wanted to make sure that they were dedicated and engaged in the use and integration of technology. To this end, a call was made for the potential candidates, and the participants of this study were chosen as a result of individual interviews. They were all female, with an age range of 21 and 23. They had an advanced level of proficiency in English and took several methodology courses in the previous years in addition to the compulsory elective courses regarding the integration of Information Technologies (IT) into ELT. They had no prior flipped teaching experience, although they had some private tutoring experience (see Table 1). They were engaged in designing and implementing flipped grammar lessons for eighth graders at a private middle school for 12 weeks. Prior to their study engagement, they were provided with a training program encompassing the theoretical aspects of flipped learning and hands-on practice regarding the development and evaluation of the flipped lesson plans for six hours.

Table 1 Demographic information of the participants

Participants	Gender	Age	Level of proficiency	Prior flipped experience	Prior ICT knowledge
Deniz	Female	21	C1	No	Yes
Melis	Female	22	C1	No	Yes
Simge	Female	22	C1	No	Yes
Esin	Female	23	C1	No	Yes

4.3 Data Collection Instruments

In this study, the data were collected via flipped lesson plans and teacher logs. The data collection process started after receiving Human Subjects Ethics Committee Approval from Middle East Technical University, numbered 470-ODTU-2021. Initially, the preservice teachers working in pairs engaged in the design of five online flipped lessons between March and June 2021 and prepared their lesson plans based on the specific grammar focus of each flipped lesson, ranging from reported speech, modals, and relative clauses to if clauses (see Table 2). While preparing the lesson plans, the UDL principles (i.e., recognition networks, strategic networks, and affective networks) were the basis for the preservice teachers (Meo, 2008). To evaluate the alignment of the lesson plans with the UDL principles, a checklist was constructed and calibrated. Upon receiving feedback, the preservice teachers revised their lesson plans accordingly.

Once a lesson plan was finalized, the preservice teachers kept a teacher log before its online implementation. A total of seven teacher logs were obtained. Simge handed in the teacher logs in written form, while the other preservice teachers preferred the audio format. The lesson plans and the teacher logs were collated electronically in a Drive folder. In the teacher logs, the preservice teachers were asked to reflect on the challenges of the flipped task design process, anticipated problems regarding the implementation of tasks, and the contribution of the online flipped lessons to student learning both in the pre-class and the in-class phase. The objective was to guide them to contemplate such issues before implementing the lesson; in other words, the preservice teachers were encouraged to think critically about the aforementioned issues and reflect on action. The teacher logs were later transcribed and analyzed through inductive content analysis. The three prompting questions on which the preservice teachers reflected both during the pre-class and the in-class phase in the teacher log are listed below:

1. What are the challenges you have had with the flipped task design?
2. What might be some of the anticipated problems regarding the implementation of tasks?
3. How do you think the flipped tasks that you have designed are likely to contribute to the students' learning?

Table 2 Summary of the data collection process

Preservice Teacher (PST)	Lesson topic	Teaching schedule	Teacher log
Simge & Esin	Active/Passive Voice	March 2021	Esin
Simge & Esin	Reported Speech	May 2021	Simge
Deniz & Melis	Relative Clauses	April 2021	Deniz & Melis
Simge & Esin	Simple Future Tense	May 2021	Esin
Deniz & Melis	Modal Verbs	June 2021	Deniz & Melis

4.4 Data Analysis

The data collected in the present study was analyzed through a content analysis method—a flexible method for analyzing text data by researchers (Cavanagh, 1997). Hsieh and Shannon (2005) propose that it can be conducted utilizing three distinctive approaches, which are conventional, directed, or summative. The current study made use of conventional content analysis to obtain direct information from the participants without forming predetermined categories. In order to ensure the credibility of the findings derived from the content analysis, researchers coded the material by taking turns, which ensured that each lesson plan and teacher log were analyzed by at least two researchers. The emerging conflicts were resolved with the participation of the third researcher, which enabled a conclusive list of themes and categories eventually. As far as validity is concerned, we used a rubric generated based on various UDL principles, and a calibration session was conducted so that the items in the rubric could be agreed-upon.

5 Lesson Learned

5.1 Preservice EFL Teachers' Experiences Regarding the Online Flipped Task Design Process

The analysis indicated that the preservice EFL teachers' experiences regarding the online flipped task design were grouped into three categories: *priorities of task design*, *ways of content delivery*, and *tendencies in actual task design.*

Underlining the importance of being responsive to students' needs and motivation, one preservice teacher stated that:

> Task design is not just about the topics that we are teaching. They are also supposed to respond to the students' needs to understand the material, the platforms we will use for the activity, the activities themselves, and their need for motivation to join the class. (Esin)

Another preservice teacher explained the rationale behind the selection of a theme for their lesson that influenced task design:

> We think that sustainable development goals as an environmental theme are eligible for practicing present and past modal verbs. Instead of making separate sentences by using modal verbs, providing them in context is more meaningful. Our aim is not merely to teach grammar but to encourage the students to think critically about environmental issues. (Deniz)

Similarly, the need for a context was highlighted by another preservice teacher concerning a task in the practice stage of the lesson based on relative clauses:

> For the practice stage, we are planning to include a reading text on the history of chocolate. Since we pay attention to integrating that stage into a context, we have prepared a task using HP5 that requires the students to add relative pronouns to the reading text. (Melis)

As regards the anticipation of the degree of difficulty of grammatical structures, an example is shown in the statement given below:

> The tasks are mostly associated with past modal verbs as they tend to confuse them a lot compared to present modal verbs that are taught starting from second grade. However, past modal verbs are taught at a later period. (Deniz)

In terms of the content delivery methods, the preservice teachers had a high opinion of *creating infographics* and *ensuring clear instructions* to the students, notably for the pre-class phase. With regard to the infographics, they usually tended to include them in the pre-class materials as visual representations of the target grammatical structures through charts and graphs, as indicated in the following statement:

> We prepared an infographic demonstrating a categorized version of the modal verbs. The students are guided to differentiate between the probabilities and functions of the modal verbs. (Melis)

Moreover, the quote below captures the preservice teachers' tendencies in actual task design, such as routinized lesson closure activities:

> As usual, an exit ticket is given at the end of the lesson in which the students are asked to vote for the activities and raise questions. (Melis)

The abovementioned quotes of the preservice teachers from the teacher logs revealed that their flipped teaching experience contributed to the prospective teachers' professional development process. Being given the autonomy to plan and implement their own flipped lessons, the preservice teachers felt a boost in their self-efficacy and agency. They also reported that their engagement in this innovative technology-enhanced lesson design and implementation process enhanced their technological and pedagogical competence. Table 3 shows the prominent features of the online flipped task design process.

5.2 *Preservice EFL Teachers' Challenges in the Design of Online Flipped Tasks*

The teacher logs showed that the preservice EFL teachers also experienced multiple challenges when designing and implementing online flipped tasks. These are classified into pre-class phase and in-class phase challenges. Since it is a back-and-forth process, the two phases are interrelated to each other. In this regard, they were inclined to assess the practicality and effectiveness of the tasks and make some adjustments to the upcoming flipped lessons accordingly.

Pre-class Phase Challenges

The pre-class phase challenges are revealed as *teaching grammar in context*, *integrating gamification into pre-class and in-class activities*, *shooting interesting*

Table 3 Prominent features of online flipped task design process

Categories
Priorities of task design
Addressing student needs
Anticipating difficult grammatical structures
Fostering critical thinking
Creating theme-based lesson plans
Contextualized grammar teaching
Selecting the right online educational tools
Ways of content delivery
Creating infographics
Ensuring clear instructions
Teacher modeling
Tendencies in actual task design
Integrating personalization activities
Questioning task difficulty & task clarity
Adjusting task difficulty
Including routinized lesson closure activities
Prioritizing fun classroom activities and games

educational videos, accessibility of online educational tools, *providing enough instructional materials*, and *designing appropriate pre-class and in-class activities.*

The quote below reflects the difficulty faced by the preservice teachers in ensuring contextualized grammar teaching:

> We struggled to find a grammar topic that would fit a debate, and we decided on 'future tenses' for this lesson. The reason why was because we thought this structure is compatible with a debate activity. (Esin)

Concerning the gamification elements, one preservice teacher indicated:

> While designing the lesson, the biggest problem we had was with finding a game-like activity that would fit the grammar point we were going to teach. Our topic is reported speech, and although it is a communicative function in English grammar, it is still difficult to come up with an original game plan that would enable student-to-student interaction and would be adaptable to an accessible and functional online application or platform. (Simge)

Moreover, as regards the accessibility of online educational tools, another preservice teacher stated:

> In addition to choosing the right platform for our lessons, we also have to ensure that our students are able to reach them, use them, and understand how they work before attending the class. (Esin)

Figure 1 demonstrates common challenges that preservice teachers face during the pre-class phase.

In-Class Phase Challenges

Apart from the pre-class phase challenges, the in-class phase challenges were indicated as follows: *uncompleted pre-class activities*, *giving clear instructions for activities*, *students' perceptions of task appeal*, and *revisiting previously taught grammar topics.* Accordingly, uncompleted pre-class activities posed a problem for the flow of

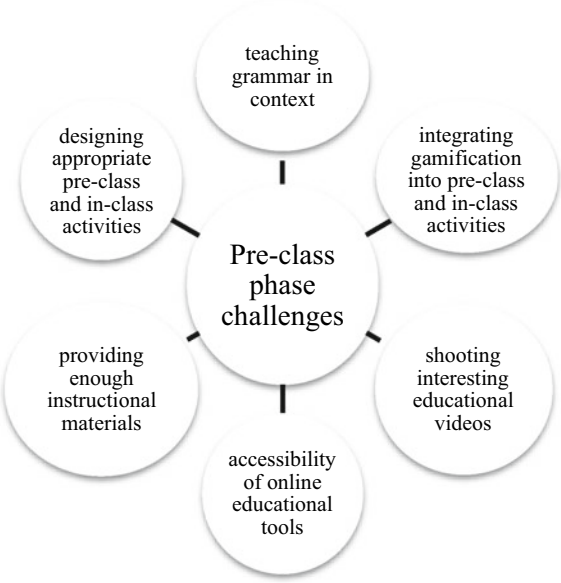

Fig. 1 Pre-class phase challenges

the lesson as the in-class activities are thematically related to them. Furthermore, the preservice teachers were expected to revise the grammar topics previously taught by the actual teachers. Hence, the attempts to attract the attention of the students through appealing tasks were considered difficult.

The following quote underlines the importance of the completion of pre-class activities:

> The biggest problem is that the students did not receive the links, did not watch the video, or did not engage in the tasks we required them to do before the lesson. (Simge)

Also, the preservice teachers felt relatively incompetent at giving clear instructions for the activities, as illustrated in this example:

> Sometimes, the students get confused with instructions, especially for the tasks requiring creativity. We need to improve our skills in relation to giving instructions. In the upcoming lesson, they will design a poster based on sustainable development goals. In order to overcome confusion, we will use modeling as an instructional strategy. (Melis)

The in-class phase challenges encountered by the preservice teachers are given in Fig. 2.

Fig. 2 In-class phase challenges

5.3 *Anticipated Problems Regarding the Implementation of Online Flipped Tasks*

There were also references to several anticipated problems regarding the implementation of online flipped tasks during the in-class phase. In that vein, *vague instructions*, *connection problems*, *students' webcams off*, *lack of motivation in students*, *lack of attendance and participation*, and *students' unfamiliarity with online educational tools* came to the fore. The following quotes are provided as representative examples:

> We have been having problems with attendance for a long time, and this creates the need for more interactive activities. This week's plan is suitable for pair/group work, and they would actually benefit from working together as they could help each other with a fairly difficult subject. (Melis)
>
> Some students have connection problems, so we need to take breaks to help them. Some others have difficulty in understanding how to access and use a platform when it is fairly new to them. (Esin)

5.4 *Alignment of Flipped Tasks with UDL Principles*

The content analysis of the five lesson plans based on the aforementioned checklist indicated that the preservice teachers were able to apply the three UDL principles to their task designs to a considerable extent. Table 4 summarizes the frequent items in the lesson plans depending on the *engagement* and *action & expression* principles.

Table 4 Frequent items for the engagement principle

UDL principle	Frequent items
Engagement	Providing learners with autonomy
	Amount of variation in activities
	Activity design with authentic learning outcomes
	Task design for active participation and exploration
	Opportunities for self-reflection and personal response
	Supportive school climate
	Differentiation in the degree of task difficulty and complexity
	Provision of guiding prompts
	Opportunities for peer support and feedback
	Provision of timely, specific, and informative feedback
	Cooperative learning activities
	The promotion of self-regulation through activities
Action & Expression	The use of social media and interactive web tools
	The use of multimedia elements in the lesson

Moreover, the frequent items in relation to the *representation* principle are demonstrated in Table 5. Accordingly, the preservice teachers tended to consider criteria in task design such as multimedia support, multiple entry points to a lesson, and the clarification of parts in the materials via extended explanations.

Table 5 Frequent items for the representation items

UDL principle	Frequent items
Representation	Multimedia support for the auditory input
	Opportunities to understand the subject matter in different ways
	Connecting new information to the learners' prior knowledge
	Clarifying unclear parts in the materials via visuals or extended explanations
	Pre-teaching critical concepts by modeling
	Highlighting key elements in the text
	Providing prompts to highlight critical points
	Making information accessible through various senses

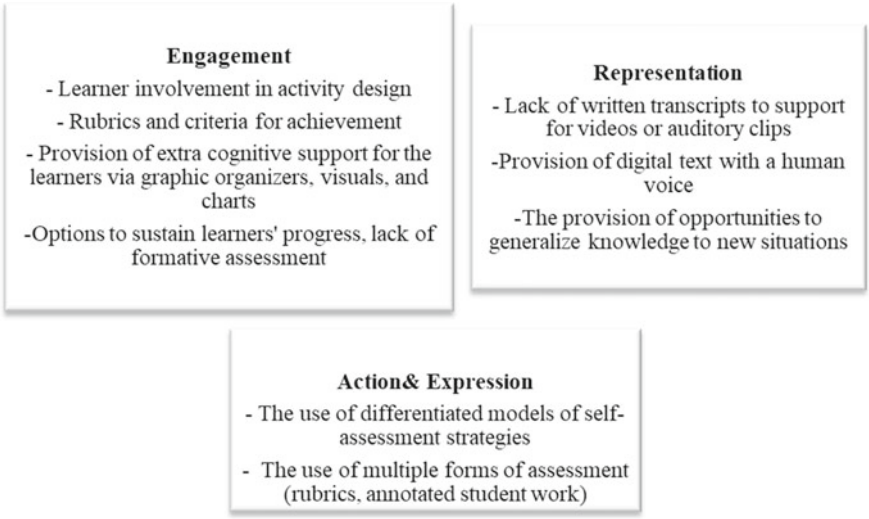

Fig. 3 Rare items for the UDL principles

In addition to the items above, there were also rare items either not observed or integrated less frequently. The lack of multiple forms of assessment was one of the salient features, as illustrated in Fig. 3.

To exemplify, the task design of the online flipped lesson plan focusing on the active and passive structures offered multiple opportunities for personalization, contextualization, and purposeful communication, emphasizing active, authentic, and discovery learning. Varying the channels of self and collaborative expression in a digital learning environment seemed to motivate the students to actively participate in the activities. The preservice teachers' provision of constructive and informative feedback and their guiding prompts contributed to the establishment of a supportive learning atmosphere. Highlighting the key points related to the function and forms of the active and passive structures in the video and the use of infographics seemed to foster the retention of new knowledge.

The way the lesson content was rendered accessible to the learners via the utilization of multisensory channels such as movies, films, and songs also appeared to promote the cognitive engagement of the learners and accelerate their speed of information processing. However, the lesson plan seemed to lack the transcripts or other supplementary materials to accompany the videos. Also, the plan lacked various means of differentiated models of self-assessment strategies and assessment instruments such as rubrics.

6 Discussion

The prospective teachers seemed to adopt active and student-centered pedagogical principles in task design aligned with 21st-century skills (Tütüncü & Aksu, 2018; Van Alten et al., 2019). Each appeared to act as a *professional educator*, a reflective practitioner with the agency for pedagogical task design in accordance with the students' needs and learning styles (Marshall & Kostka, 2020, p. 3). They seemed to integrate incremental design features into the flipped classroom material design, considering the task difficulty levels and the K-12 students' levels of proficiency and readiness levels (see Morris & Wilson, 2017). Via contextualized teaching, theme-based lesson planning, and the choice of appropriate Web 2.0 tools, they strove to create and sustain the students' motivation in the flipped lessons.

In the study, the preservice teachers' pre-class task design challenges appeared to be mostly related to their technological pedagogical content knowledge (TPACK) (Mishra & Koehler, 2006). They do not always seem to be certain as to how to align a particular content with the relevant technological resources and Web 2.0 tools. Apart from technological content knowledge (TCK), they appeared to encounter some challenges due to their relatively insufficient technological pedagogical knowledge (TPK) (Kurt et al., 2014) and the difficulties with the operationalization of their pedagogical knowledge (PK) (e.g., the contextualization of grammar teaching) (see also Lo & Hew, 2017).

Regarding the preservice teachers' in-class task design challenges, student-related challenges and preservice teachers' pedagogical challenges came to the fore. The student-related challenges, such as the students' reluctance to be involved in pre-class activities, echoed the findings of previous studies (Al-Zahrani, 2015). The students' lack of familiarity with flipped learning and their mainly teacher-centered background may be ascribed to these challenges (Chen et al., 2014). In addition, the preservice teachers' in-class challenges might be attributed to their lack of pedagogical knowledge related to instruction-giving, attention-getting, and grammar recycling strategies (Tafazoli, 2021).

Considering the alignment of flipped lesson plans with UDL principles, in terms of *the multiple engagement component*, the preservice teachers seemed to attach substantial importance to the provision of differentiated flipped tasks to facilitate the students' self-expression and active learner involvement (McClenney et al., 2012). They appeared to reflect this socio-constructive perspective through the incorporation of collaborative peer interactions, peer scaffolding, and peer feedback into the in-class activities, as well as the integration of active learning activities such as interactive videos in pre-class activities (O'Flaherty & Phillips, 2015). Concerning *the multiple means of expression*, the flipped lessons tended to reflect the integration of multi-media elements and the deployment of diverse interactive digital tools. Students were given opportunities to express themselves in different ways through digital posters, reflections, or audio-recording. Last but not least, regarding *the multiple means of representation*, the preservice teachers provided various opportunities for learners

to acquire knowledge in different ways. They managed to present lesson content through multimedia, making information accessible through various senses.

The preservice teachers' lesson plans were not found to be aligned with the UDL principles in certain ways. To illustrate, the lesson plans tended to lack varied formative assessment activities to help learners assess their academic progress in the lesson (Brown, 2018). Although peer assessment was integrated into the lesson plans, no structured rubrics were provided for this purpose. The self-assessment activities were exclusively provided via exit ticket activities. The students were most frequently provided with oral teacher feedback during in-class sessions. The dearth of formative assessment tools might be attributable to a lack of emphasis on the assessment strategies at the beginning of the process. In addition, the lesson plans seemed to offer insufficient opportunities for the extension of the students' newly acquired knowledge to new contexts in online learning environments.

7 Conclusion

The study indicated the favorable impact of the Turkish EFL preservice teachers' flipped grammar lesson design and implementation experience on their promotion of self-efficacy, agency, and autonomy development. The findings suggested that TPACK and techno-pedagogical competencies of the preservice teachers were a facilitator of the effective integration of the UDL principles into the flipped task design. The challenges regarding the integration of UDL principles into lesson plans implied a need for continuous guidance in terms of the flipped lesson assessment, particularly the formative assessment component. Despite the relatively short duration and the limited number of participants, the study can be considered to provide a road map for how to prepare and implement engaging and more inclusive flipped lessons in line with the UDL principles and how to effectively address the potential challenges in this regard. Future studies might investigate the differences and similarities between the alignment of the preservice and in-service teachers' flipped lesson design, implementation, and assessment processes with the UDL features.

The study has several implications for teacher educators, in-service teachers, and flipped instruction designers. For teacher educators, the lessons learned through the current study indicated a road map for the training of the preservice teachers who are supposed to design, implement, and evaluate the flipped tasks at the K-12 level. It implied that a holistic perspective should be adopted in terms of flipped task development, including the design, implementation, and evaluation. The teacher educators might consider incorporating a detailed flipped task assessment component into the training program, including the use of rubrics used in previous studies for the evaluation of flipped lesson plans. Flipped course designers might also find it beneficial to consider the task design challenges depicted in the study while developing new flipped courses.

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Chapter 19
Iranian EFL Teachers' Challenges and Solutions in Using Computer-Assisted Assessment: Exploring EFL Teachers' Experiential Evidence

Rajab Esfandiari and Hussein Meihami

Abstract This chapter examined the Iranian EFL teachers' challenges with computer-assisted assessment (CAA) and their solutions to such challenges. Through a transcendental phenomenology, we attempted to investigate EFL teachers' experiential evidence to find the essence of the phenomenon—the challenges and solutions of CAA—from their voices. Hence, we collected autobiographical narratives of four Iranian EFL teachers and analyzed them based on Giori's five-step framework. The findings showed that EFL teachers' main challenges in integrating CAA into their classes were the lack of required infrastructures and teachers' low technological literacy. The findings also indicated that teachers' main solutions were alternative assessment to CAA, CALL teacher education, developing infrastructures, new identifications of technology, and students' technological literacy. By analyzing their experiences critically, we found that they cannot distinguish between pedagogical and institutional infrastructures, which could be the origin of many of their challenges. Moreover, concerning their solutions, we found that the accountability of their solutions is not the same in the Iranian context. Finally, we conclude that EFL teacher education programs in general and CALL teacher education programs in particular need to change EFL teachers' identifications about the concept of infrastructures and simultaneously develop teachers' technological literacy and autonomy.

Keywords Computer-Assisted Assessment (CAA) · Computer-Assisted Language Learning (CALL) · English as a Foreign Language (EFL) · Iranian EFL teachers · Transcendental phenomenology

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1 Under-Represented Context: CALL in Iran

Technology finds its way into second language (L2) pedagogy after enhancement in the technological tools, platforms, software, and applications. The ability to use technology is now considered a determining competence for L2 teachers to keep pace with computer-assisted language learning (CALL); otherwise, they find themselves at a disadvantage (Hubbard & Levy, 2006). It is why the L2 policymakers worldwide try to address CALL teacher education in their programs. CALL teacher education aims to develop L2 teachers' professionalism through combining technical notions with language knowledge (Torsani, 2016). Overall, CALL teacher education tries to develop teachers' professional identity to help them deal with different challenges when integrating CALL into their classes (Meihami & Esfandiari, 2021).

In Iran, where English is a foreign language (EFL), there has been limit research into CALL teacher education (Marandi, 2019). However, it is not without challenges. Among the main reasons for challenges of CALL teacher education are the newness of the concept, the limited infrastructures in some locations of the country, the limited methodological guidelines to administrate CALL teacher education, and EFL teachers' internalized need to integrate technology with their teaching (Meihami, 2021). These challenges of CALL teacher education lead to limited CALL instructions in Iranian universities. Until recently, there have been limited CALL-related courses offered by the universities during BA and MA programs to the Teaching English as a Foreign Language (TEFL) students. Furthermore, when examining the Iranian context, where English language teachers are those who have a degree in TEFL, English literature, or English translation, the situation is worse since the students with English literature and English translation educational backgrounds do not have any CALL-related courses.

When it comes to computer-assisted assessment (CAA) as one facility used in CALL to assess students, it is unclear how Iranian EFL teachers perceive it. However, CAA has been confirmed to have some benefits making it an eye-catching facility in EFL classes. Among CAA benefits can be called the ability to assess a large number of students (Ghilay & Ghilay, 2012), making assessment more manageable for the teachers (Ghilay, 2019), and maybe, the only way to continue learners' assessment with the outbreak of COVID-19 pandemic. When considering the Iranian context, we find out that EFL learners have increased in the recent three decades. Thus, it is sometimes difficult for the EFL teachers to manage assessment through the traditional pen-and-paper assessment. Additionally, learners need to be provided with feedback on their assessment which is not applicable for the EFL teachers due to a large number of learners. Hence, it seems that CAA is necessary to be implemented in the Iranian context. However, it is not obvious which challenges the EFL teachers encounter while implementing CAA in the EFL classes and their solutions to the challenges. That said, the purpose of this chapter was to explore the challenges that the EFL teachers face in conducting assessments in computer-mediated spaces, address the problems impeding the full implementation of online assessment, and offer possible solutions to remove the obstacles in the way of computer-assisted assessment.

2 Voices Already Heard

2.1 Challenges of EFL Teachers with CAA

The critical concern of the current chapter is to address the challenges of EFL teachers with CAA using a phenomenological perspective. Computer-assisted assessment is believed to be the use of technology in general and computers in particular in developing, designing, administrating, and scoring tests (e.g., Gretes & Green, 2000; Jamil, 2012; Schoen-Phelan & Keegan, 2016). Therefore, CAA has its procedural underpinnings that should be approached in EFL teacher education programs. When looking at CAA with a critical lens, it seems that it has three main parts that should be addressed in EFL teacher education programs: computer, assistance, and assessment.

The first term in this combination is the computer, which is the representation of technology in L2 pedagogy. Hence, by saying a computer, we do not mean only the hardware, but all the software simultaneously, which leads the L2 teachers to use its facilities to improve learners' L2 competency (Beaty, 2003). However, with the advancement of technology, the conception of the term computer has been replaced by a broader concept in which teachers need to have higher order skills to keep pace with other mediums provided by technology and not just computers (Warschauer, 1999). When talking about technologies in general, and computers in particular, it seems that EFL teachers need to develop technical knowledge about how to use them. The rapid advancement in technologies asks for developing teachers' ability to use different technology types in their classes. The rapid advancement in technologies asks for teachers who can use technologies. However, considering the TEFL programs in the Iranian context, there is no special course that technically addresses working with new technologies. Although the CALL course is within the BA and MA degree curriculum, the course does not address the technical knowledge related to technology; instead, it provides limited examples of how to use technology in the EFL context. It is a critical concern since if TEFL programs do not prepare technical knowledge of technology in general and computers, EFL teachers will not be able to keep pace with technology advancements. In other words, their technical knowledge would be fixed, not dynamic. The issue is harsher when we consider CAA in the EFL contexts since EFL teachers, often, are not instructed on how to use new technologies for the purpose of assessment.

The second term which needs attention in CAA is assistance. The term assistance in CAA can be addressed from various perspectives. First, the essence of integrating technology in L2 pedagogy is to develop L2 learners' competence through the assistance of technology. It means that technology types need to supervise and assist them (Stockwell, 2012) to foster their learning. The term assistance in CAA, similar to CALL, reminds us of the mediator nature of technology in L2 assessment. Assessment is always accompanied by feedback and assistance to develop learners' abilities. With the emergence of technology in L2 pedagogy, part of this responsibility to assist and provide feedback on L2 learners' production has been put on the shoulders of technology. Therefore, when addressing assistance in CAA, it is critical for EFL

teachers to know how and to what extent the assistance should be handled by technology. Moreover, with the advent of new technologies providing different degrees of assistance and feedback, it becomes essential for EFL teachers to recognize the types and amount of assistance while using CAA. Furthermore, the similarities of the term assistance with those of scaffolding and prompting might make it harder for the EFL teachers to decide how to follow CAA. It is a concern in TEFL programs since the CALL courses do not help teachers to assist their learners through technology.

Finally, the third term in CAA which needs to be addressed is assessment. TEFL programs in Iran, fortunately, have different courses to develop EFL teachers' assessment literacy. Consequently, EFL teachers know quite a lot about developing, administrating, and scoring tests to gauge their learners. However, when it gets to CAA, assessment finds a new horizon, asking EFL teachers to reconsider the principles of assessment to be in line with the requirements of CAA or any online assessment type (Jamieson & Musumeci, 2017). Nevertheless, when CAA is focused, EFL teachers should develop their abilities to apply technology in general and computers in particular in assessing different L2 skills and subskills (Suvorov & Hegelheimer, 2013). However, it is not easy for teachers due to many factors, including technical aspects. Again, this is a concern in the TEFL programs administrated in the Iranian context since the programs do not address the new conceptions of assessment in CAA.

Putting the three terms—computer, assistance, and assessment—together in CAA, our main concern is that it is a challenge for Iranian EFL teachers to integrate CAA into their profession. Although they use CAA in their classes, especially after the outbreak of the COVID-19 pandemic, they seem to go through trial and error to use CAA in their classes. The claim seems valid because when looking at the curriculums of BA and MA programs in TEFL, we can see a CALL course offered both at BA and MA levels; however, it is not enough to address the abovementioned concerns because CALL has many branches, including CAA, which must be addressed meticulously. Moreover, addressing the three main terms of CAA shows that CAA needs critical educational programming to develop EFL teachers' ability to integrate technology in their assessment.

2.2 CAA: Promising, Yet Challenging

Using computer technologies in assessment is known as CAA (Pathan, 2012). There are various studies addressing CAA in different disciplines. Chalmers and McAusland (2002) believed that CAA could decrease teachers' workload and increase time and resources. In addition, they stated that CAA could develop teachers' administrating abilities to give the test and score them. However, Chalmers and McAusland (2002) declared that the limitations of CAA should not be ignored. They believed that these limitations are both pedagogical and administrative. Their case study with economic students showed that CAA could develop deep learning. When considering CAA in EFL teacher education, this is critical for the EFL teacher education

programs and educators to familiarize their EFL teachers with the pedagogical and administrative barriers.

Sim et al. (2004) conducted a study to approach the issues of using CAA. To that end, they investigated CAA issues concerning test construction, security, and administration. They claimed that students' exposure to IT is a leading factor in the success of CAA. After a comprehensive review of CAA-related issues, they concluded that the institutional procedures related to how and what of CAA can have a great effect on the prosperity of using CAA. EFL teacher education programs need to help EFL teachers draw upon the test construction, security, and administration procedures. Hence, by so doing, the burden on teachers to develop appropriate tests will decrease.

In 2006, Muwanga-Zake conducted a study to investigate the effectiveness of CAA in diagnostic tests. His study revealed the results of the previous studies regarding the benefits of CAA. However, he declared that the potential of CAA in being used as a diagnostic and remediation tool depends greatly on the teachers' ability to construct diagnostic tests, interpret the results, and provide related feedback. The results of this study are critical for EFL teacher education programs in that EFL teachers should be informed about the whole process of integrating CAA in their EFL classes, from test construction to providing feedback. It is where EFL teachers' assessment literacy concerning CAA should be addressed.

In a study to examine MBA educators' perceptions about automated assessment, a type of CAA, and automated feedback, Debuse et al. (2008) concluded that the workload influence of automated assessment is positive since it saves time and cost. However, Debuse et al. (2008) believed in the importance of training about how to use automated assessment when educators want to obtain positive results. The results can have implications for EFL contexts in that EFL teacher education programs and CALL teacher education programs can determine the success of CAA in EFL classrooms. It is so because the quality of the training that EFL teachers are provided in these programs can determine their success in integrating CAA in their classes.

Jamil (2012) conducted a study to investigate university students' perceptions of CAA. Investigating a sample including 1877 students, Jamil concluded that female students are more inclined toward CAA. The overall results were interesting in that students believed that their teachers should not use CAA as a routine assessment technique, but they should consider it an alternative to assessment. Students also complained about the hardware- and software-related problems while participating in CAA. The results of Jamil's (2012) study have two implications for our study. First, CALL teacher education programs or EFL teacher education programs need to inform EFL teachers that CAA can be an alternative to traditional assessment, not a substitution for it. Moreover, the infrastructures which are necessary for CAA need to be well considered by the EFL teachers before making CAA as the main technique of assessment.

In the Iranian context, very few studies can be located concerning CAA, which may not necessarily relate to our study. The only relevant research study was that of Tahmasebi and Rahimi (2015), the findings of which we summarize. Tahmasebi and Rahimi examined the extent to which computers were used to assess the

language abilities of English for specific purposes (ESP) of students. To that end, Tahmasebi and Rahimi selected 50 computer science students to conduct their study on. Following a computer-assisted test, Tahmasebi and Rahimi found that ESP students complain about the obstacles, which hinder the computer-assisted activities. The challenges notwithstanding, Tahmasebi and Rahimi conclude that the findings of the study point "to the possibility of using computer-assisted assessment as an alternative to the present mainstream testing system" (p. 56).

The review of the above-mentioned studies which focused on different aspects of CAA shows some main concerns to be considered while CAA is part of a CALL/EFL teacher education program. Firstly, it is believed that infrastructures have critical roles in contributing EFL teachers to reach the positive attainments of CAA. Secondly, EFL teachers' CAA literacy without a doubt should be an essential aspect of CALL/EFL teacher education programs, so EFL teachers can overcome the difficulties in their way to integrate CAA into their classes. Thirdly, EFL teachers should be well informed about the challenges and probable solutions of integrating CAA into their classes. Finally, CAA should be considered an alternative to the traditional assessment, not a substitution for it. It means that EFL teachers should understand that they should not address all the assessment procedures in their classes through CAA.

2.3 Theoretical Voice: An Emic Perspective

We followed an emic perspective in this study. The reason for this selection is that we wanted to hear the voice of EFL teachers about the challenges and solutions of integrating CAA from their experiential evidence. Therefore, an emic perspective that provides the internal meaning about a specific phenomenon was appropriate for our research design: a transcendental phenomenology. Furthermore, an emic perspective contributes to the studies with exploratory nature, such as the one we have done. Moreover, it helped us address the phenomenon through the insiders' language (Markee, 2013), leading to a comprehensive understanding of the phenomenon.

3 Methods

3.1 Research Design: A Transcendental Phenomenology

We used a transcendental phenomenology to explore the lived experiences of the L2 teachers about the challenges and solutions of CAA. There are some reasons for using phenomenology over other qualitative research typologies and a transcendental phenomenology design over the other phenomenological designs. First, since the core objective of the current study was to explore the EFL teachers' experiential

evidence concerning their challenges and solutions to using CAA, a phenomenological approach could help us understand the meaningful essence of the challenges and solutions based on their experiences (Creswell & Poth, 2018). Second, choosing a transcendental phenomenology over the other designs (e.g., existential design and hermeneutic design) was that a transcendental phenomenology design could help us to find a descriptive view of EFL teachers' experiences by making them conscious of the points under study (Edmonds & Kennedy, 2017). By so doing, we were able to raise the intentionality of the participants to become conscious and provide meaningful information, to reach an eidetic reduction in which we use the consciousness of the participants to purify the meaning obtained about the challenges and solutions, and to constitute the meaning according to the real world (van Manen, 2014). Finally, going through all steps, we could reach the overall experiential meanings of the challenges and solutions of CAA for L2 teachers. Figure 1 indicates the transcendental phenomenological design addressed in this study.

We went through different steps to address the objective of the current study based on a transcendental phenomenological design. Firstly, we addressed the imaginative variation step. It was the step where we tried to get the primary structures of the experience (Vagle, 2018). To that end, we raised and assessed L2 teachers' consciousness about the phenomena under study: the challenges and solutions of using CAA. We did so by providing a protocol in which we explained the phenomena. This way, we triggered their autobiographical memory so that they could consciously

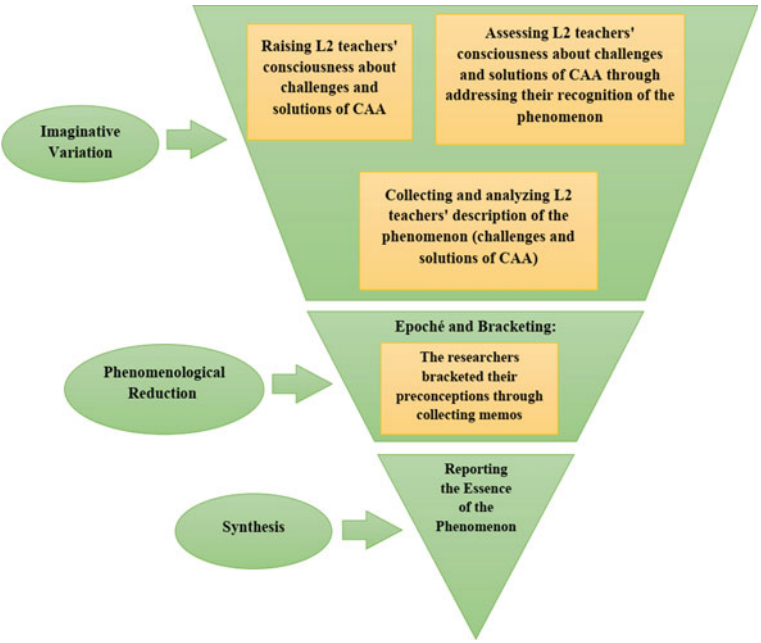

Fig. 1 The transcendental phenomenological design of the study

produce their autobiographical narratives. Moreover, we assessed their consciousness of the phenomenon by examining their understanding of the issue after we debriefed the issue under study. Moreover, we examined their consciousness by collecting and analyzing their narratives and screening the concepts of challenges and solutions of using CAA. Secondly, we addressed phenomenological reduction, which is the process of setting aside the researchers' preconceived experiences and conceptions about the phenomenon so that the results of the analysis can be appropriately related to the participants' experiences. We bracketed our conceptions of the phenomena under study by writing memos throughout the data collection and analysis (Tufford & Newman, 2010). Finally, we synthesized the essence of the phenomena by analyzing the autobiographical narratives we received through Giorgi's (2009) five-step framework explained below.

3.2 Participants

It is believed that the most appropriate sampling for phenomenological studies is maximum variation sampling (Langdridge, 2007) since it helps the researchers to examine an experience that is common among individuals who are different in some features. Therefore, we have used maximum variation sampling to recruit the participants for this study. Although the participants were EFL teachers, they had different years of teaching experience. Thus, we asked 10 EFL teachers who had experience of integrating CALL in their classes and using CAA to assess EFL learners' language skills. The announcement of participation in the study with the written protocols of autobiographical narratives was sent for them. Four out of 10 accepted our invitations to participate in the study. It is worth mentioning that we reached data saturation with the information provided by the four participants. Therefore, we did not recruit more participants for the study. There were two male (Ali and Akbar) and two female (Anita and Fateme) EFL teachers, ranging in age between 32 and 65. They had varied teaching experience from 8 to 30 years. Table 1 indicates the background information of the participants.

Table 1 Background information of the participants

Pseudonym	Gender	Educational background	Years-of-teaching experience	Length of their narratives	Language of the narrative
Ali	Male	PhD in TEFL	30	20 min	Persian
Akbar	Male	PhD in TEFL	15	25 min	Persian
Anita	Female	PhD in TEFL	10	580 words	English
Fateme	Female	PhD in TEFL	8	3200 words	English

3.3 Data Source: Autobiographical Narratives

Obtaining experiential evidence to reach EFL teachers' voices about challenges and solutions of using CAA required triggering the autobiographical memories (Smorti, 2011) of the participants to represent their voices in their autobiographical narratives. Another reason for using autobiographical narrative as the data source in this study was the research design we followed: a transcendental phenomenology. According to one of the prerequisites of transcendental phenomenology, the researchers need to bracket their experiences from the final analysis. Using autobiographical narratives helped us obtain information without having many interactions with the participants. In turn, it helped us put aside our experiences since we had very limited interactions with the participants to create any experiences. Therefore, autobiographical narratives helped us in the "externalization" of the EFL teachers' voices about the challenges and solutions of CAA.

To collect the autobiographical narratives of the EFL teachers, we set up a standardized protocol, adjusting Riessman's (2008) narrative model. We included some information to trigger the autobiographical memory of the participants in the protocol. Moreover, it should be stated that due to the critical role of the autobiographical memory in helping us to reach relevant information about the topic under study, we explained further information to the participants when we communicated with them for the first time, asking for participation in our study. Moreover, we asked them to structure their narratives with an introduction (uttering their opinions about using technology in L2 assessment), continue their narratives with the challenges and solutions of CAA (correspondence to Riessman's (2008) orientation and complicating actions), and finalize their narratives with the overall experiences they had with CAA during different time intervals (correspondence to Riessman's (2008) resolution and coda). The standardized protocol we set up helped us obtain "fully formed" narratives (Riessman, 2008). The participants could produce their narratives orally or written in Persian or English.

3.4 Data Analysis Procedure: A Descriptive Phenomenological Analysis

To analyze the autobiographical narratives providing phenomenological data about the experiences of the EFL teachers about the challenges and solutions of CAA, we used Giorgi's (2009) five-step framework. Figure 2 indicates the framework.

To obtain the experiences of the EFL teachers about challenges and solutions of CAA, we followed Giorgi's five steps, using MAXQDA 20. Firstly, we entered the narratives into MAXQDA and read/listened and re-read/relistened to the narratives to find an overall sense of the narrative meaning for each participant. In this stage, we tried to bracket our preconceptions about the topic. Secondly, we broke down the text into units of meaning by codifying the narratives. To codify the narratives into

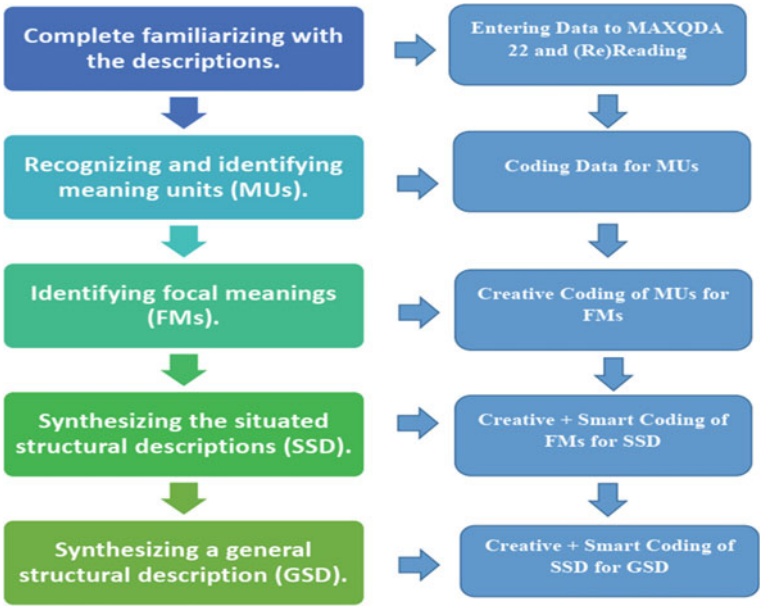

Fig. 2 A descriptive phenomenological analysis: Giorgi's (2009) five-step-framework

meaning units (MUs), we limited the horizons by two key concepts: the challenges and solutions. One critical point we addressed in codifying the MUs was that the MUs should be recognized as *constituents* and not *elements* (Giorgi, 2009). While the former are the words, phrases, clauses, and sentences whose meanings are describable only based on the text they occur, the latter can be understood as inseparable from the context. Therefore, since the context of CAA was critical in our study, we codified the MUs based on the constituents. Thirdly, we tried to identify the focal meanings (FMs), which is putting MUs together to reach a higher order discourse. It is done based on the literature review. Therefore, we used Creative Coding of MAXQDA to help us put the MUs together. Fourthly, we synthesized the situational structural descriptions (SSD) in which we assigned the MUs and FMs that we reached in the previous steps to each participant to see whether they were in line with their ideas, opinions, and utterances. This step is critical because it helped us be loyal to the data we obtained from the narratives and not delve into the theoretical assumptions for making meanings as the final identification of the phenomenon: the challenges and solutions of CAA. Finally, we synthesized the general description (GSD) to reach an overall understanding of the phenomenon. To do so, we removed the contexts and the participants and then tried to reach the common essence of the phenomenon. We used the Creative and Smart Coding tools of MAXQDA 20 to help us find the final GSDs by putting together the relevant SSDs and removing the context-bound concepts and codes. Finally, it should be mentioned that the researchers assured transferability by maximizing the variations among the participants by using maximum variation

sampling (Ary et al., 2014). Moreover, the trustworthiness standard was addressed by asking another coder to codify the narratives based on Giorgi's (2009) framework.

4 Lessons Learned: Teachers' Challenges and Solutions Need Further Thoughts

The analysis of the autobiographical narratives showed that the EFL teachers' main challenges in integrating CAA into their classes were the poor infrastructures and teachers' low technological literacy, causing other challenges in this regard (Fig. 3). The findings showed that the poor infrastructures would lead to other challenges, including technology's inability to serve assessment, the technology's lack of differentiation among different courses, the teachers' inability to follow students in online classes, and teachers' difficulty to match students with the requirements which in its place leads to students' demotivation.

We found that EFL teachers believed that poor infrastructures might lead to "the inability to assess a construct validly and reliably" (Akbar). They also mentioned that they were "overwhelmed with how to solve problems with the infrastructures that they forget the main purpose: the assessment" (Akbar). Furthermore, we found that they believed the technology's lack of differentiating among different courses was a challenge for them to integrate CAA. Anita mentioned that "… in some courses such as reading comprehension, it is rather difficult to construct good items …" while in some others, it is not. She continued, "I let CAA slide [ignore it] in some courses." It is also found that the lack of required infrastructures led to teachers' ability to follow students in their classes. Ali stated that "while I was teaching, especially at BA level, it was very difficult for me to follow my students in the classes, … were they present in the class? …". This was the problem of assessment, too, since teachers could

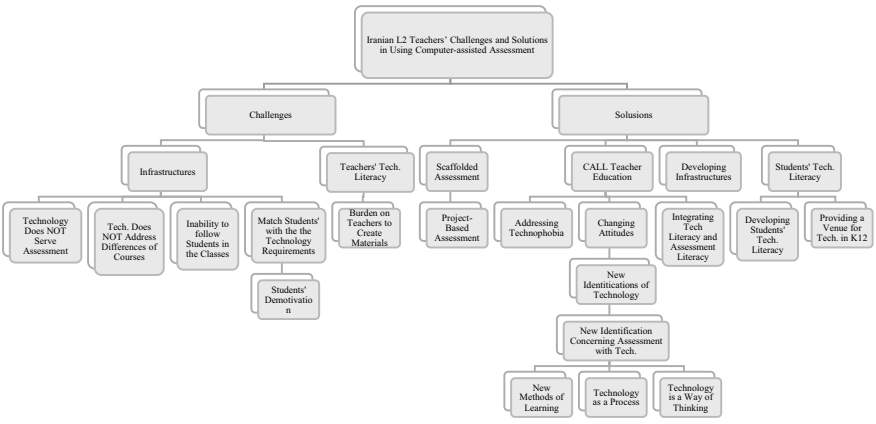

Fig. 3 Challenges and solutions of CAA: teachers' experiential evidence

not follow their students at the time of the assessment. Finally, lack of the required infrastructures makes it "very difficult for us to change students to participate in CAA … they copy and paste the materials …" (Ali).

From the analysis of the autobiographical narratives, we understood that the EFL teachers mentioned the concept of "infrastructures" in one way, meaning that they only think of infrastructures as institutional and not pedagogical (Reinders, 2009). While the former, which was the focus of the EFL teachers in this study, is about the availability of technological tools, platforms, and software, the latter is about ongoing pedagogical support, mentoring, and community of practice supports. Pedagogical infrastructures are rather critical in developing teachers' ability to integrate CAA in their classes since they help EFL teachers find short- and long-term solutions for their immediate challenges with institutional infrastructures.

By synthesizing the narratives, EFL teachers' lack of technological literacy was revealed. It is so since the current technological tools provide many options which can be used to deal with the mentioned challenges in CAA. Awareness about new technological types, which is crucial for the teachers (Torsani, 2016), leads to less burden on teachers since they know to use what in which situation and with whom. However, since this awareness was missing, it led to a further burden on the shoulder of the EFL teachers since they cannot choose the appropriate tools for their purposes and often misuse a tool with a specific objective. Furthermore, synthesizing the autobiographical narratives produced by EFL teachers showed that since the EFL teachers who participated in this study were not autonomous in selecting the technological platforms for their classes, they might encounter such challenges. According to Torsani (2016), one of the main reasons for teachers to think that infrastructures are poor in a context is the "impossibility for the teacher to manage the technology autonomously" (p. 72). It can be argued that since the institutions ask teachers to follow what they have provided for them in terms of technology, they reduce the sense of autonomy in teachers. Therefore, the results will be teachers' arguments about poor infrastructures, while the reality is the institutional infrastructures are poor, not the whole infrastructures available for CAA.

Addressing the voices of the EFL teachers, we found some solutions from their perspectives. These solutions were alternative assessment to CAA, CALL teacher education, developing infrastructures, developing new identifications of technology, and developing students' technological literacy. EFL teachers believed that CAA should be accompanied by alternative assessments, such as project-based assessments. For instance, Akbar stated that "we need to have alternative assessment types to help us deal with the challenge of CAA." Ali highlighted the importance of "project-based assessment to support CAA challenges." Moreover, we found a strong eagerness for CALL teacher education to cope with the challenge of CAA. They believed that CALL teacher educations need to address technophobia among EFL teachers to "help them not consider using CAA as a herculean task …" (Ali). Furthermore, CALL teacher education should "change teachers' attitudes about CAA through internalizing the culture of using CAA" (Akbar), so EFL teachers will believe in CAA. They believed that CALL teacher education should bring about new identification of CAA in EFL teachers' minds by developing their attitudes about CALL.

Akbar stated that "technology should be identified as a new method of learning, as a process, and as a way of thinking … to help EFL teachers." Finally, CALL teacher education should become a venue to address technology and assessment literacy together. Concerning this point, Anita mentioned that "…teachers should know how to assess through technology, and this can be achieved when they are instructed [in CALL teacher education programs] about them …".

One of the most declared solutions by the EFL teachers was developing infrastructures in terms of the Internet connection, platforms, and software. Akbar, for example, mentioned that "… there should be a great development in the infrastructures if we want to have technology in education in general and in CAA in particular …". Finally, devolving students' technological literacy was mentioned to be a solution for the challenges of CAA. They believed that students should practice CAA during their K-12, so they will not have problems with CAA at university. Moreover, EFL teachers mentioned that students' technological literacy should be developed so that they can use technology easily. If it is not addressed, then "… a great amount of class time should be devoted to how to take in a CAA-based exam." Synthesizing the narratives shows that EFL teachers have various solutions to deal with the problems of CAA. However, not all the solutions are practicable in the Iranian context. On the one hand, for instance, EFL teachers believed that CALL teacher education could be a solution for integrating CAA; however, insufficient infrastructure is a detrimental factor in conducting CALL teacher education (Hubbard, 2008; Meihami, 2021). On the other hand, developing students' digital literacy, which is an essential requirement for any digital learning and teaching in general (Traxler et al., 2019), and CAA in particular through instructing some survival strategies and skills (Eshet-Alkalai, 2004) to the students will be much more applicable.

5 Discussion

The current study's findings showed that the main challenges of the Iranian EFL teachers with CAA were poor infrastructures and EFL teachers' low technological literacy. As discussed, EFL teachers' perceived opinion about poor infrastructure is not always true. Other reasons include teachers' low technological literacy and low agency to practice their autonomy. The point is that policymakers and L2 practitioners need to address the two issues simultaneously. If EFL teachers' literacy develops, but their autonomy does not, they will be demotivated. Moreover, if the institutional managers acknowledge their autonomy to follow their CAA policies, but they are not literate, they will again become demotivated by the wrong choices and practices they will have with CAA. For a short-term solution, our first suggestion is that the EFL teacher education programs will create a practical venue where EFL teachers develop their technological literacy and autonomy to use CAA. However, as a long-term solution, there should be some CALL education programs to address the challenge from different respects. We suggest that the challenge will be first addressed in EFL teacher education programs because CALL teacher education has not yet been well

organized in the Iranian context (Marandi, 2019), and it has different challenges by itself (Meihami, 2021).

Our second suggestion is to alter EFL teachers' attitudes about infrastructure as a challenge of going with CAA. The findings in the current chapter indicated that EFL teachers considered poor infrastructures as the most important challenge of CAA in their classes; nevertheless, the analysis of their autobiographical narratives directs our attention that sometimes the challenge is with the institutional infrastructures which can be tapped by considering a broader view over the facilities provided by the technology for CAA. Therefore, we suggest that EFL teacher education programs need to address and develop EFL teachers to change their attitudes about the concept of infrastructures; they need to understand both pedagogical and institutional infrastructures (Reinders, 2009). That said, we believe that the challenges associated with infrastructures by the EFL teachers in this study could be solved by making pedagogical infrastructures available for them. To put it another way, the concept of poor infrastructure is not always a correct one in the mind of the teachers since many of such challenges could be addressed by benefiting from the related pedagogical infrastructures. Therefore, by changing teachers' attitudes, they can equip themselves to tackle the poor institutional infrastructures by benefiting from the available pedagogical infrastructures.

Concerning the solutions to deal with the challenges of CAA provided by the EFL teachers, we believe that some of them, including CALL teacher education, need further thinking. The most agreed-upon solution provided by the EFL teachers to address CAA was CALL teacher education. The point is that when CALL teacher education is the solution, it should be noted that CALL teacher education has its challenges, such as inertia, lacking qualified CALL educators, insufficient time, infrastructures, standards, and methodologies (Hubbard, 2008). However, we suggest that due to the critical role of CALL teacher education, policymakers and L2 educational program developers provide some workshops specified to address some specific challenges, such as the challenges of integrating CAA in the time of the COVID-19 pandemic as the immediate but short-term solution. Later, preparing CALL teacher education programs both as pre-service and in-service teacher education programs develop EFL teachers' professionalism concerning CALL in general and CAA in particular. Through CALL teacher education programs or workshops, EFL teachers can be instructed about alternative ways to use CAA, such as different types of alternative assessments. By so doing, they become informed on how to address CAA when poor infrastructures, both pedagogical and institutional, may hinder them from using CAA.

Finally, we agree with the EFL teachers participating in this study that students' low technological literacy may lead to challenges in using CAA in EFL classes. Therefore, we suggest that general educational policymakers revisit the status of the technology K-12 curriculum and open a place for it during different K-12 stages. By so doing, students will acquire the principles and role of CAA; thus, many of the challenges EFL teachers have concerning cheating on the exam will be removed.

6 Conclusion

The purpose of this chapter was to examine EFL teachers' experiences with CAA to obtain their challenges and solutions in this regard. Based on the critical analysis of the autobiographical narratives produced by the teachers, we conclude that EFL teacher education programs, in general, and CALL teacher education programs need to change EFL teachers' identifications of the concept of infrastructures in a way to help them understand the pedagogical and institutional infrastructures, so they can deal with the poor institutional infrastructures with the pedagogical infrastructures. Moreover, we conclude that teacher education programs need to simultaneously develop teachers' technological literacy and autonomy to tackle the problems of integrating CAA in their classes. Concerning the solutions provided by the EFL teachers, we conclude that a more realistic view is required with their solutions. For instance, their attention to CALL teacher education as the solution to many CAA problems should be taken with care since administrating CALL teacher education programs has its challenges. We believe that the most important solution to the challenges of CAA is to develop teachers' technological and assessment literacies together since many of the challenges mentioned by the EFL teachers stem from their poor technological understanding of how to assess using CAA.

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Chapter 20
Professional Identity Under Reconstruction: Stories of Vietnamese ESOL Teachers' Integration of Technology

Vu Tran-Thanh, Ha Thi Nguyen, and Ha Thanh Le

Abstract Teacher professional identity is an important notion in language education, especially when understood as a reaction against contextual changes, yet remains underexplored in the context of CALL teacher education. Particularly in Vietnam, such exploration has not received sufficient attention. Positioned within the recent technology emergence and the implementation of multiple technology-enhancement policies, Vietnamese ESOL teachers' stories of struggling, learning, failing, succeeding, and transforming are unheard of. This qualitative study explored five Vietnamese ESOL teachers' professional identities as they navigated through the technology integration since the late-2000s, and especially during the COVID-19 pandemic. Their stories were depicted through the use of narrative inquiry and the hermeneutic circle. Governed by the complicated relationship between the physical and figured worlds, the participants constructed very distinct professional identities as learner, tech-assisted teacher, technophile, and technophobe. Discussions regarding the roles of personal beliefs, agency, pre-existing identities, and different contextual levels were generated while recommendations for future research were made.

Keywords Teacher identity · Technology integration · Vietnamese ESOL education

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1 Introduction

As part of the National Foreign Language Project 2020 to promote foreign language competency, a significant number of policies on technology implementation have been issued since 2008. Despite such intention, evidence of effectiveness is still being questioned, and the performative manifestation has received considerable criticism (Dang, 2011; Gruba & Nguyen, 2019; Nguyen, 2019). Besides a lack of communication across major levels, research has shown that teachers' needs, beliefs, and time constraints are of little concern in professional development initiatives (Nguyen, 2019). Additionally, teachers are presumably considered pedagogically and technologically competent, while most training initiatives are top-down, tech-centric, and unstructured (Gruba & Nguyen, 2019; Nguyen, 2019). Pop (2010) believes that by doing this, policymakers imply that technology can compensate for the lack of authentic environment, teacher resources, and learner motivation in language learning.

While thriving to function in such a continuously changing context, Vietnamese ESOL teachers are not left with many choices. For one thing, technology has become part of daily life; policies, administrators, colleagues, and students have become a type of pressure. For another thing, they have to accommodate their own beliefs and agency with contextual factors. Miller (2009) believes that such accommodation leads to a transformation or reconstruction of teachers' professional identities. In particular, understanding the complexities of identity construction is critical because the ways teachers perceive themselves as professionals impact their development, collegial interactions, pedagogical choices, or classroom practices, and access to power and ownership of language (Kayi-Aydar, 2019). Research has suggested that acknowledging how teachers professionally position themselves through educational reforms can accommodate more efficient teaching practices and, thus, better learning (Miller, 2009). In an underrepresented context like Vietnam, where Computer-Assisted Language Learning (CALL) research primarily focuses on software application and students' perception, this knowledge is scarce. An understanding of how teachers identify themselves amid such changes would suggest more practical and effective directions and prospects for their own education.

This study is, therefore, set out to answer the following question: how do Vietnamese ESOL teachers construct their professional identities as a response to the technology integration in the language classroom?

2 Voices Already Heard

2.1 CALL Teacher Education and Teacher Professional Identity

In recent decades, CALL teacher education (CTE) has grown to become a standalone area of investigation. While the theories that underpin CTE are informed by those of both CALL and teacher education, teachers' technological practices have been receiving much more attention than other professional aspects. Particularly, CTE research has mainly focused on constructing training programs, establishing standards, improving computer competencies, and developing and experimenting teaching practices (Hubbard & Levy, 2006; Torsani, 2016). Although these areas have profoundly formed and developed this body (of research), there is still one underestimated piece that forms, we may call, the soul of teachers as professionals: their identities.

Scholars such as Bowman et al. (2020) or Lai and Jin (2021) believe that as we eagerly equip teachers with technological knowledge and skills, we forget to treat them as professionals whose position within different contextual levels and relations, simply known as identity, can affect classroom practices to the core. Besides all other aspects of their professional lives, this notion specifically characterizes how teachers "position and appropriate technology in the teaching process" (Lai & Jin, 2021, p. 1) during times of change—without which technology integration simply fails.

Teacher identity in CALL research, however, is mostly referred to as "digital identity," mainly concerning how language teachers engage themselves in a digital world (Jonker et al., 2018; Robson, 2018). Though such an investigation is important, it has not yet embraced the full notion of teacher identity. Miller (2009) believes that teacher identity is an ongoing reaction against contextual changes and positioning it in a distinct environment without referring to its existing realities is therefore incomplete. Even before the pandemic, ESOL teachers had begun to transform professionally as they responded to technology in their classrooms. As education gets itself ready for the post-COVID era with computer-assisted learning being a norm (Lockee, 2021), teacher identity should not be positioned within any fixed space but rather a negotiation and continuous development against changes of any kind.

2.2 Language Teachers' Professional Identities in Times of Technology Emergence

Most scholars agree that teachers' identities are not constant and are contextually driven. In other words, there is a continuous negotiation between "self" and "other" in identity formation. As contextual changes happen, teachers' roles shift. To respond, teachers resort to their personal identity resources to (re)construct one or various

identities (McNaughton & Billot, 2016). This approach keeps them functioning as professionals.

Framed within the area of CTE and the context of Vietnam language education, such understanding has presented considerable challenges. Though technology integration in Vietnamese education has received profound investment, it remains on a surface level only (Nguyen, 2019). In terms of CTE, the reality is that there is more pressure than support at both national and institutional levels, and the support itself is merely effective (Nguyen, 2019). This constraint, according to McNaughton and Billot (2016), can produce "fragmented" identities (p. 2). In more detail, when there is a mismatch between teachers' beliefs and contextual pressure, available support and stakeholders' expectation, teachers tend to take a "diplomatic" approach (Altrichter, 2001, p. 13,596). Essentially, they attempt to balance the power relation, sometimes forming inconsistent multiple identities. Scholars such as Jonker et al. (2018) believe that as teachers negotiate their identities through the pressure of technology integration, they undergo changes in roles and practices, which are informed by their existing beliefs, and thus personal-contextual conflicts may happen.

Vietnamese ESOL teachers are situated within a typical context where both first-order and second-order barriers exist. For one thing, teachers' level of digital literacy, attitudes toward technology adoption, and beliefs about CALL vary greatly and have been leaning toward a rather negative end (Nguyen, 2019). For another, professional support is scattered, unsystematic, top-down, and limited, while pressure and expectation are tremendous (Gruba & Nguyen, 2019). Njiku et al. (2019) reported that teachers who cannot fully adapt themselves to new requirements are likely to use technologies only for formalities. Besides, McNaughton and Billot (2016) have found that there are teachers who consider themselves technologically less competent than their students, and eventually identify themselves as tech-resisters. Those teachers, who cannot escape from the situation and have to live by these conflicting identities, harm both their professionalism and well-being (Abbott, 2016). Though addressing this issue is important in CTE, knowledge of this kind is extremely limited in the Vietnamese context, leaving a significant gap in both understanding and supporting ESOL teachers.

3 Theoretical Voices

We adapted Hsieh's (2010) understanding to explore teacher identity construction. This author captures teacher identity in four key ideas:

(a) identity as negotiated and socially constructed;
(b) identity as related to particular roles or groups;
(c) identity as thematic;
(d) identity as connected with authority and agency (Hsieh, 2010, p. 1).

Hsieh (2010) believes that the construction of teacher identity happens as the *physical* and *figured worlds* negotiate with each other. In other words, teachers develop

their identities through the interaction of contextual factors, assigned roles (physical world) and beliefs, values, and commitments (figured world)—also known as a negotiation of power (2010).

As organizational persons, teachers need to balance all organizational, professional, and personal aspects simultaneously. Specifically, we examine how other power agents contextually affect and are affected by teachers. This relationship is believed to critically contribute to identity construction, especially when it is informed by a teacher's beliefs, autonomy, and values.

This theoretical framework is relevant to this study in two aspects. Firstly, it serves as a foundation on which the idea of teacher identity is explored. While this concept has been extensively investigated from different viewpoints, Hsieh's (2010) definition embraces what we emphasize in this study: the interaction between the inner and outer worlds. Secondly, the data collection tool was primarily constructed based on this framework. Finally, it was employed to navigate the analysis of data.

4 Methods

4.1 Research Design

We employed narrative inquiry as the research method and hermeneutic circle as the data analysis technique. While the narrative approach allowed us to explore the multiple truths in the stories, the hermeneutic circle provided a comprehensive understanding through unconnected events, particularly during the countless ups-and-downs that the participants had been through (Josselson, 2010).

4.2 Context and Participant

The study was conducted in the Vietnamese ESOL education context, where technology has significantly changed teaching and learning. More specifically, it depicted the changes happening from the late-2000s, when policies of technology integration were first introduced, throughout the current times. The context has been embraced by international, national, and institutional factors that both deliberately and unprecedentedly forced ESOL teachers to turn their classrooms computer-assisted.

Five high school ESOL teachers participated in this study. All participants were ESOL teachers working in different public high schools in Vietnam. They were all acquainted with CALL to a certain extent and went through the technology integration in education as teachers. To ensure the multifaceted nature of the stories, teachers of beginning, mid and late career stages were included. Table 1 shows more detail about the participants.

Table 1 Profiles of participants

Participant	Gender	Qualifications	Teaching experience (years)	Pre-service CALL training
Hai	Female	BA in TESOL	16	Yes
Ba	Female	BA in TESOL	31	No
Tu	Female	BA in TESOL	13	Yes
Nam	Female	BA in TESOL	6	Yes
Sau	Male	BA in TESOL	26	No

4.3 Data Collection and Analysis

We employed the semi-structured interview to collect data. This tool was chosen to ensure rich data collection in terms of explanation and analysis. Besides, this study expected to explore stories from the participants; therefore, semi-structured interviews would allow flexibility of investigation. The interview questions were grounded on the research question with emphasis on Hsieh's (2010) understanding of teacher identity.

The data collection procedure began with identifying and recruiting participants. Five out of nine potential participants agreed to participate in the interviews. Necessary details of the study were provided before consent from the participants was granted. All interview sessions were audio-recorded and transcribed with permission.

The following analysis approach was combined from what Merriam and Tisdell (2015) and Wertz et al. (2011) suggest toward working with narrative data. Firstly, the data from the first interview were analyzed and modifications were made to the interview questions before the other sessions were performed. Secondly, all the data were read and re-read multiple times to ensure an understanding of the overall meaning. Thirdly, the hermeneutic circle technique was applied with a comparison between parts and whole, and between the whole and its context in order to achieve a fuller grasp of meaning. Finally, cross-case analysis was performed by three authors to discover patterns across individual narrative interview texts. To ensure objectivity, each transcript was analyzed by all investigators, and further discussions were held when necessary.

5 Lessons Learned

5.1 Early Interaction with Technology Integration

Though starting their career at different points, the teachers followed a very similar pattern when the technology reform began to influence their classrooms. They all chose to stay away from or have very little contact with all the contextual changes and constructed virtually no new identity during that time. The policies

that were supposed to be a driving factor for language learning quality, however, became a performative requirement, mainly due to a mismatch between the teachers' competence and beliefs, the national policy, and teaching realities.

In terms of technological competence, the teachers' levels ranged from "nothing" (Ba and Sau) to "very little" (Hai, Tu, and Nam). While Ba and Sau had "*no computer-related training,*" the other three teachers only had "*very limited*" (Tu), "*ineffective*" (Hai), and "*unsystematic*" (Nam) instruction. The only tool that they knew was Microsoft PowerPoint, and that was actually the result of assignments, not official courses. Nam described the reality, which Hai and Nam, though graduating around 10 years earlier, found familiar.

> *The lecturers gave us assignments – a presentation or designing a game for teaching practice, for instance. We, as students, had to learn to use PowerPoint. We took it as an opportunity to learn.* (Nam)

They all regarded lacking technological competence as one important reason for not teaching computer-assisted lessons.

The school administrators, on their part, were not ready for the implementation, either. Inappropriate school condition was mentioned by all participants.

> *The facilities were very limited*. (Hai)
>
> *Our school only had basic devices – good-for-nothing ones – breaking down after a few days.* (Ba)
>
> *There was only one room with a projector for the whole school – all subjects included*. (Tu)
>
> *Regular classrooms only had boards and chalk – no other devices were equipped.* (Nam)
>
> *Only the classrooms for gifted students were equipped with a projector.* (Sau)

From a top-down view, phrases such as "*only encouraged*" (Hai), "*not compulsory*" (Ba and Tu), and "*performative*" (Sau) were used to describe how most schools applied the policies. Even for Nam, who graduated in 2014, usage of computer-assisted teaching tools was "*only for observation.*" The school leaders did not know what to do, so they left their teachers to exercise technology integration in freedom with no support or reinforcement method.

Also, the participants did not have any collegial pressure—they even considered their colleagues' attitudes a contributing factor to their neglection. Hai, Sau, and Tu noticed that their fellow teachers used technology "*very scarcely*" while Nam thought her colleagues' level of application "*was as limited*" as that of hers.

Two of the teachers also believed that their students' attitudes did demotivate them from using the computer.

> *My students only had cell phones, but they didn't use for learning. That critically affected my motivation.* (Ba)
>
> *I found that 70% of the students didn't follow what I taught [when using PowerPoint].* (Tu)

Not much interaction between the contextual and personal factors was found when the technology reform was first introduced, and thus no identity shift was detected. For one thing, the policy was merely an intention and was accompanied by no enforcement method—virtually no instructions, support, or ongoing assessment

existed. In other words, this contextual change was not strong enough for any transformation to occur. For the other thing, the teachers' beliefs stayed constant as they found no pressure or benefits from the integration. With very limited competence and motivation, they continued to identify themselves as non-users amid the reform.

5.2 Technology Emergence at a Larger Scale

Little did the teachers know that around the late 2010s, there began a technological explosion that had spread to the farthest corner of their country. Thanks to the already-strong Internet infrastructure, devices such as smartphones, tablets, or laptops have become everyday gadgets. Programs and applications that once challenged regular users were strangers no more.

Directive 345 (MOET, 2017), a stronger version of all previous policies, was birthed with stricter policies and better facilities implemented. While not all schools nationwide lived up to the same standard, teaching condition was tremendously improved with more classrooms better equipped. Teaching computer-assisted lessons was no longer an option as teachers were required to show evidence of implementation. Besides, CALL teaching competitions were held, and training workshops burgeoned. Although there was no systematic enactment of this Directive, a sense of drastic reform could be recognized.

Their students also played a critical part in shaping their attitudes toward technology integration. The teachers realized being accompanied by a "digital native" generation of students as they were immigrating into this new realm. These people were familiar with high-tech devices, communicated via Internet-based platforms, and would find a life without technology "*incomplete*" (Hai). Besides, the students represented an agent of power. Hai and Sau found themselves *"running behind"* and *"trying to catch up"* with the young because *"they* [students] *are younger, so they are much quicker on these tech-things"* (Hai). Similarly, Tu could not bear missing out,

> *There are things about technology that I don't think students know, but they do. So, if we don't learn, I'm afraid... for us teachers. It's a shame that we are not as good as our students...* (Tu)

These factors, which framed the teachers with challenges, aspirations, and fears, became equally important elements in their negotiation of identity.

5.3 Hai, Nam, and Sau: Technophiles Who Teach

Those three teachers, though representing three distinct career stages, shared somewhat similar interests and curiosity about the possibilities of CALL. What surfaced

during this period was that the participants, with positive attitudes toward technology in general and CALL in particular, transformed themselves into teacher-learners.

Initially, they all exhibited indifference toward CALL, but eventually changed their attitudes due to a shift in personal beliefs. All three teachers mentioned "*this digital era*" as a crucial sociocultural factor that forced them to transform. As social beings, they found using high-tech devices *"interesting"* and *"fun."* Moreover, Nam became *"very open"* to new trends while Hai *"enjoyed"* working on computers and Sau *"was fascinated by such marvels."*

As teachers, they found computers more "*useful*" for their teaching than for learning. In other words, Hai, Nam, and Sau took a teacher-centered approach and focused on how high-tech could support the presentation of knowledge.

> *Audio-visual aids help to compensate my weakness, which is elocution.* (Hai)
> *I can perform better with Google Form or Online Quizzes.* (Sau)

While this reflects their own pedagogical beliefs, it also explains how the changing context eventually became their learning space. The technologies that once left the teachers "*bewildered*" (Hai) and "*worried*" (Sau) finally became their learning opportunities thanks to a change in their personal interests and beliefs. To accommodate themselves, their teacher agency took effect through actively searching for support from all resources in and out of school. Though focusing much more on the technical aspect of CALL, they began to feel a sense of success and increasing interest.

> *I began by learning from other teachers' e-lessons, then I tried, and failed and tried again. But I felt happy after learning something new […] I learned different ways to design a beautiful lesson.* (Hai)

Other institutional agents of power, interestingly, were then acting as a source of support and motivation. Hai and Sau felt "*eager to learn from younger colleagues,*" and Nam "*felt the need to know as much as my* [her] *younger fellow-teachers.*" Besides, their students "*helped a lot with difficult practices*" (Hai), "*pointed out to me* [her] *so many new things*" (Nam), and "*took up the technical part*" (Sau).

A much more powerful determinant, however, did not appear until early 2020, when the pandemic hit. It was when the teachers' newly formed identity was put to the test by having to teach fully online. Thanks to their existing positive beliefs and a relatively sustainable level of computing skills, the teachers took this situation as an opportunity to become competent tech-users.

Web conferencing, cloud storage, learning management systems, and other learning apps were more a matter of using rather than learning.

> *I was eventually able to use different apps at ease. For every new app, I only need a few hours to get acquainted.* (Hai)
> *Learning to use new apps was no longer a challenge for me. I always keep an eye on new programmes to come.* (Nam)
> *I use PowerPoint for teaching, Zalo to keep contact, Google Form to collect students' papers and more.* (Sau)

With a teacher-directed belief and growing agency, the participants transformed into more a technophile than a teacher. Their description of CALL was consistently

about how "*smooth,*" "*fun,*" and "*beautiful*" their lesson products would be while limited reference to students' learning was found. All three confirmed to "*continue to use technology excessively*" after the pandemic, and "*can no longer teach effectively without technology.*" Learning and using educational computer programs had become a "*personal interest.*" Additionally, all three teachers were taking an active role in "*supporting*" anyone with the technical aspect of CALL and would encourage others to learn.

5.4 Tu: A Teacher Who Uses Technology to Teach

Tu, who previously shared most similarities with her colleagues, became a teacher-user in the end thanks to her pedagogical beliefs, agency, authority, and existing identities.

During the latter half of the 2010s, Tu was equally affected on a social and professional level with technology becoming normal, reinforcement methods being implemented, and colleagues beginning to teach CALL lessons. As she remarked,

> *I couldn't help but noticed that technology has become a part of everyday life. Also, some of my colleagues have already integrated technology in teaching.*

What, however, distinguishes Tu from Hai, Nam, and Sau was her pedagogical beliefs, which played very critical roles as she became a learner of technology. Tu repeatedly mentioned her students as a navigating factor,

> *For them* [students] *to understand, I must find ways to present it with […].*
>
> *I only learned what useful for my teaching […] I kept adjusting the lessons until they were more comprehensible.*

Different from the other teachers, her beliefs, agency, and authority were not challenged when her students and colleagues suddenly became her teachers. Tu was rather comfortable with such a change of roles.

> *I have learned a lot from my students. If anything goes wrong, I'll ask for their support.*
>
> *I designed a lesson and asked some senior colleagues about it. They gave comments and suggested modifications.*

In Tu's case, it seems that she acted as a learner and teacher at the same time. These identities, also driven by all the mentioned contextual factors, were largely mediated by her beliefs as a learner (*I just learned what I didn't know—no big deal*) and a teacher (*I only learned what was useful for my teaching*).

Tu finally became a teacher-user as the pandemic hit and contextually strengthened her agency and authority.

> *I struggled at first. I couldn't imagine what teaching online would be like […] but I gradually learned, you know, from the basics […] I already had a rather good foundation, so it was kind of easy for me later.*

Her teacher-learner identity did play its part as well. On the one hand, it allowed Tu to self-direct her learning and use technology at will. She progressed from "*struggled*" to "*learned*" and finally "*acquainted.*" On the other hand, Tu, unlike her colleagues, did not consider technology a "*passion*" (Hai, Sau) or a "*must*" (Nam) once gaining mastery over it. Rather, she believed that tech-enhanced lessons should serve her students' learning and navigated her usage toward such a direction. The negotiation that happened here differed from that of her three colleagues in the nature of their pedagogical beliefs, and thus eventually identified how they became.

5.5 Ba: A Technophobe Who Teaches

Unlike her colleagues who "tried and thrived," Ba ultimately became a tech-resister who had to teach, and her personal traits played crucial roles. Her transformation happened from being an outsider to a demotivated learner and finally a resister.

While the mid-2010s technology emergence did affect Ba, it encountered relatively strong resistance from her personal factors. At first, she witnessed and took notice of all the changes occurring around her yet remained an outsider due to her lack of motivation, technological competence, and learning difficulties.

> *I know that using computers is important, but I couldn't focus on it […] No, I hardly used technology.*
>
> *My motivation was very low, and I was no good at computing. I didn't have any basic computing knowledge or did I know how to find and learn new knowledge.*

Such neglection came to an end as Ba could not continue ignoring the changes that were increasingly visible, especially those from her fellow teachers,

> *I felt self-deprecating. I pitied myself for being bad at computing. I questioned myself why I couldn't create, think, type, or use the Internet as skilfully as others.*

To deal with this situation, Ba secured herself "*with the latest cell phone and laptop*" and blamed the environment. She thought that her modern gadgets *"could prevent unforeseeable problems*"; however, it turned out that she did not even know how to use them. Besides, Ba repeatedly attributed her inability to "*school facilities,*" "*old age,*" and "*low tech literacy.*" Ba firmly believed that "*equipment should be made ready*" and "*students having modern devices is crucial*"—without which she would not be able to teach.

Her transformation, however, only began when the pandemic hit—and so did her nightmare. Ba was left with no other choice but to force herself to learn when online learning became a must. Her learning began considerably later than that of the other participants, and due to her agency and beliefs, was much slower and more challenging.

> *My health started to worsen when I heard about online teaching. I was so worried and terrified. During the training, I carefully noted down all the steps. Then I asked my daughter-in-law to help. But I was still anxious whenever they announced to change the platform. For instance, I couldn't sleep for two nights before the training on this current software.*

Although she did make some "*significant progress,*" Ba identified herself as a struggling learner and consistently believed in her inability. Besides, all the challenges prevented her from thinking about teaching as a teacher. Rather, she focused her effort on "*avoiding any technical issue*" with considerable support from others.

At the time of this study, Ba had already prepared an ending for her story, confirming that "*I will not continue to use technology when learning is offline again—until I retire in 5 years.*" Being a technophobe does not mean that she did not acknowledge technology-assisted learning as a new normal. Rather, retreating to her comfort zone appeared to be a sensible approach given that she (believed that she) neither could nor wanted to change.

6 Discussion

6.1 The Role of Teachers' Personal Beliefs

Technology emergence in both the social and educational aspects, first and foremost, influenced the teachers on a personal level. They had formed beliefs that were not directly relevant to teaching and reacted as human beings with either surprise, interest, fear, or anxiety before making a professional decision. The personal beliefs shaped through those reactions instinctively contributed to the formation of identities.

Positioned in a society where technology was revolutionizing all life aspects (PwC Vietnam, 2021), the participants were beginning to believe that technology integration was irresistible. Evidenced in our data are personal perceptions such as "*the digital era,*" "*students using cell phones,*" "*knowing about computing,*" and "*technology all around*" that formed part of participants' motivation and pressure for change. Even before the pandemic, Hai, Tu, Nam, and Sau had taken special notice of the technological revolution in daily life and had essentially considered that a reason to learn—"*We cannot be left behind our students*," as Tu puts it. In contrast, Ba consistently believed that she was too old for high-tech knowledge, which contrasted with the skills she gained at the later stage. It was also this belief that contributed to her tech-resister identity despite the progress she had made.

Scholars such as Pennington and Richards (2016) and Alsup (2005) assert that personal perceptions affect how a teacher develops their professional identities, especially when interacting with pedagogical beliefs. Besides those that reflect a teacher's educational experiences, beliefs that are social and political in nature also shape how teachers coordinate their desired and assigned roles (Zembylas & Chubbuck, 2014). In this current study, the participants' attitudes and reactions to CALL were continuously characterized by those perceptions. When changes happen at a scale beyond education, these non-educational beliefs, while keeping teachers functioning socially, also characterize their approach through complicated power relations, either to foster or restrain their agency and authority. The identities that form as the result of such, therefore, largely reflect this personal fraction of a teacher.

6.2 The Interinfluence of Teacher Agency and Identity

An important interaction between the teachers' agency and identities significantly contributes to our discussion. Most frequently viewed as the ability to "act purposefully and constructively" to make pedagogical decisions (Sang, 2019, p. 2), teacher agency also crucially defines how a teacher professionally functions, especially when examined with teacher identity. In terms of CALL, teacher agency implies not only the degree of integration but also the roles and ability that a teacher possesses.

Surfacing from our data was how the teachers performed agentic CALL-specific actions in accordance with their identities. Initially, as the teachers feared to be technologically outperformed by students, the teacher identity encouraged them to learn. However, each newly constructed identity tailored its practices in a different way. Specifically, professional decisions such as implementing technology or not, continuing with computer-assisted teaching, or coming back to the chalk-and-board mode largely reflect how the teachers saw themselves as a tech-assisted teacher, technophile, or technophobe. While their desire to maintain a power balance, which originated from their agency, did shape their identity formation, the other way round was also significantly visible.

A further examination into the nature of their agency reveals an even more complex interplay, particularly when positioning them as organizational persons. In our study, two noticeable types of pressure, from colleagues and students, were evidenced. When coordinating the power relationships with these agents, the teachers relied heavily on their roles to conduct any decision. However, such action was also the product of their beliefs and ability (whether they could or should learn or implement technology) and contextual factors (what they had to comply with and what they did not).

Kitade (2015) believes that, in times of technology emergence, teacher agency is transformed through perceptual changes in pedagogical usage. As CALL practitioners, teachers have to navigate through challenges brought about not only by outsiders such as administrators, colleagues, or students but also by their own (in)abilities. In other words, what pedagogical CALL-related decision to be made relies on how a teacher desires to maintain their status with different institutional agents and the result which defines how their agency is constructed.

This understanding of identity construction has been confirmed in recent literature (Tao & Gao, 2017), yet a more sophisticated depiction of its complexity is still needed. What seems obvious is that a teacher's agentic behavior should be examined in a specific context with special attention given to their particular identities produced by that very setting (Feryok, 2012).

6.3 The Degree of Contextual Influence

Technology integration in Vietnam's education has happened unevenly, particularly in terms of intensity, and its influence on teachers' identity formation, therefore, varies. Among the three important periods in the Vietnamese CALL context, only those with a direct influence on teachers' authority caused them to construct new identities. Studies that report on identity formation during times of change, such as those by McNaughton and Billot (2016), or Jiang and Zhang (2021), mentioned reinforcement methods from a macro-level, which implies the use of power on participants. In our case, the first contextual shift was not actually a shift when the teachers' role as a traditional teacher was not challenged, and their institutional power relationships remained virtually intact. There was not an assigned role in the physical world, as Hsieh (2010) suggests, and thus their figured world did not necessarily react.

Research has confirmed the significance of sociocultural changes on how teacher identity is formed and reformed, yet very little has sufficiently explained how, with different levels of impact, they may have distinctive effects. When a certain type of contextual pressure is imposed on them, teachers respond with pre-existing identities, which may possibly be affected, deconstructed, and reconstructed multiple times. However, what became noticeable is that the transformation of identity is only observable when the sociocultural impact is strong enough to trigger an appropriate reaction.

Taking a neoliberal stance, Mockler (2011) asserts that lacking a political emphasis in treating teacher and focusing on "role" rather than "identity" would provide a more comfortable understanding of teaching, but yet would produce less "pro-active" teachers (p. 525). In the CALL domain, policies that only encourage but do not obligate technology integration can hardly be considered a game changer, and thus would be unable to foster identity transformation. In this study, the teachers who did not feel a sufficient strong connection with their identity but the role would not clearly acknowledge an educational purpose beyond their classroom walls and thus failed to articulate political and contextual change at a higher level.

7 Conclusion

Technology emergence is a unique type of contextual change that affects teachers on all personal, social, and professional levels. What was found in this study primarily aligns with current literature on teacher identity formation, yet a more sophisticated understanding regarding the role of their personal and professional beliefs, their agency, and the degree of contextual influence has emerged.

Though governed by the same mechanism, our participants responded very differently to the changes brought about by technology emergence, and thus formed distinct identities. Initially, they were all outsiders when technology integration was merely

a performative requirement. However, when the changes became unignorable, especially with the outbreak of COVID-19, the teachers accommodated their learning and teaching in various ways.

Most importantly, they were all social beings undergoing a technological explosion, and thus should inevitably form personal tech-related beliefs and attitudes. Together with their own agency and pedagogical beliefs, these conceptions decided what type of learners the teachers became. Whether a teacher-learner, a tech-focused learner or a struggling one, they all attempted to regain their "rightful" position: being in control of teaching. Although this notion of teacher-authority may mean differently to each of them, the negotiation in which the school leaders, their colleagues, and students acted as agents of power happened for that same reason.

As Hai, Nam, and Sau self-identified as technophiles, Ba became a technophobe and Tu maintained a teacher-role, much was happening in multiple directions. Firstly, their identity construction resulted from a complicated interaction between their personal and professional beliefs. Whether which of them gained dominance depended significantly on the teachers' educational backgrounds, initial contact with technology, current usage, and achieved competencies. Levin (2014) believes that the beliefs influencing teachers' decisions are a combination of many rather than separately developed ones. Secondly, any sociocultural influence could either be negative and positive, but essentially served as a foundation on which the teachers chose to function. The pandemic that seemed unconquerable became a learning space; colleagues and students, who once imposed certain pressure, provided much-needed support. The teachers chose how to perceive such contextual factors in accordance with their identities. It is, nevertheless, worth noting that when the context kept developing in a similar direction (though dramatically) and the winning beliefs were sufficiently strengthened, it was the interinfluence of agency and identity that changed the game. The way that personal beliefs, professional beliefs, obtained roles, and competence shaped and were shaped by identities, how they impacted each other as well as how they contributed to the view of the environment occurred in a never-ending circle.

The stories were able to provide a general picture of how ESOL teachers in a context like Vietnam functioned during times of technological changes; still, they have also opened up some future research avenues. Firstly, more quantitative research on this topic is needed. In other words, a more generalized understanding of teachers' needs, struggles, and identities should be generated especially if changes are to be made at a macro-level. Secondly, an ecological perspective that examines contextual influence at different levels should be adopted. While a sociocultural view is capable of describing the relationship between environment and identity, the interaction between various environmental layers can only be explained ecologically (Buchanan, 2020). Finally, the investigation into the interaction of teachers' personal and pedagogical beliefs, agency, and identity should be more sufficiently acknowledged. More effective support can be provided only when a better understanding of such complexities is gained.

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Chapter 21
Investigating EFL Teacher's Professional Identities in Flipped Learning Classroom Through Accountability-Focused Evaluations

Hanieh Shafiee Rad

Abstract Technology-enhanced methods are widespread around the world because of the COVID-19 pandemic. One of these favorite methods is flipped learning (FL) and its effectiveness for English as a foreign language (EFL) teaching/learning is confirmed in the literature. However, teachers' evaluation and education in the EFL FL context are rarely investigated. The current study investigated EFL teachers' professional identities in FL classrooms through accountability-focused evaluations. Employing qualitative design to obtain in-depth insights, current research analyzes 11 EFL teachers' perceptions about their performance evaluation system and its impact on their professional identities. Findings revealed that participants have a consensus on the idea that the evaluation system in the FL classroom has mostly focused on accountability and even it is harmful to their professional identities. In addition, there was a significant relationship between teachers' identity with their well-being, effectiveness, commitment, and sense of agency in the EFL FL classroom. The current study recommended practitioners and researchers redesign the EFL teachers' evaluation system in the FL classroom.

Keywords English as a Foreign Language (EFL) · EFL teacher accountability · EFL teacher identity · EFL performance evaluations · Flipped learning

1 Introduction

Nowadays, employing technology is inevitable in everyday lives because it is like an ordinary part of our life that helps in our day-to-day activities and expedites the use of flipped learning (FL) as an innovative, motivating, and appealing pedagogical approach (Shafiee Rad et al., 2021, 2022). Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply

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concepts and engage creatively in the subject matter. A distinguishing feature of FL, when compared with face-to-face lectures often represented by transmissive and passive modes of teaching, is a student-centered approach that enhances the student's active learning and engagement (Han & Røkenes, 2020; Mirzaei et al., 2022). Iranian teachers and learners have positive attitudes toward the integration of FL into EFL courses (Shafiee Rad et al., 2022). However, the use of FL in EFL courses is very limited in Iran including universities, schools, and institutes. The reason may be due to the Iranian teachers' views about employing FL that think it may replace them in the learning process (Mirzaei et al., 2022). In addition, teachers believe their performance can be assessed through FL videos more than face-to-face learning. In the literature, there are several pieces of research examining the role of FL on Iranian EFL learning (e.g., Shafiee Rad, 2021a, 2021b). However, there is little research investigating teacher education and evaluation in FL classrooms in Iran. Therefore, conducting a piece of research in FL on Iranian teachers' education and evaluation is necessary to inform practitioners and researchers about the importance of considering teacher assessment in enhancing the employment of FL.

Improving teacher quality through teacher accountability is one of the central education reforms all over the world (Guenther, 2021). Through this evaluation, the individual student growth measures are regarded as standardized tests to assess teachers' performance (Guenther, 2021). Accordingly, teachers are responsible for the achievement of students more than before (Steinberg & Donaldson, 2016). Accountability systems of evaluation have been questioned by several scholars and rejected their ability to promote teacher growth (e.g., Johnson, 2015). However, there is a lack of research in the literature that investigates the consequences teachers may have experienced through the FL as a result of accountability systems evaluations and specifically investigates their influence on Iranian EFL teachers' professional identity in the FL classroom. Investigating teachers' professional identities in the FL through accountability evaluations is critical because it is correlated to their commitment, well-being, job satisfaction, and agency (Guenther, 2021). For addressing deficiencies, the current research investigated teachers' experiences with accountability evaluations in non-profit schools in Iran where such evaluation is very privileged and FL is employed because of learners' interest in using it during the learning process. Particularly, perceptions of teachers about their evaluation system and its impact on their professional identity were highlighted. I answered two questions in the current study: what are EFL teachers' perceptions of their evaluation system in the FL classroom? In what ways do accountability evaluations affect EFL teachers' professional identity in the FL classroom?

2 Voices Already Heard

2.1 Teachers' Identity and Evaluation in Flipped Learning Classroom

Teacher education is one of the important factors in conducting a successful FL as through it teachers should design and follow pedagogies that promote peer collaboration and active learning strategies (Vaughan, 2014). However, research is scarce in the literature that examines teacher education in FL classrooms (Yough et al., 2019). The literature shows some relevant categories in employing technology that discriminates against teachers and their teaching (Badia & Iglesias, 2019). The most important topics in the literature are examining teachers' competence through using technology (Tondeur et al., 2008), the frequency, and types of technology employed in the class (Lim et al., 2013) and investigating teachers' motivations and emotions that are related to employing technology in teaching (Agyei & Voogt, 2011).

Teachers' motivation and emotions can be categorized into two most common categories (Hixon & So, 2009). The first category is a positive feeling of teachers about technology that arouses general wellness through teaching in a blended context. Contrary to the first category, the second category includes the teachers' negative emotions and can invoke general discontent for them. These motivations and emotions can become a characteristic of teachers' professional identity (Beijaard et al., 2004) in the technology-based classroom. Investigating professional identity matters can be done through a multidimensional model of identity in the technology-enhancement classroom by discussing the role of certain components that play a role in developing teachers' identity.

Evaluating teachers' performance in the FL context is easier than in the traditional face-to-face classroom. Online chats and videos are good documents for a school leader to decide if the lecture is helpful to students or not. Besides, more interaction between teachers and students in FL can help school leaders to trust students' views about their teachers and teaching. Unfortunately, there is a lack of research in the literature examining the role of EFL teachers' evaluation of their identities in the FL context of Iran. The current study aims to fill the gap by doing so.

2.2 Purposes of Evaluation

The primary purpose of using performance evaluations is for professional development or accountability (Guenther, 2021). In other words, the teacher is responsible for student growth and the school leader should evaluate the teacher's performance during the academic year. There is a rationale that evaluating teachers and punishing or rewarding them based on student performance can improve their efficiency (Paufler, 2018). Ranking teachers based on their performance is used to inform

personal decisions and compensation such as dismissals and performance pay (Goldstein, 2014). Some researchers announce that using evaluations can have negative effects such as high pressure (Collins, 2014) and low morale (Paufler, 2018) on teachers.

Evaluation can provide formative feedback whenever used for professional development that can support and assists teachers' professional improvement and growth (Glickman et al., 2014). Teacher instruction can be positively constructed and rebuilt through this type of evaluation (Delvaux et al., 2013). Moreover, regular observations through the academic year accompanied by formative and systematic feedback are necessary for improving teachers' motivation, satisfaction, and performance (Anast-May et al., 2011). Although some researches stated that school leaders give ordinary feedback to the teachers as a part of the performance evaluation (e.g., Prado Tuma et al., 2018), other researches state that in the performance evaluation formal feedback is absent (Donaldson, 2016). Formative feedback is essential for teacher evaluation and without feedback instructional practices cannot be improved (Goe et al., 2012).

Evaluations cannot simultaneously serve both accountability purposes and professional development (Firestone, 2014). More recent research announced that there is a lack of relationship between teacher evaluation and accountability and students' achievement. Conflicting theories of motivation are one of the reasons that evaluation cannot serve both purposes (Guenther, 2021). According to Firestone (2014), intrinsic and extrinsic motivation are contradictory and extrinsic motivation is accompanied by extra salary or losing the job which can weaken the intrinsic motivation of teachers for improving their practices. To be specific, extrinsic motivation rewards and punishments are often associated with accountability evaluations that hinder teachers' intrinsic motivation to improve (Guenther, 2021). In addition, teachers' experience of fear of punishment through accountability evaluations can hinder instructional improvements (Guenther, 2021). Consequently, accountability evaluations have few advantages for improving and informing practice and even may cause counterproductive results in teacher practice (Guenther, 2021).

2.3 Teachers' Perceptions of Accountability-Focused Evaluation

Teachers' perception of educational reform can affect the way they employ this reform in the practice of their teaching (Finster & Milanowski, 2018). In addition, Bukor (2015) states that investigating teachers' perceptions and perspectives is vital because individuals' self-perception and self-perspectives can manifest and express their identity. This study notes that perceptions of teachers about the reform can support intuition into ways that reform affects their identity. Therefore, investigating teachers' perceptions about accountability evaluations can help to distinguish ways in which evaluation can influence their identities.

There is not any empirical research in the literature that investigates the identity of teachers in the EFL FL context of accountability evaluations. However, there is an empirical study about the perception of teachers of accountability evaluation in another educational context (e.g., Guenther, 2021; Jiang et al., 2015). In a study, Jiang et al. (2015) reported that teachers believe that measuring their evaluation based on students' growth is unfair and narrow and these kinds of measures incompletely and inaccurately can reflect teacher identities. Moreover, most of the teachers in this experiment show a higher level of anxiety and stress through the evaluation. Anxiety and stress can be correlated with well-being that indirectly influences teachers' identity (Day & Kington, 2008). Also, teacher evaluation based on students' growth can negatively affect teachers' sense of curricular and pedagogical autonomy (Dunn, 2020). On the other hand, autonomy and agency are correlated (Buchanan, 2015), which is an important factor of identity (Beijaard et al., 2004). Some pieces of research announced that accountability evaluations can negatively affect teachers' pedagogy, performance, and emotions (e.g., Guenther, 2021). Ford et al. (2017) investigated the role of an accountability evaluation system among teachers and noticed that this measurement has a negative affect and teachers have loosed their commitment and satisfaction despite rating it highly influential.

Recently, Guenther (2021) investigated teachers' identity when school leaders are evaluating them through accountability-focused evaluations. The result suggested that accountability evaluation is simultaneously useful and harmful to teachers' identity. Dunn (2020) realized that accountability evaluations can contribute to low disempowerment, morale, and influential instruction. Consequently, measuring teachers through accountability evaluations could result in lower student's achievement because of the negative impact on teachers' identity (Lavigne, 2014). The harmful results of accountability evaluation are more salient for this research because this result suggests a contradictory work against improving teachers' performance. In addition, investigating teachers' identity through accountability evaluation systems in EFL FL classrooms can help researchers to add new ways of measurement and improve the evaluation systems of teachers.

In sum, much of the current literature on teachers' evaluation does not focus on its influence on their identity. However, the importance of accountability evaluation is mostly examined on teachers' performance in the classroom. The current study was an effort to examine the effectiveness of the EFL teacher's professional identities in flipped learning classrooms through accountability-focused evaluations.

3 Theoretical Voices

I employed a theory of identity by Guenther (2021) for conducting the current research to find out how accountability evaluations of identity, including interrelated components of teacher identity, such as expectations, context, agency, emotion, reflections, discourse, and subidentities, are influencing EFL teachers' performance in the FL classroom. In this theory, identity is regarded as a social construction

meaning that an individual's identity is responsive to their setting and multifaceted rather than being singular and set (Guenther, 2021). This theory believes that the nature of teaching demands a significant personal investment of various identities and congruence among these subidentities is essential for teachers and evaluation is an important factor that can influence these identities. In other words, identity is a kind of certain person that can be recognized in a special context (Beauchamp & Thomas, 2009). The other factors that shape identity and are all interlinked together include stories and discourse, emotion, reflection, agency, and understanding of the self (Guenther, 2021).

Identity, particularly for teachers, is a three-way interaction between situational, personal, and professional factors (Day & Kington, 2008). These factors are revealed by four essential features of Beijaard et al. (2004) about teachers' professional identity. The first feature states that teacher development can be continued through lifelong learning, whereby professional identity is a systematic, dynamic, and ongoing process of experiences. Then, both the context and the person can make a professional identity, wherein teachers based on the value they attach to the expectation of their profession in unique ways adopt those expectations. Third, the notion of agency, the teacher's attempt based on the resources available to them and their goals toward professional development, is an important factor in professional identity. Finally, there are some subidentities with the professional identity that correlate variously in the context and affect the overall identity of the teachers. Overall, it can be suggested from the theories that the professional identities of the teachers can be shaped by multifaceted and interrelated components, including context, emotion, reflections, subidentities, and expectations (Guenther, 2021).

Teachers need to have harmony between subidentities because teaching needs a high investment in emotional and cognitive identities (Day & Kington, 2008). However, other factors (e.g., contextual) can affect the identity of the teacher and cause conflicting subidentities continually (Cooper & Olson, 1996). One of the contextual factors is educational reform which can be regarded as a source of teachers' subidentities conflict (Beijaard et al., 2004). Consequently, change in educational reform can affect teachers' feelings about their work and their profession in various contexts (Day & Kington, 2008). Moreover, education reforms to a larger degree can challenge the main identities of teachers which result in a more negative effect on the overall identities of teachers (Beijaard et al., 2004). This effect on teachers' identity can influence their commitment to their work. Therefore, investigating the identities of teachers is vital because it paves the way for exploring for the teacher what the job of teaching means from various personal contexts, policies, and times (Day & Kington, 2008). Following Guenther (2021), I suggested that different types of teachers' identities can be affected by the systems of evaluation in the FL classroom. Consequently, I investigated the perceptions of teachers about reformed accountability performance evaluation employing an identity lens to examine how these kinds of evaluations can affect the professional identities of EFL teachers in the FL classroom.

4 Methods

4.1 Research Design

I utilized phenomenological studies to gain an in-depth understanding of EFL teachers' perception of the evaluation system of their performance in the FL classroom and its consequences on teachers' identity. In phenomenological studies, participants have to declare their experiences during the research, and respondents are asked to describe their experiences as they perceive them (Creswell & Creswell, 2018). It is a type of qualitative research and Creswell and Creswell (2018) declared that employing phenomenological studies is necessary when there is little knowledge about the topic in the literature.

4.2 Context

There are two forums in Iran that present English language education: private language schools (that concentrate on oral communication) and public schools (that concentrate on vocabulary, reading, and grammar). Public schools aim to prepare students for university entrance exams because this exam is nationwide and has high stakes for students. However, private language schools aim to respond to the social demand for communicative skills (e.g., those who aim to be proficient in another language and need to have good oral skills). Accordingly, the evaluation of language teachers runs in two ways: language-teacher evaluation in public schools is through the general teacher evaluation scheme (i.e., one scheme for evaluating teachers of all subjects), while in the contrary, in private schools of language, the head of the institutes is responsible to define some special criteria to evaluate the teachers' performance. Through the COVID-19 pandemic, both private and public language schools employ technology-based teaching (e.g., FL). The current study concentrates on the criteria that private schools of language employed to evaluate language teachers' performance and its effect on their identity in the FL classroom.

Participants in the current study were English teachers from five private schools of language in Shahrekord City. These private schools of language were selected based on random sampling among others. I had contact with their teachers formerly and also I previously worked in two private schools of language. Together, the five private schools of language employed five administrators and 20 teachers. The logic behind selecting a small sample size was to garner an in-depth understanding of a phenomenon on meaning. The socioeconomic and ethnicities of the teachers were similar in private schools of language. The evaluation of teachers in these five private language institutes was based on classroom observation and a measure of students' growth. Teachers were rated at the end of each semester and labeled based on self-evaluation data, observation, and student growth. This kind of teacher evaluation became legislation in five private schools of language and teachers' pay and staffing

were determined based on it. One person employed by the administrator was obliged to observe the classroom (i.e., observing videos that teachers prepare for completing FL classroom and also face-to-face mediating sessions) and then gave feedback to the administrator within 15 days of observation.

4.3 Participants

Twelve EFL teachers who have been teaching through FL contributed as participants in the main trial and complimented all three phases of data collection. They were females and had at least 1 year of experience in teaching EFL through the FL classroom. Most of them have received a Master's Degree in TEFL and have more than 6 years of teaching experience in these private schools of language. Teachers' recent evaluation revealed that six of the teachers rated as "highly effective" teachers and the other half as "effective" and I used this evaluation to classify teachers for the focus group (i.e., one highly effective and one effective teacher in one group). It should be noted that those teachers who were rated as "minimally effective" teachers were removed from their position at the moment they were evaluated as "minimally effective" teachers and this was a reason why all of the teachers in these private schools of language indicated rating effective or highly effective.

4.4 Data Collection and Analysis

I collected the data of the current research in three phases and throughout the three-semester by employing qualitative design. In the first stage, I placed two open-ended questions to understand teachers' experiences with their evaluation system and write their extra comments. In the next stage, I designed a semi-structured interview protocol (e.g., "does your evaluation in the FL classroom play an important role in teacher education growth? Why or why not"), and those teachers who declared their interest in survey responses were interviewed. The interview helped me to elicit teachers' opinions and views (Creswell, 2014) concerning the private schools of language evaluation system in FL classrooms and its effect on teachers' identity and perception. Finally, I employed focus groups (Sagoe, 2012) to deepen my understanding of the results and allow the teachers to confirm my initial views about the findings. I used small groups of two teachers and allowed them to use the think-aloud technique by surveying the data and quotes from the interview to facilitate the focus group discussion. Generally speaking, I employed interview, survey, and group data of the 11 EFL teachers in private school of language in Shahrekord to examine the in-depth understanding of teachers' accountability-focused evaluation of their professional identity. All of the instruments (i.e., interview, survey, and group data) were administered in the Persian language and then transcribed into English.

I analyzed transcriptions of 12 teachers' five focus group discussions, responses to survey open-ended prompts, and interviews to find my research questions. Then, I entered my data in NVivo software and looked for codes and themes through the data sources. The data from the qualitative phase was analyzed through grounded theory (Urquhart, 2012). The interview data were transcribed and translated into English for further analysis. Then, researchers read and re-read the transcript to find relevant themes for implementing research questions. Afterward, the key categories and themes emerged through content analysis. In the next step, the researcher read the transcripts and highlighted the important notes of the learners' narratives. Furthermore, several labels and annotations were used in the margins of the transcripts. Codes and excerpts were grouped to form the key categories of learners' interviews. In addition, another expert in the qualitative section read the transcript and coded the data. The reliability was confirmed through interrater reliability (Cohen's Kappa = 0.91). Moreover, the researcher conducted member checking by the participants to ensure unbiased interpretations of the researcher's perspectives. Finally, the external audit, who was a professor familiar with mixed-methods research, reported the final data. Through analyzing the interview, I list some initial open codes. Then, I employed a whole list of interview codes to examine focus group discussions, open-ended survey responses, and second-time interviews. I aimed to concentrate on teachers' perceptions of their evaluation system and how this model of evaluation affected their practice in the FL classrooms. However, by analyzing open codes, I realized from open codes (e.g., deprofessionalization and frustration) that this kind of evaluation system in private schools of language could affect the professional identities of teachers in the FL classrooms. Therefore, I interpreted the results based on the theoretical frameworks that I discussed in the literature, and coding processes helped me to discuss both the perception of teachers about the evaluation system and its effect on their identities. Thus, I discussed themes following the literature review in the following parts.

5 Lessons Learned

Among various codes, I selected common categories and summarized them in themes that emerged from teachers in different EFL private schools concerning teachers' perceptions of their evaluation system performance through FL classrooms and its effect on their professional identities. The responses that I collected through the project revealed that the evaluation system of private schools of language is perceived by the teachers as a ratio for accountability purposes particularly for precluding the purpose of professional development. Moreover, teachers of the current research reported their disagreement with the evaluation system even when they were rated as "effective" or "highly effective" by the administrators. Teachers believed that the current system of evaluation in private schools of language has reflected negative emotions and experiences and did not accurately evaluate their teaching processes. In addition, the results of participants' perceptions demonstrated the harmfulness

of accountability-focused evaluations on teachers' identities that go well with the teacher identity theoretical framework. These factors result in conflict between teachers' profession, a contradiction in subidentities, their emotional well-being, and their sense of agency. I elaborate in detail on these themes in the following parts.

5.1 A Need for an Accountability-Focused System in FL Classroom

The whole of the participants (N = 11) reported evaluation as a necessary part of the teaching process. They believed that evaluation can improve teachers' validation and practice. For example, Maryam, one of the teachers, views about the accountability-focused system were

> In my opinion, evaluating teachers should be in a way that helps me try to become a better instructor and keeps me accountable …, however, it also should use a constructivist view toward my teaching processes and help me to improve more daily in my EFL FL classroom. It should not be in a way that compares me with other teachers or tell me I am not a good teacher, but help me to improve from this semester to the next.

It can be suggested from these words that the professional development of teachers should receive more emphasis than their accountability. However, she reported that the current system of evaluation concentrates on comparing teachers and labeling them, instead of helping teachers to improve their professional growth. Generally, all of the participants reported that the current system of evaluation did not help them to improve or validate their attempts during the EFL FL classroom. Teachers believed that the current system of evaluation did not provide them with feedback and is just a process of formality.

Participants in the current study repeatedly reported that their evaluation system process was a formality, "check us through the box." As Fatemeh pointed out, "teacher evaluation of our school is more of competency processes… It does not include expectations or feedback in its processes but just always concentrates to label us." By competency, teachers stated their negative views toward evaluating them with their colleagues, instead of their own. Nasrin quoted: "In my opinion, the current evaluation system is not useful because they want to force what they feel is right to us without considering our attitudes, feeling, or knowledge." In the same way, Azin declared, "I think the current system of evaluation cannot help teachers to improve their teaching. It is just a way for convincing administrations that the best teachers are working in this school." Teachers' perceptions about their evaluation were just an exercise to meet the requirement of the administrator, not a process of helping teachers to improve their instruction. Leila reflected on the comment about checking off boxes made by a fellow focus group member:

> How this kind of evaluation can help my students to learn better? How I can understand there is a problem with my instruction? How I can make my instruction better? When I have time to improve my teaching as by receiving minimally effective labels I should leave the school?

The participants believed that the current evaluation system was not a valuable experience for learning that was worth their effort and time, rather it was just completing another task to gain the position. Consequently, teachers reported that the current evaluation system was the accountability of someone else's purpose not for their professional growth.

5.2 Inaccurate and Incomplete Teachers' Identity Through FL Classroom

Nearly almost all of the participants declared their concerns about the system of teachers' evaluation that correlates with their identity development. Analyzing data through all three sources revealed that teachers did not agree with the current evaluation system because they believed that system did not gain a complete or accurate picture of teaching in particular or in general. The first reason for this claim was the disassociation of evaluation criteria with teachers' expectations of their roles. Then, teachers stated a lack or limitation of data for evaluations that are flawed potentially. Finally, observation of the classroom was not assessed regularly but instead of teachers' performance. Teachers believed that in all of these situations their identities were conflicted or challenged in this profession.

Participants asserted that this kind of evaluation did not take care of a teacher's daily basis or did not include outside factors of their classroom that can affect their teaching style. For instance, Najmeh pointed out, "This evaluation system is far away from the whole idea … it cannot evaluate our daily practice during the classroom." Similar to Najmeh, other participants agreed that this system of teacher evaluation did not consider outside factors, such as students' personal lives and behavior that affect the teacher's role. The following focus group reports make it evident:

> Azin: one of my students is just five years old. She cannot even connect to the net. I learned how to connect before our classroom started.
>
> Shirin: I might have known …
>
> Azin: but how this evaluation tool can consider these facts that besides EFL learning I have learned extra information that she needs it?
>
> Shirin: You're right!
>
> Azin: And they are unaware of the general background knowledge of the student at home.

Consequently, participants have a consensus that this system of evaluation did not take care of teachers' attempts in improving students' life in various areas rather than concentrating on EFL language learning. Furthermore, evaluation criteria were narrowly defining teachers' professional identities that only display a portion of their work in the classroom. This can result in creating frustration for teachers because it conflicts with their robust and multifaceted professional identities.

Participants complained about the limited information that administrators gain through observation. In addition, they agreed that evaluation based on students' growth was completely inaccurate. Most of the teachers, depicted from observations,

believed that testing and exam is not a good instrument for measuring students' progress because most considered test and exam as unfair, irrelevant, and frustrating tools of evaluation for students and teachers. These words are completely reflected in Donya's comments:

> Fatemeh: In my opinion, there is a need for schools to have an evaluation system. Yes, I do believe … But it is completely unfair that our evaluation is tied to one day, and one test.
>
> Donya: The strangest issue about teacher evaluation, in my opinion, is that students' growth displays our professionalism in teaching … If just one student has a physical ache on an exam day and does not gain enough score what will be happened to the teacher? The teacher will lose her goals because one student does not gain growth in an exam. It is not fair. Maybe the next day student will be able to display her growth. Overall, I can say the right time, situation, and environment can make this evaluation unfair and give little data to the administrator.

It can be concluded that measuring and observing students' growth is potentially inaccurate and limited. Thus, teachers believed that their evaluation system was completely unfair and inaccurately reflects the teaching profession. In addition, what made teachers irritated was the labeling process by the administrator as "minimally effective" or "highly effective" which disturbs the teacher's identity.

Teachers of the current study suggested that the evaluation system did not precisely reflect their effectiveness because it does not observe a daily lesson representative. In the theoretical framework, it was confirmed that the validity of the evaluation system is under question and it results in negative consequences on teachers' identities. Zohreh mentioned that "In my opinion, lots of teachers are performing lessons in a way that students prepared to pass the final exam. This is a wrong system of evaluations and teachers just concentrate on coaching (i.e., teaching for the exam) during the semester." Focus group discussions make it evident:

> Zohreh: The administrator of the institute did not get feedback from us and what I should do is just prepare students for the final exam to achieve highly effective teacher's labels. OK, but I think personally it is not good and exams cannot display students' growth.
>
> Mandana: You are right. Are students just need to be able to pass the exam by attending our classes?
>
> Zohreh: We cannot progress in our profession without feedback. That's awful!
>
> Mandana: The evaluation system must be changed in some ways that can help us to improve ourselves and our students.

It is evident that teachers' views were negative toward teaching particular practice values to the students for achieving highly effective labels. In other words, teachers disturb their identity by wrecking ethical considerations of teaching and preparing students for exams because of observation and highly effective labels that helped them to not dismiss.

5.3 *Effects of an Accountability-Focused Evaluation on Teachers Through FL Classroom*

Participants agreed about the negative effect of the current evaluation systems on their emotional well-being, agency, and professionalism that indirectly affect their professional identities. In this theme, issues of well-being and agency correlation with teachers' evaluation system, their stress during the evaluation process, and deprofessionalizing of them through accountability-focused evaluations were discussed.

Teachers of the current study especially talked about the effectiveness of their evaluation system component, namely, rating. This rating system was very important for teachers because they wanted to get "highly effective" labels. Nonetheless, most of the participants reported rating as a frustrating and arbitrary system of evaluation. Shirin noted that:

> My school administrator told me that they have a new system of evaluation this year … last semester I was labeled as a highly effective teacher but this semester with the same teaching method and the same score of students I got an affective label. How is it possible that without any changes in scores and teaching method they change my label? Is it fair that without any feedback or information they change the evaluation rating system?

Several teachers noted that there are some problems with an agency as they try to not label teachers as "highly effective" because they have to pay more staff to them and this results in disturbing teachers' identity. In this way, teachers make efforts to earn "highly effective" teachers' labels and because it is impossible through the evaluation rating system they lose their motivation to progress professionally. One teacher noted that the result of the evaluation system and its labels make no difference in her teaching processes. On the contrary, Negin stated the positive effects of evaluating rating systems by declaring, "I think this system of evaluation is very effective because allows teachers to find a way to progress and get the highly effective label." Other participants believed that the system harmed their well-being and discouraged them to progress.

In contrast to teachers who believed that the current evaluation system cannot affect their identity or emotions, several teachers reported its negative effects such as stress, and brought evidence for their words. For instance, Zohreh noted:

> For me, the current system of evaluation is very stressful. When my students have growth in the classroom but one problem and bomb their test, how I cannot have stress? I know they have progress but exam make them stressed and they lose it. Is it not stressful?

It is suggested that a great deal of emotional distress can cause teachers when they were failed to get "highly effective" labels. The evaluation processing system was very stress-producing for the participants and they believe it was harmful to their professional identities and well-being. Apart from stress, losing agency, and decreasing teachers' well-being, several participants revealed that the current evaluation system can create conflicting subidentities for them that negatively affect their sense of professionalism. As Nasrin noted:

> In my opinion, the current evaluation system is very time-consuming for both students and teachers. I spend lots of time preparing students just for the exam instead of teaching them new ways of communication and this made me sick…

Overall, several teachers agreed with Nasrin and believed that the current system of evaluation can destroy their identities.

6 Discussion

Results of the current study suggested that EFL teachers' performance evaluation system cannot be employed for a purpose of professional development and accountability of them in flipped FL classrooms, especially when there is a lack of formative feedback. These findings are supported by several researchers (e.g., Firestone, 2014; Glickman et al., 2014; Guenther, 2021). In addition, results suggested that evaluation systems concentrate on accountability rather than professional development and display negative consequences on teachers, and especially can damage their professional identities. The most important factor for the failure in teacher evaluation is a lack of constructive and substantive feedback which has been mentioned in several pieces of research (e.g., Donaldson, 2016; Guenther, 2021). They pointed that evaluation based on accountability cannot result in real change in students' learning progress. Some scholars believe that accountability-focused evaluation can improve teacher performance (i.e., Dee & Wyckoff, 2015), but in my opinion, it just forced the teacher to instruct how students can succeed in exams not learning issues. Teachers of the current study reported they performed based on the rubric of the exam to earn the "highly effective" labels but they did not feel well-being as they looked at their students' knowledge that just work for the exam. Then, teachers' accountability-focused system has a few impacts on improving their practice or students' learning.

In EFL teachers' opinion, extrinsic pressure forces them to act in a certain way that results in earning highly effective labels for accountability purposes and they experience a reduction in their morale in the flipped FL classroom. Teachers have to encompass their identity because they did not agree with this kind of criteria and rating system or labeling. These results go well with Guenther (2021) who declared that an accountability-focused system of evaluation can be harmful to teachers' identity. This kind of evaluation system can result in inauthentic teaching which teachers aim to prepare students for exams and earn their label. However, teachers suggest that when their identity can remain outlined from the accountability-focused system they can progress in their profession and help their students to improve more (Guenther, 2021). In the current study, several teachers reported the gap between their identity and the evaluation system of the school that result in their identification as fraud.

EFL teachers in the current study suggested the negative effects of accountability-focused evaluation on their identities and identity development, even when they were rated as highly effective or effective in the flipped FL classrooms. This result is supported by Ford et al. (2017) who observe that accountability-focused evaluation

can be harmful to teachers' identities. This kind of criteria and process caused teachers to feel deskilled and micromanaged resulting in deprofessionalizing. The labels in the evaluation system can also affect teachers' identities. Teachers looking themselves as professional instructor who knows how to get progress and be the best for their students. They thought their labels must be highly effective teachers. However, when teachers were rated as effective teachers this caused demoralization for them. Finally, some teachers even decide to leave their job and think they are not satisfied with teaching. In other words, the whole of their identity is put under question (Guenther, 2021).

Teachers' identities are linked with their well-being, effectiveness, commitment, and sense of agency, thus investigating the impact of accountability-focused evaluations on teachers' identities is very significant (Day & Kington, 2008; Guenther, 2021) in technology-enhanced (e.g., FL) classrooms. Consequently, employing accountability-focused evaluation systems in schools can have negative impacts on teachers and students (Lavigne, 2014). In other words, some evaluation systems that aim to improve performance may work contrary and destroy both learning and teaching.

7 Conclusion

EFL teachers of the current research perceived their evolutional system of performance purposes as serving accountability, not professional development in the flipped FL classroom. In addition, even when teachers rated as highly effective or effective reported its negative impact on their professional identities. Notably, teachers stated that accountability-focused evaluations could demoralize their sense of professionalism and agency, challenge their identities, and harm their emotional attitudes. Thus, it can be concluded that this kind of evaluation cannot improve the process of teaching or learning but it can disturb teachers' identities that result in reducing teaching and learning quality. In summary, this kind of evaluation system can result in counterproductive.

Current research, up to the knowledge of the researcher, is the first study in the literature that investigated the impact of an evaluation system that concentrates on accountability over the professional development of EFL teachers in flipped FL classrooms. Then, more research is needed to confirm these findings throughout the various contexts. It is recommended to the practitioner and researchers to investigate several ways that can improve the evaluation system of teachers' professional accountability. Finally, the practitioner and researchers must find useful and meaningful practices and policies for the EFL teachers that improve teachers' identity and teaching in the FL classroom.

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Chapter 22
An English Literature Professor Applies CALL PD in Her Classroom and Outreach Programs: Reflections and Implications

Ana-Karina Schneider and Estela Ene

Abstract Most computer-assisted language learning professional development (CALL PD) in Romania is self-driven. At the university level, PD happens in an even less structured way than in K-12 environments, because Romanian universities benefit from "academic autonomy." The COVID-19 pandemic brought about a flurry of CALL PD opportunities, which emerged as a stringent need. Our chapter describes PD experienced by an English literature professor from Lucian Blaga University of Sibiu, Romania. Funded by the European Commission or the local government and initiated before the pandemic, these programs were addressed to faculty across disciplines and aimed to disseminate modern teaching methods and applications for higher education. While one program focused on supplying digital resources to be used in the teaching of the Humanities, the other proposed to promote excellence in digital pedagogy and research and increase student participation. After describing the programs, we illustrate the application of the newly acquired CALL knowledge in an English literature workshop for high school students from underprivileged areas. We reflect on the potential of the tools for long-term use in online and face-to-face courses, regardless of COVID-19. This discussion places PD opportunities within the context of a patchily implemented Bologna Process and the impending redefinition of the mission of Erasmus+.

Keywords English · Literature · Teacher reflection · Digital pedagogy · Romania

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1 Introduction

Computer-Assisted Language Learning (CALL) has been immensely beneficial for language learners and teachers alike (Bush, 1997; Chen et al., 2021; Li, 2016; Luke, 2006). However, learners' ability to reap benefits from CALL often hinges on instructors' level of preparedness and comfort with implementing CALL effectively (Dina & Ciornei, 2013; Năstase, 2020; Park & Son, 2020). In Romania, Dimulescu and Nechifor (2021) found that CALL was extremely versatile in its ability to serve different fields (academic, administrative, information technology), carry various languages (English, Romanian, Slovene, Italian, Croatian, and Spanish), and cater to different kinds of learners (students, teachers, and administrative staff). Stroe (2021) asserts that teacher training and professional development (PD) could help educators learn not only how to use different programs but also how to select the best ones for their needs. According to Dina and Ciornei (2013), continued PD for successful CALL implementation is essential due to its success relying on the teachers' ability to craft a CALL-appropriate lesson plan. Aside from the few examples cited above, research on CALL and CALL PD in Romania is largely absent, especially when it comes to CALL PD for content-and-language-integrated courses. To address this gap, this chapter illustrates the recent CALL PD experience of a university-level English literature professor and the pedagogical applications she incorporated into her teaching after participating in CALL PD. The chapter is based on an autoethnographic reflection and analysis of the first author's direct experience with CALL PD during the pandemic and her application of it in her work as a professor of English literature. It uses her first-hand knowledge of and experience with her context as well as an analysis of her practice to provide a much-needed example of CALL PD and its effects.

2 Romania: Context Under-Investigation

In Romania, language learning at university level was partly computer-assisted or technologically enhanced even before the pandemic: PowerPoint presentations, electronic guided notes or lecture transcripts, educational YouTube videos, online dictionaries, and translation software were available (free or by institutional subscription), and they were often recommended to students as a supplement to onsite lectures and seminars (Dimulescu & Nechifor, 2021). According to the national requirements stipulated in field-specific guidelines drawn by the National Agency for Quality Assurance in Higher Education (ARACIS, 2016), a body of the Ministry of Education which regulates the university curriculum nationwide, university students were required to take classes in Academic Writing, which often included a Word processing component, as part of their core curriculum, and were offered optional classes in computer science. Thus, by the beginning of the pandemic, most language students and teachers should have had some familiarity with the various educational uses of computers and the internet.

The level of actual student and teacher familiarity with technology is difficult to assess in the absence of a nationwide study on the topic, but the "digital divide" (Warschauer, 2012) is known to play a role (Nicolau et al., 2020). The overall limited digital skills of Romanians are well documented (Peticilă, 2020). Nonetheless, during the pandemic itself, as the country was thrown into Emergency Remote Teaching (ERT) mode like the rest of the world, the Ministry of Education and local school inspectorates for the K-12 level intensified their efforts to distribute online teaching resources and Open Education Resources (OER) (also see Ene & Şerban chapter in this book). On the (hopefully) tail end of the pandemic, it appears that universities are ready to propose the integration of CALL courses into their teacher training curriculum as permanently required offerings (Andron & Kifor, 2021), finally heeding the alarm bells sounded by those who had previously noted the need for better teacher preparation for technologically enhanced teaching (Dina & Ciornei, 2013; Năstase, 2020; Stroe, 2021).

Due to the lack of published research on university-level CALL PD for professors of English literature, and for her own information, the first author of this study (A1) has consulted with fellow Anglicists at the six largest public universities in Romania (Bucharest, Cluj-Napoca, Iaşi, Constanţa, Craiova, and Timişoara), in addition to investigating the situation at her own institution. It has transpired that, while the technology was readily available, to this date (March 2022), only two universities have supplied any kind of training beyond tutorials on the technicalities of using various online platforms (Timişoara and Sibiu), and two others have created webpages dedicated to digital pedagogy (Cluj and Craiova), while some have not supplied tutorials or training of any kind.

A few PD programs have nonetheless been available to faculty across disciplines, and they include online platforms containing resources and forums. Additionally, international organizations, funded either by the European Commission or the governments in their home countries (exemplified below), offer training within the European Higher Education Area (EHEA) under the Bologna Process and the Erasmus+ Program (*The Bologna Process*, n.d.). Still, most CALL PD in Romania is self-driven rather than institutional and systematic, and information about such programs often circulates through personal networks, rather than any official channels. Thus, participation in these programs has been an individual choice rather than an institutional imperative, in a country in which there is no culture of PD and no incentive for faculty to pursue refresher courses. Nonetheless, instructors flocked to take advantage of such PD opportunities when they were available.

Our account of three PD opportunities experienced by an English literature professor from a Romanian university and of their practical application during both summer school and regular classes provides an analysis of the usefulness of such training, and of its implications for further CALL PD for faculty who prepare future teachers of English through literature and language offerings. The account represents the reflections of the first author—teacher who underwent the PD described, aided in analysis by the second author—researcher of CALL and PD in ESL and EFL contexts; thus, our chapter balances the emic (or insider's) and the etic (arm's length) perspectives.

3 Methodology

Dewey (1933/1993) first recommended that teachers can and should raise their awareness of their own pedagogical practice through reflection. Reflection is a form of active engagement in one's own pedagogical training (Cole et al., 1998). It entails a process in which teachers describe, compare, and critically evaluate teaching (Akbari, 2007), with the end goal of clarifying and improving the teaching and learning experience. Reflective practices, broadly seen as (auto)ethnographic, can include teacher narrative and dialogue journals (Cole et al., 1998; Farrell, 1998; Lee, 2007), surveys/questionnaires or interviews (Brown, 2006; Lee, 2010), and the observation and evaluation of teachers' own classroom practices (Farrell, 1998, 2011; Geyer, 2008). While some studies use elaborate designs (see, e.g., Geyer, 2008; Farrell, 1998), it is not always possible to engage in extensive, multi-method reflection, and a simplified approach may be more realistic in order not to burden the reflecting teacher(s) or their under-resourced context (Ene & Riddlebarger, 2015; Lee, 2007; Liou, 2001). Additionally, there are situations such as the COVID-19 crisis and the ERT environment it created, which unfolded fast, putting practitioners in the position to do and learn "on the go." This chapter provides a description of the context in which A1 works and relays her reflection on her CALL PD during ERT times and immediately after. Initiated as soon as the pandemic began, the reflection has continued through the writing of this chapter. In addition to A1 reflecting on her own teaching and PD, both authors met throughout 2020–2022 to discuss CALL and CALL PD in their respective contexts. In the sections that follow, we first provide a description of the Romanian context, then we describe and analyze the CALL PD received by A1, and we illustrate CALL PD applications implemented by her. In accord with the essayistic genre that is more typical of A1's discipline, our chapter is rather narrative (as opposed to a typical applied linguistics research article), to reflect the style that the main reflecting voice is comfortable in.

4 English Studies at LBUS

Lucian Blaga University of Sibiu (LBUS) (LBUS, n.d.) is a medium-sized university in central Romania, offering a wide diversity of study programs in the fields of the Humanities, Social Sciences, Medicine, Law, Economics, Engineering, Food Industry, and STEM. The School of Letters and Arts offers degrees in Romanian, English, German, French, and Chinese at B.A., M.A., and (with the exception of Chinese) Ph.D. level. Its main study programs are in the fields of Language and Literature, Applied Modern Languages, Translation Studies, Library Science, and Drama. In the BA programs in Language and Literature and Modern Languages, students pick a major and a minor language. The former program typically trains future language teachers, while the latter trains translators and interpreters. At the MA level, students specialize in one of the languages chosen for the BA (Facultatea

de Litere și Arte, 2021a, 2021b, April 8). Teaching takes the form of lectures, seminars, and practical courses or labs. Lectures are typically delivered to large groups (all the English-major and -minor freshmen, for instance), often as many as 100 students, while seminar and practical course groups are made up of 20–30 students (as regulated by ARACIS, 2016, p. 9).

The faculty at the School of Letters and Arts consists largely of Romanian specialists, to whom is added a steady yearly flow of Fulbright, German Academic Exchange Service (DAAD), Austrian Institute (Vienna), French Institute (Paris), and Confucius Institute (Beijing) lecturers. The student pool is diverse, with the majority hailing not only from Sibiu and neighboring counties but also from every corner of the country, the Republic of Moldova, China, and European countries participating in the Erasmus + program, particularly Turkey, Poland, Germany, and Spain.

In the English department, students are expected to be proficient in their language of choice. In most Romanian schools, English is the first foreign language taught, often beginning in second grade or earlier. While this does not guarantee uniform proficiency, it does enable programs to deliver instruction in English. The classes offered within the Language and Literature programs are equal shares literature and language courses, whereas the Modern Languages programs focus on language only (Facultatea de Litere și Arte, 2021a, 2021b, May 25). For students who wish to pursue a teaching career, two 2-year pedagogical modules are available with the Teacher Training Department (Departamentul pentru Pregătirea Personalului Didactic, n.d.).

A1 teaches English literature and literary criticism in the BA and MA Language and Literature programs. At the onset of the COVID-19 pandemic, which coincided with the start of the spring semester in Romanian universities, as education moved online almost overnight, two factors motivated A1 to seek out CALL PD opportunities: her lack of experience with distance education or computer-assisted teaching, and her interest in the state of the discipline. She understood early on that the mere transfer of course content from onsite to online classes would not be effective and that tutorials about the use of digital applications and platforms would not supply a pedagogy.

A1 identified several discipline-specific needs and challenges. The absence of visual contact, given that most students chose or had to attend online with their camera off, had to be made up for by other means. The need to recreate an atmosphere that is conducive to learning in spaces that are normally associated with other activities (such as student bedrooms or kitchens) and the inaccessibility of physical libraries were also problems that emerged early on. Keeping students interested and engaged while distracting them from both their domestic environment and pandemic-related anxieties proved challenging in the early months, while screen fatigue and alienation became deterrents later. While the curriculum could not be modified, new means had to be found not only for its effective delivery but also for a fair and accurate evaluation of learning outcomes. After the first semester of ERT, as all online teaching became synchronous at LBUS, the benefits of the flipped classroom were harnessed to organize engaging and meaningful learning. While PD programs devoted to the

teaching of literature were not available, A1 anticipated that much could be learned in terms of general digital pedagogy from seminars and workshops targeting the Humanities.

5 The PD Programs

Presented with the opportunity, A1 attended several PD lectures and workshops devoted to online teaching over the past two years. Two PD programs—Ecological Learning and Simulation Environments in Higher Education (ELSE) and EDU-QUAL: Educație de Calitate la ULBS (EDU-QUAL: Quality Education at LBUS)—are the focus of this chapter. Both programs aimed to train instructors from across disciplines to use digital technologies in ways that would increase the graduates' employability. Both had a strong best practices component and aimed to develop transversal skills for our digital age. At the same time, both projects were mindful that their methods should enhance "competence learning and metacognitive awareness while safeguarding the acquisition of academic knowledge" (*ELSE*, n.d.).

ELSE (implemented between 2018 and 2021) was an international project organized by a consortium of ten universities from eight European countries, spearheaded by Tuscia University, Italy. Funded by the European Commission through Erasmus+ and initiated before the pandemic, ELSE is explicit in its mission statement: "Our chosen disciplinary area is the Humanities because it is considered a bulwark of traditional and conservative behaviour, and an area that needs support in identifying direct links between academic studies and employability/professionalization" (*ELSE*, n.d.). Two Romanian universities were part of the consortium, and A1 learned about the program from a colleague at one of these, the West University of Timişoara.

EDU-QUAL was a PD project financed by the Romanian Ministry of Education and Research in 2020 (Ilie, 2020). Organized by LBUS, it targeted faculty across disciplines, including the humanities, the hard sciences, earth sciences, economics, law, and medicine. It was widely advertised within the university, and it quickly adapted to the new conditions of online education. It proposed to correlate digital skills with pedagogic skills in all fields. EDU-QUAL convenors prioritized the need to make learners feel comfortable and confident and thus encourage participation in the new digital medium, whereas ELSE investigated the implementation of the Bologna Process in the partner countries and designed and disseminated platforms, applications, and methods that would facilitate online teaching.

ELSE offered training for its members, organized conferences, and seminars, and produced six intellectual outputs (*ELSE*, n.d.), which it tested and then disseminated through webinars in early 2021 and a 2-day multiplier event in mid-June 2021. The intellectual outputs consisted of a hypertext of good practices, a cloud-based ecosystem of resources to enhance the flipped classroom, a simulation environment for problem setting and problem-solving, a digital tool for personalized e-assessment, a teacher's manual for the Humanities, and a manual for student self-assessment. The hypertext, manuals, and some of the documents detailing the team's findings are

freely available on the project website. The three e-learning instruments, designed by Entropy Knowledge Network, Italy, offer efficient means of monitoring real-time student comprehension of lectures (ELSE_Evoli), engaging students in the learning process by gamifying learning (ELSE_Ecore), and evaluating and monitoring student progress through an integrated digital platform (ELSE_eDash). All three tools are copyright-protected, and universities can purchase the rights to use them. All three have been successfully tested for the teaching of both English and other languages, such as Romanian. Tutorials are available on the project website.

A1 attended the ELSE dissemination events made available to Romanian academics by the West University of Timişoara, as well as the multiplier event organized by Tuscia University, all online. The intellectual outcomes were presented at all these events, and while in the dissemination stage ELSE team members performed practical demonstrations of how the platforms could be used, during the multiplier event, participants were transferred to parallel Zoom rooms where they could test the various tools under the team's guidance.

In November and December 2020, EDU-QUAL offered a series of webinars and workshops targeting the enhancement of digital, pedagogic, and research skills among LBUS faculty. Some of these were convened by LBUS professors, others by specialists from other Romanian and international universities. The project's primary aim was to ensure excellence and best practices both in teaching and research in the new pandemic context.

One EDU-QUAL workshop, in particular, introduced and discussed a wide variety of digital platforms and instruments, such as Padlet, Mentimeter, Quizizz, Flipgrid, Edpuzzle, Coggle, etc., with a focus on evaluating student work. The convenor presented three pedagogical models: Technological Pedagogical Content Knowledge (TPACK), Passive, Interactive, Creative—Replacement, Amplification, Transformation (PIC-RAT), and Substitution–Augmentation–Modification–Redefinition (SAMR). Special attention was paid to TPACK, a complex framework developed by Mishra and Koehler (2006), that correlates seven components: Content Knowledge, Pedagogical Knowledge, Technology Knowledge, along with the kinds of knowledge resulting from their intersections: Pedagogical Content Knowledge, Technological Content Knowledge, Technological Pedagogical Knowledge, and, finally, Technological Pedagogical Content Knowledge (TPACK), which integrates all the others. The framework proposes "to identify the nature of knowledge required by teachers for technology integration in their teaching, while addressing the complex, multifaceted and situated nature of teacher knowledge" (Koehler, 2017). The convenor also discussed ways of planning evaluation activities for both formative and summative assessment and illustrated how various digital tools can be used in both online and blended teaching. She considered means of adapting more traditional evaluative methods, such as the final paper, the project, or the portfolio, to the electronic environment. As in the case of ELSE, particular emphasis was laid on gamifying education in order to maintain a high level of student engagement and decrease stress and anxiety.

In October and November 2021, Digital Education 2021 (DIGI-EDU21), another PD program, was made available to LBUS faculty by the Teacher Training Department at LBUS in conjunction with its TeachOn platform (launched in March 2021) (Andron, 2021a). It included equal numbers of workshops devoted to digital pedagogy and applications and to the mental well-being of teachers and students. Pedagogical workshops presented digital tools that are available on the TeachOn platform (for example, Mentimeter, Prezi, Canva), as well as the various uses to which they can be put and the pedagogy behind them. In the wellness category, special attention was given to what is missing in online education, both for students and faculty, particularly in terms of mental and emotional well-being, creativity, connecting, and meaning. This emphasis is consistent with a gradually spreading awareness that remote teaching and screen fatigue are more conducive to alienation, demotivation, and burnout in both tutors and students than onsite education (Hybrid Pedagogy, n.d.; McClure & Fryar, 2022). Speakers addressed a variety of topics, including how to teach creatively to train creative thinking (Andron, 2021b); the use of all the senses to reproduce a space that is propitious to learning (Leonhard, 2021); engagement in e-learning environments (Ene & Padilla, 2021); and the advantages and limitations of games for stimulating meaningful ecological or social projects in the outside world (Pfützner, 2021). A Canadian team advocated for self-care and mindfulness practices for faculty (Obradović-Ratković et al., 2021). The emphasis on motivating and encouraging both students and instructors to remain engaged, creative, and relevant came across as a very important new component of CALL pedagogy.

6 Reflection

Several advantages and limitations of PD opportunities emerged from attending these PD programs, as follows.

Advantages:

- PD workshops and webinars introduce key differences between onsite and online pedagogy.
- Unlike tutorials, they offer not only step-by-step demonstrations of how to use the technology but also discussions of the uses to which digital technologies can be put in various classroom contexts, at various stages during the lecture/seminar, in various fields.
- Unlike tutorials, they offer the opportunity for participants to ask questions and share opinions, experiences, apprehensions, etc., thus encouraging and motivating instructors and promoting mental well-being.
- They target the adaptation of teaching methods to the production of marketable skills in students (for example, computer-assisted teaching, machine translation, computer-assisted translation, etc.).

- The tools, platforms, activities, and presentations developed can be reused in both online and blended teaching.
- They encourage reflection on the extent to which the Bologna Process has been implemented and achieved.

Drawbacks:

- limited participation by faculty
- limited availability throughout the country
- training seldom geared for language teaching/learning
- training seldom considers the trainees' expectations (see also Tafazoli, 2021)
- platforms not affordable in less affluent countries like Romania.

In addition to the advantages of PD enumerated above, which far outnumber the drawbacks, there were a series of pedagogical outcomes, such as learning how various applications and platforms can be used for specific stages in teaching and/or evaluation, organizing attractive means of eliciting participation and feedback from students, monitoring comprehension, and encouraging student self and peer evaluation.

In applying this new knowledge, several factors, both pragmatic and discipline-specific, had to be considered. The former include:

- the availability of copyrighted platforms and applications to LBUS faculty;
- the fact that the free versions of many applications and platforms can only be used with very small groups of students;
- the amount of time it takes to prepare some of these digital activities: one ELSE member mentioned spending four hours to prepare a storyboard about translation methods for an activity that takes about 20 min in a 2-h revision class.

Discipline-specific factors for literature had to do with selecting tools and applications that: foreground the graphical aspects of a literary text (especially with poetry); make it possible to break down the content into learning units and several alternate ways of presenting them in order to stimulate student attention; identify key concepts and monitor student comprehension and retention. Consequently, of the tools presented in PD, for instance, Prezi replaced PowerPoint for the presentation of new material, being deemed to be visually more engaging; Mentimeter was used for quick questions to elicit participation and check retention; Google Suite was the platform purchased by LBUS, and faculty were required to use it for all synchronous teaching and evaluation. Along with handouts, guided notes, online dictionaries, and multimedia materials freely available on the internet, these were deemed to be sufficient tools for the creation of a stimulating learning environment.

7 Application

The newly acquired CALL knowledge was put to the test both in regular classes during the spring semester of 2021, and in an English literature workshop for high school students from under-privileged areas, in September 2021. The latter experience typifies several aspects of digital pedagogy in Romania. Bridge Summer School (Morândău, 2019; "160 de Elevi...", 2021) has been a 3-year project (2019–2022) funded by the Romanian Ministry of Education and implemented by LBUS as a series of 12 summer schools for 40 high school students each. The aim of the program was to increase access to higher education for students from under-privileged categories by encouraging them to consider a university degree and by familiarizing them with the opportunities available to them; to empower and support vulnerable students from all fields; to sensitize faculty and staff with respect to the specific hardships of such students and build a support infrastructure; and to showcase the variety of fields in which LBUS offers degrees. The students were selected from under-privileged areas in neighboring counties to Sibiu, and the criteria included low family income, historical ethnic discrimination and marginalization, and special educational needs.

The summer school promised a complex experience, as the participants were to be hosted in student residence halls, have meals at the campus cafeteria, visit museums and libraries in Sibiu and the neighboring villages, be given career counseling, and attend two to three classes per day offered by each of LBUS's nine Schools. In 2019, this was what was delivered to two groups of 40 students each. In 2020, because of the pandemic, the program was interrupted, being picked up in online format in 2021 and offered to four groups of between 35 and 45 students each. A1 has thus had the opportunity to teach the same workshop both onsite and online.

Within Bridge Summer School, A1 taught a two-hour workshop in poetry in English titled "Poetry Makes Nothing Happen." It was the only workshop in literature and one of only two events (the presentation of the foreign language section of the Central University Library at LBUS was the second) to be delivered at least partly in English, while all the others were delivered in Romanian. The aim of the workshop was to demonstrate that over the past century, poetry has become an increasingly democratic genre and that its study is far from being the preserve of the elect few. The poems taught were "This Is Just to Say" and "The Red Wheelbarrow," by William Carlos Williams (n.d.), "This Is Just to Reply," by Bakos Eszter (Csaba et al., 2000), "AMOR2000," by Meremyi Csaba (Csaba, 2000), and short fragments from "In Memory of W. B. Yeats," by W. H. Auden (n.d.), and "Auguries of Innocence," by William Blake (n.d). The criteria for selecting the first four poems included accessible language, flexible and varied prosody, visual evocativeness, and a sense of humor, while the last two excerpts contain concise definitions of poetry, such as Auden's memorable "poetry makes nothing happen," which served as a title for the workshop. These were read in English and paraphrased in Romanian, while most of the discussion was conducted in English. The skills that were targeted were

reading and speaking, with an emphasis on practicing vocabulary and communicative skills through roleplay. It was anticipated that, by the end of class, students would be able to read and understand short poems in the English language; translate basic literary terminology from English into Romanian; discuss prosodic aspects of the texts; and define poetry, the sonnet, and Imagism. Potential sources of difficulty included: the students' variable command of the English language and interest in literature in English; timidity about speaking; and limited access to, and familiarity with, the necessary technology and the internet. There was no formal evaluation and, therefore, no pressure to perform.

In the course of preparing the workshop, many of the methods and ideas from ELSE and EDU-Qual were considered. LBUS has not purchased a license for the ELSE tools, so the instructor could rely on Google Suite, TeachOn, and a variety of freely available online tools and resources. The instructor adapted an older PowerPoint presentation to Prezi, which was visually more stimulating, and prepared four Mentimeter questions—one yes/no question and three open questions—to be used at various stages of the lesson. Google Classroom was used to establish initial contact and send a handout containing the poems to students (see Appendix 1). The Free Dictionary by Farlex (n.d.) was chosen as it compiles a variety of dictionaries and thesauri and often offers graphical representations of the entries, as well as examples of usage and pronunciation.

Google Meet was used for the synchronous workshop. The instructor used its various functions (e.g., the "Raise hand" function for yes/no questions, or the chat box for new vocabulary and for sending links to dictionary definitions to students), as well as Mentimeter for quick questions to check comprehension and keep students engaged (*Interactive Presentation Software*, n.d.; see Appendix 2). The Prezi presentation containing the poems, along with relevant images and keywords (*Prezi Homepage*, n.d.; see Appendix 3), was shared on the screen, while the instructor lectured freely and invited student interaction in reading and interpreting the poems or defining vocabulary and terminology. Students were encouraged to make handwritten notes on the handout, to enhance retention. The Mentimeter questions, which dotted the presentation, were designed to monitor progress, such that, while the first two, intended as a warm-up activity, asked "Do you like poetry?" and "Who is your favorite poet?," the third summarized the many things poetry does "make happen," and the final one asked students to supply their own definitions of poetry. If they were using a cell phone rather than a laptop or tablet and could not access Mentimeter, they were encouraged to send in their answers via the chat function in Google Meet.

8 Lessons Learned

As the summer school coordinators did not organize discipline-specific formal feedback from participants, the reflections presented below rely solely on the instructor's

observation of class dynamics. The workshop's objectives were to encourage student participation, offer an attractive introduction to the study of poetry at university level, and test the adaptability of digital tools to the teaching of literature. These objectives can be said to have been met, as between a third and a half of the 30-odd participants in each group engaged in the discussion or responded using the digital means at their disposal (Mentimeter, the "Raise hand" function and chat box in Google Meet). The digital tools, which were calculated to satisfy the learners' need for multimodal neural stimulation (Hayles, 2007) as well as deliver the content, facilitated and maintained the dialogue.

The pedagogical aims were met as well: students seemed to have no trouble paraphrasing the poems once the more unusual words were discussed, identified prosodic differences between fixed-form poems (such as the sonnet "AMOR2000") and free verse (e.g., Williams's poems), and defined poetry and other related terms. They concluded that poetry reading can not only stimulate creativity, enable self-expression and "make us feel free", as one student put it, but also help improve their vocabulary (see Appendix 2).

Still, the anticipated challenges were confirmed by classroom practice. As they came from a diversity of schools, not all the students in the four groups were equally interested or versed in literature and foreign languages (many were probably more passionate about STEM disciplines or the natural sciences). As they came from underprivileged backgrounds, some had only rudimentary electronic devices or unstable internet connections, and most did not have the means to print out the handout. A1 found these challenges more difficult to meet online than she had in onsite teaching two years previously, when handouts had been provided by the summer school and eye contact had made it easier to identify sources of difficulty.

9 Discussion and Conclusion

The experience narrated in this chapter exemplifies the impact of CALL PD on a literature professor who applied what she learned from CALL PD sessions to her own teaching with positive outcomes and a transformed understanding of CALL pedagogy. As a reflection based on a unique experience, it has limited generalizability, but it joins a substantive body of studies that echo similar conditions and findings (see, for example, Tafazoli & Atefi Boroujeni, 2022; Tafazoli, 2021). Moreover, it offers an example from a little-explored context, namely, that of a literature professor from an East-European country in which PD is largely self-driven and seldom documented.

In the realm of teaching more generally, it is clear that digital tools have the potential for long-term use in online, blended and onsite courses, regardless of COVID-19. A return to pre-pandemic conditions is unlikely (Ene & Padilla, 2021; Sheppard,

2021; van der Velde et al., 2021). However, the curriculum and delivery method at Romanian public universities are assessed and approved by ARACIS every five years and cannot be changed without their approval. LBUS's study programs are not accredited for remote teaching and could be delivered online only as long as the state of emergency lasted. Therefore, once the COVID-related restrictions were lifted, it became illegal to deliver classes online, according to the current Minister of Education (HotNews.ro, 2022). Nonetheless, some online tools will continue to be used, particularly those that facilitate communication with students and submission and assessment of student work. Hence, the continuing relevance of CALL PD (see also Jin et al., 2021) and the importance of understanding the relationship between digital pedagogy and the various kinds of situated knowledge it builds on.

According to ELSE, the most important principle of digital pedagogy, and, at the same time, the most difficult aim to achieve, is to enhance "competence learning and metacognitive awareness while safeguarding the acquisition of academic knowledge" (*ELSE*, n.d.). The TPACK framework offers a useful model for this: it reminds us that "[e]ffective technology integration for pedagogy around specific subject matter requires developing sensitivity to the dynamic, transactional relationship between these components of knowledge situated in unique contexts" (Koehler, 2017). At the same time, there are context-specific circumstances and limitations—such as the unaffordability of some of the platforms and tools or the limited availability of PD opportunities—that highlight the reasons behind the unequal implementation of the Bologna Process (*ELSE*, n.d.).

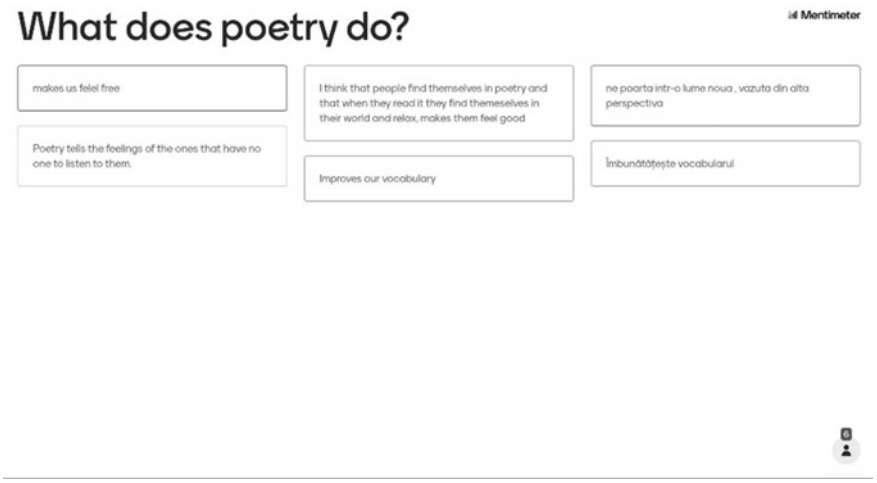
Unforeseeable global circumstances, such as the COVID-19 pandemic, have accelerated the implementation of CALL and made available international PD opportunities that might not otherwise have reached certain areas within the EU. They have also called for a redefinition of the mission of programs such as Erasmus+ and a reshuffling of the European Commission's priorities. Thus, a program originally designed to encourage in-person educational exchanges, Erasmus+ is currently funding and supporting digital repositories, applications, platforms, and resources. Similarly, summer schools intended to bring high school students to town for the first time in many of their lives and encourage them to seek career opportunities that would diminish socio-economic differences and marginalization are currently training them in the more efficient methods of using their computers and other electronic devices in order to learn foreign languages, STEM disciplines, etc., and, in the process, producing a highly marketable transversal skill that they will be able to capitalize on in their future careers.

Appendix 1: "Poetry Makes Nothing Happen" Workshop Handout

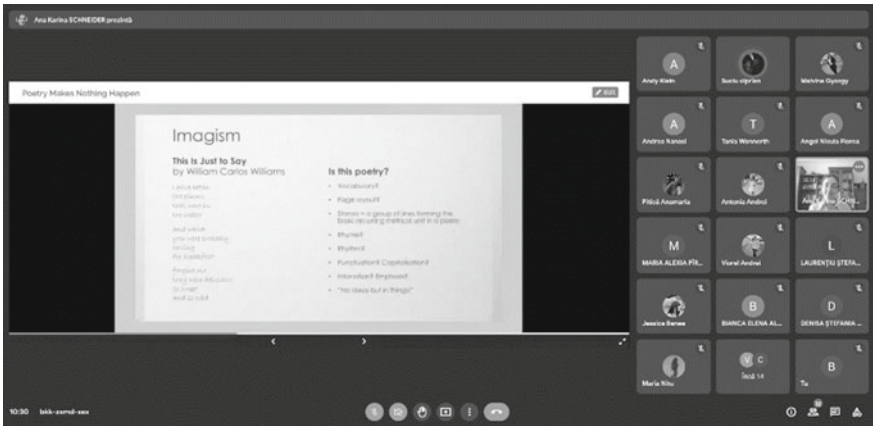
"This Is Just to Say" by William Carlos Williams	**"This Is Just to Reply"** by Bakos Eszter
I have eaten the plums that were in the icebox and which you were probably saving for breakfast forgive me they were delicious so sweet and so cold	1. The Chloe Type It doesn't really matter, darling, And who knows – Perhaps – if I'd woken up before you I would have devoured them myself. Anyway, they were meant to be Eaten – one way or another. 2. The Bound to Be Killed Type It doesn't matter NOW, of course, Though I deliberately tried to save them for The plumbers who came at dawn – While you were sleeping. Undisturbed. Well, thank you anyways, that's exactly what I expected.
"The Red Wheelbarrow" by William Carlos Williams	**"AMOR2000"** by Meremyi Csaba
so much depends upon a red wheel barrow glazed with rain water beside the white chickens	i sprayed EDMUND + BESSY on the wall and they whitewashed it I emptied another can onto that wall and again they whitewashed it and she comes to me and she says i'm so upset I am i'll disappear unless you stop this nonsense she says and I'M not gonna reappear and I says you try and leave me i've told them boys what a bloody nuisance you are and you can jolly well believe me there's none around here as wouldn't think you are but I will love you forever and all that you know whatever…

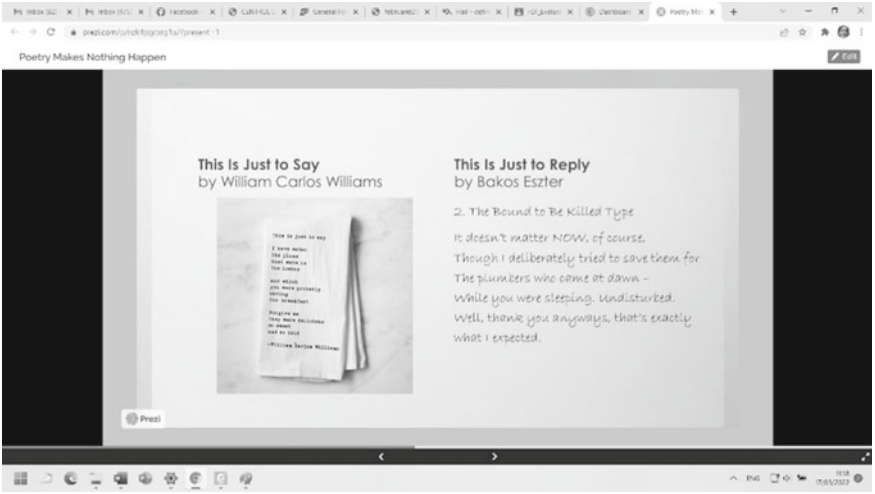
"**In Memory of W. B. Yeats**" (1939)
by W. H. Auden (1907 - 1973)
…
For poetry makes nothing happen: it survives
In the valley of its making where executives
Would never want to tamper, flows on south
From ranches of isolation and the busy griefs,
Raw towns that we believe and die in; it survives,
A way of happening, a mouth.

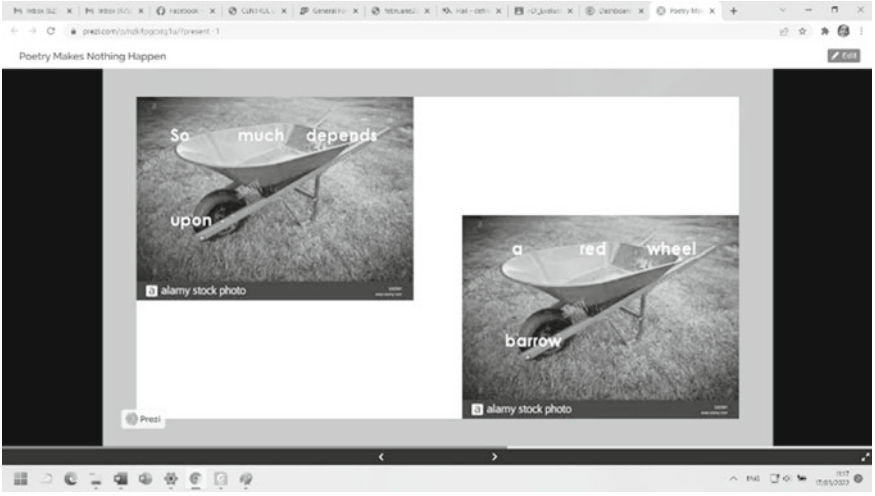
Appendix 2: Mentimeter

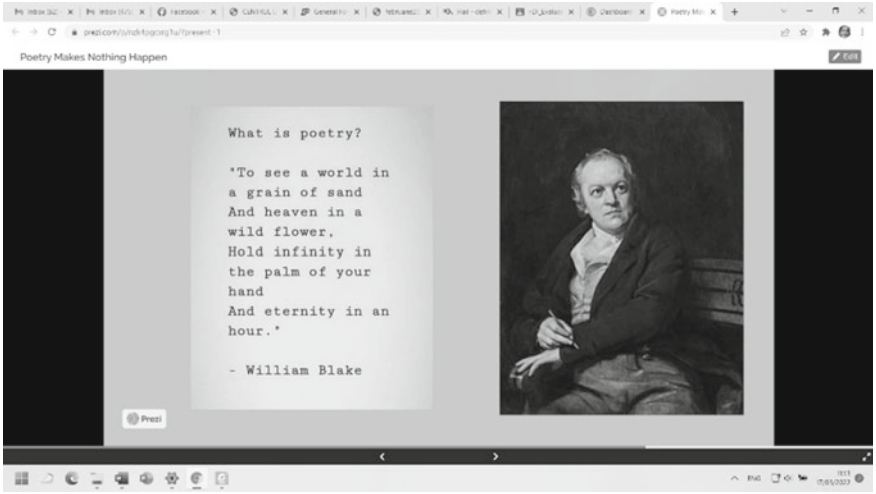


Appendix 3: Workshop Materials




Poetry Makes Nothing Happen
This Is Just to Say
by William Carlos Williams
This Is Just to Reply
by Bakos Eszter
2. The Bound to Be Killed Type
It doesn't matter NOW, of course.
Though I deliberately tried to save them for
The plumbers who come at dawn –
While you were sleeping. Undisturbed.
Well, thank you anyways, that's exactly
what I expected.
Prezi


Poetry Makes Nothing Happen
So much depends
upon
a red wheel
barrow
alamy stock photo
alamy stock photo
Prezi



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Chapter 23
Exploring ELT Teachers' Behavioral Intention to Continue Using Technology in the Post-COVID-19 Era: A Case Study of Oman

Fatemeh Ranjbaran, Abdullah Al-Abri, and Salim Al-Hashmi

Abstract Educators in Oman, at all levels of education, have adapted online education systems during COVID-19. As universities and colleges worldwide start to receive students back on their campuses post-COVID-19, it is crucial to rethink how our education is delivered, whether to continue using online education, backtrack to the conventional face-to-face mode, or integrate a hybrid approach. Therefore, this study seeks to explore the determinants that influence the behavioral intention of teachers to continue using technology in Oman's higher education and identify teachers' needs during the process of incorporating technology into their classes through the use of the Technology Acceptance Model and Theory of Reasoned Action. We used an online survey and semi-structured interviews through MS Teams for the quantitative and qualitative phases of the study. Data analysis was conducted through SmartPLS 3.7, and thematic analysis was implemented to report the findings of the interviews. This study shows a correlation between the participants' willingness to continue using technology in their teaching after the pandemic and their perceived attitude, usefulness, and ease of use.

Keywords Behavioral intention · Perceived attitude · Perceived usefulness · Technology Acceptance Model (TAM) · Theory of Reasoned Action (TRA) · Structural equation modeling

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1 Introduction and Background

Higher Education in Oman started as early as 1980 when the first college was established, followed by several public universities and colleges being built to serve the increasing need of young Omanis to study different specializations inside the country. With the introduction of private universities in Oman, the features of higher education began to change with intense competition between private universities to attract local and international students. Perhaps one of the most important developments in higher education in Oman is the establishment of the Omani Academic Accreditation Authority (OAAA) in 2010, whose primary mission was to reinforce the spread of excellence and accreditation of higher education institutions and programs and sustain international standards among graduates to compete and participate in the labor market and society.

Following major changes in the transition to online teaching and learning after the COVID-19 pandemic, teaching in the classroom underwent significant modifications as digital learning replaced traditional classroom teaching in many contexts across the globe. Similar to many under-developed regions, Oman also initially struggled with developing infrastructures for a successful transition to online teaching and enhancing the use of technology in the classroom, with full closure of HEIs following the pandemic. Limited studies have examined the experience of teachers' use of technology in Oman universities before the spread of COVID-19 (Al-Mukhaini et al., 2014; Saleem et al., 2016). However, these studies explain the motivation and barriers to the use of technology by teachers in higher education. For example, teachers with adequate training, positive attitudes, and those receiving support from their institutions were more likely to invest time and energy in using technology with their students. At the same time, Al-Jabri et al. (2018) explain that teachers in Oman whose institutions lack the necessary infrastructure and the collaborative atmosphere among their colleagues refrained from incorporating technology into their lessons. They add that using technology was left to the individual teachers' decision although it has always been a positive indicator of teachers' creativity and familiarity with the latest teaching approaches.

With the increasing concern on teachers' integration of technology into the teaching practice, many studies have been carried out on the impact of various factors that influence technology acceptance in the classroom. Specifically, perceived usefulness, technology self-efficacy, and facilitating conditions have shown to have direct positive effects on attitudes toward the use of technology, while perceived usefulness, attitudes toward the use of technology, and experience showed a positive impact on intention to use technology, as depicted by Sun and Mei (2022). In another study conducted among teachers in Hong Kong, it was shown that ICT self-efficacy and facilitating conditions were positively associated with continuance intention through perceptions (Bai et al., 2021).

Teachers' success in technology integration throughout their teaching process in EFL classes also points to other factors. For instance, data collected from 209 EFL teachers in Iran to investigate the relationship among school climate, TPACK,

attitude, and technology integration indicated that TPACK and attitude significantly predict technology integration; however, considering the indirect path coefficients, it was confirmed that school climate predicts technology integration mediated by teachers' attitude (Raygan & Moradkhani, 2020). A considerable number of studies have reported that teachers perceive the integration of technology during COVID-19 as suitable overall, while some pedagogical and organizational challenges are yet to be tackled (Huang & Teo, 2020; Ibili et al., 2019; Zhu & Zhang, 2022). The organizational culture, for example, is seen as having a key role in evaluating the teachers' technology acceptance (Huang & Teo, 2020). The technology anxiety teachers perceive in online teaching has hindered them to be initiative in using innovative technological tools (Ibili et al., 2019). Recent evidence suggests that teachers need to be trained regularly and effectively to cope with the rapid continuous development in technology (Zhu & Zhang, 2022). Additionally, institutional bodies have to support teachers with feasible educational resources to be offered to the students. Technology-supportive learning through experimentation is also seen as a key implication to address the challenges that may exist (Dalle et al., 2021).

After the spread of COVID-19, several studies investigated the impact of the pandemic on teaching and changes to teachers' attitude about using technology in Oman (Mohmmed et al., 2020; Chinnathambi et al., 2021). Slimi (2020) suggests that the sudden closure of HEIs in Oman and the shift to online teaching have necessitated intensive technology training to equip teachers with the essential platforms to continue teaching. Regardless of the double effort made by teachers to cope with these changes, they are expected to continue using different platforms in their lessons due to the numerous benefits it yields. Due to the existing practical knowledge gap in the higher education curriculum, further investigation is needed to identify the underlying barriers to CALL teacher education and professional development in Oman.

2 Theoretical Voices

As presented in Fig. 1, this study integrates the Technology Acceptance Model (TAM) and the Theory of Reasoned Action (TRA) to explore English teachers' intention to continue using technology in the post-COVID-19 era. Davis (1985) puts forth that the Technology Acceptance Model can be used to investigate the means by which users will adopt new technology and when they will use it. This model is the most commonly used framework to investigate users' attitudes and behavioral intentions to adopt technology. According to Teo (2012), TAM is efficient in explaining users' behavior to use computing technology. As stated in Davis (1989), behavioral intention is influenced by perceived attitude toward use, and it is directly and indirectly affected by perceived ease of use and perceived usefulness. In contrast, TRA hypothesizes that an individual's act of a particular behavior is mainly directed by his or her behavioral intention, which is affected by the individual's perceived attitude and subjective norms (Fishbein & Ajzen, 1977).

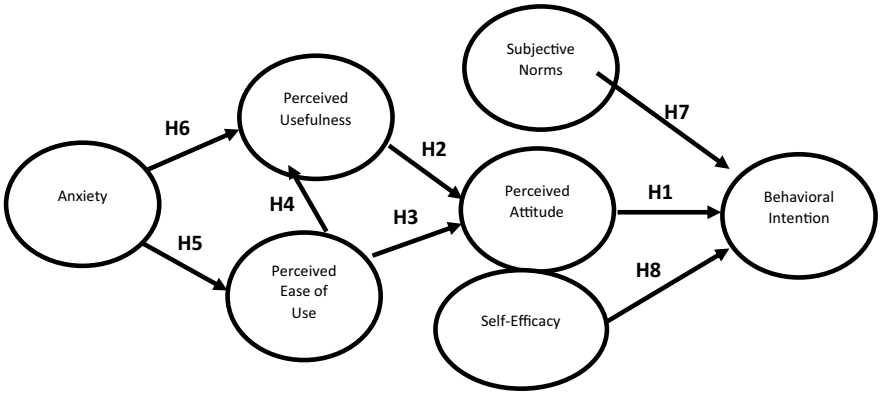

Fig. 1 Proposed theoretical model

2.1 Perceived Attitude

As Kaplan (1972) puts forth, attitude is a tendency in response to an event in a favorable or an unfavorable way. A plethora of studies on e-learning acceptance has shown attitude to be a determinant factor of behavioral intention toward e-learning usage (Chu & Chen, 2016; Hussein, 2017; Tosuntaş et al., 2015). Based on the findings of the studies, the following hypothesis stands:

H1: Perceived attitudes toward online teaching will positively affect behavioral intention to continue using technology in teaching English.

2.2 Perceived Usefulness

Lin et al. (2011) describe perceived usefulness (PU) as the degree to which users believe that e-learning can support them to achieve teaching and learning objectives. Previous studies indicated that PU had the most significant influence on attitude toward using technology (Ritter, 2017; Sánchez-Prieto et al., 2017). Moreover, PU also significantly influenced the behavioral intention toward e-learning adoption (Abdullah & Ward 2016; Scherer et al., 2019). Based on the prior studies, we proposed the following hypothesis:

H2: Perceived usefulness (PU) will positively predict perceived attitudes toward the continued use of technology.

2.3 Perceived Ease of Use

In the e-learning context, Lin et al. (2011) define Perceived Ease of Use (PEU) as the extent to which users believe employing an e-learning system will be effortless. Previous research has confirmed that perceived ease of use significantly affected perceived usefulness (Abdullah & Ward 2016; Joo et al., 2018; Zogheib et al., 2015). Moreover, previous studies indicated that perceived ease of use strongly predicted the attitude toward using technology (Fokides, 2017; Teo, 2012; Zogheib et al., 2015). Based on these studies:

H3: Perceived ease of use will positively predict teachers' perceived attitudes toward continued use of technology.

H4: Perceived ease of use will positively influence the perceived usefulness of continued use of technology.

2.4 Anxiety

Anxiety is one of the external factors that has been known to impact learning and teaching. While the literature explains different types of anxiety depending on the situation, Goncharova et al. (2022, p. 8) define anxiety in using technology as a "psychological state of a person caused by unawareness of modern digital technologies, lack of properly developed ICT skills, and misuse of virtual learning tools which result in distress, dissatisfaction, and uncertainty."

Several studies have shown that using technology increases teachers' anxiety because of insufficient training in using technology (Çoklar et al., 2016), the pressure to use technology in today's modern world (Jena, 2015), and the experienced issues when using technology in teaching (Al-Fudail & Mellar, 2008). Therefore, anxiety undesirably affects teachers' attitudes toward delivering their classes using technology (Agbatogun, 2010; Joo et al., 2016). In consideration of the previous discussion, this study proposes that:

H5: Anxiety about using technology in teaching will negatively affect perceived ease of use.

H6: Anxiety about using technology in teaching will negatively affect perceived usefulness.

2.5 Subjective Norms

A person's subjective norms reflect how people important to him or her view his/her use of technology. It is one of the three main factors (in addition to personal attitude

and perceived behavioral control) that determine a person's willingness to undertake an action according to the theory of planned behavior (Ajzen, 1991).

A recent study by Chen et al. (2021) shows that subjective norms have less impact on teachers' decision to use technology than their attitude about its usefulness. In contrast, an earlier study by Ursavaş et al. (2019) concluded that subjective norms are significant factors in shaping teachers' attitudes toward using technology in the classroom, although providing more robust evidence that their use of technology is influenced more by their experience and attitude. Therefore, this study assumes that:

H7: Subjective norm will have a positive direct effect on the intention to continue using technology in teaching.

2.6 Self-efficacy

Self-efficacy refers to the confidence and belief of teachers in their capabilities and competence to execute their tasks in the best way possible. Based on self-efficacy theory (Bandura & Adams, 1977), behavior and action are primarily affected by expectations and judgments about behavioral skills and abilities and the probability of dealing successfully with the surrounding challenges.

Researchers in the field have long-established the relationship between teachers' self-efficacy and the intention to use technology (Thongsri et al., 2020; Valtonen et al., 2015). To explain this positive relationship, Brouwers and Tomic (2003) suggest that self-efficacious teachers are more open to embracing technology in their teaching because of their willingness and confidence to try new ideas. Based on this discussion:

H8: Technology self-efficacy will positively affect the intention to continue using technology in teaching.

3 Methods

3.1 Research Design

The current study followed a mixed methods approach, including both qualitative and quantitative data, collected through questionnaires and semi-structured interviews. Using the two techniques provides more robust evidence about the participants' attitude toward continuing to use technology in their teaching. That is, following Williamson (2005), triangulation of data can allow the limitations of each method to be transcended by comparing findings from different perspectives, thus developing a comprehensive understanding of the phenomenon.

Table 1 Demographics of the participants (N = 113)

Characteristics	Value	Frequency	Percentage (%)
Gender	Female	58	51.3
	Male	55	48.7
Level of education	Bachelor degree	15	13.3
	Doctorate degree	18	15.9
	Master's degree	80	70.8
Teaching experience	0–5 years	10	8.8
	10–15 years	32	28.3
	5–10 years	19	16.8
	More than 15 years	52	46.0
Institution	Private	25	22.1
	Public	88	77.9

3.2 Participants

Study participants include 113 English lecturers from various colleges and universities in Oman. Around 51% of the participants are female, and around 49% are male. The majority of the participants are master's holders representing almost 71%, while bachelor's and doctorate holders are 13 and 16%, respectively.

As Table.1 indicates, teachers with more than 15 years of experience account for 46% of the respondents, while teachers having 10–15 years of experience represent around 28%. New teachers (0–5 years of experience) are the lowest participating group, with just under 10%. In addition, 88 participants work at public HEIs, and 25 participants come from private colleges and universities.

3.3 Instruments

Two instruments were developed to achieve the objectives of this mixed-method research. The first instrument was a questionnaire which was built based on previous research. The questionnaire consisted of two parts. Part one was for demographic data; gender, level of education, working experiences, and institution type (public or private). The second part comprised six sub-sections, as follows: perceived ease of use, perceived usefulness, perceived attitude, behavioral intention, self-efficacy, subjective norms, and anxiety. The construct used a standard 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree) for all 33 items in the second part of the questionnaire.

3.4 Data Collection and Analysis

Participants who responded to the questionnaire were 113 English lecturers from public/private higher education institutions and colleges in Oman. They were asked at the end of the questionnaire if they were willing to discuss the topic further through online interviews, and eight teachers who volunteered were interviewed through MS Teams, for a duration of 10–15 min. All participants gave consent for the recording of the interviews to take place. The questionnaire and the interviews were conducted in February and March of 2022. By this time, more HEIs in Oman decided to start teaching face to face.

Partial least squares structural equation modeling (PLS-SEM) was conducted to test the validity and reliability of the proposed model. The analysis was divided into two phases; the measurement model and the structural model. Phase I aimed at evaluating the reliability of the measurement model by calculating Cronbach's α, Composite Reliability (CR), and Average Variance Extracted (AVE) using SmartPLS 3.7 software. After confirming the reliability of the proposed model, Phase II was implemented to test the proposed theoretical hypotheses by conducting the bootstrapping technique on SmartPLS 3.7.

To analyze the interviews for the qualitative phase of the study, thematic analysis, a qualitative analytic method for categorizing, analyzing, and reporting patterns within data was used (Braun & Clarke, 2006). The following procedure was followed in order to produce the themes from the interview data: (1) the transcript of each response was read carefully and divided into different themes according to the ideas and tentatively labeled; (2) tentative labels were examined to find common themes that could be designed; (3) all interview data was assigned into tentative themes through inductive thematic analysis; and (4) all the themes were double checked for accuracy.

4 Lessons Learned

4.1 Quantitative Phase of the Study

Reliability and validity assessment

The assessment of the proposed research model (Fig. 1) comprises two parts; the measurement model and the structural model (Anderson & Gerbing, 1988). Utilizing SmartPLS 3.7, the measurement and structural models were assessed in a two-step procedure; PLS Algorithm and bootstrapping technique.

Measurement model

The reliability of the measurement model was evaluated first by conducting a confirmatory factor analysis (CFA) for the constructs that built the proposed model.

This analysis incorporated Cronbach's α, Composite Reliability (CR), and Average Variance Extracted (AVE).

As Table 2 shows, for each item, Cronbach's Alpha surpassed the standard value of 0.70, which is recommended by Nunnally and Bernstein (1994). Therefore, the high value of Cronbach's Alpha indicates a high internal consistency of the constructs. Composite reliability (CR) describes the collective variance among variables determining a central construct (Fornell & Larcker, 1981), and a CR of or above 0.70 is considered as high (Hair et al., 2014). In this study, the CR ranged between 0.846 and 0.946. Each variable possessed an Average Variance Extracted (AVE) greater than 0.60, which is considered good (Hair et al., 2014).

After confirming the high reliability among variables, the validity was examined by calculating the validity of convergence and the validity of discrimination. The convergence validity is determined by measuring the factor loading and AVE values.

Table 2 The Measurement Model

Variable	Indicator	Factor loading	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
Anxiety	AX1	0.926	0.798	0.908	0.831
	AX2	0.897			
Behavioral intention	BI1	0.892	0.924	0.946	0.814
	BI2	0.920			
	BI3	0.929			
	BI4	0.868			
Perceived attitude	PA1	0.923	0.891	0.932	0.821
	PA2	0.894			
	PA3	0.901			
Perceived ease of use	PEOU1	0.897	0.86	0.914	0.780
	PEOU2	0.861			
	PEOU3	0.892			
Perceived usefulness	PU1	0.925	0.922	0.944	0.809
	PU2	0.911			
	PU3	0.912			
	PU4	0.848			
Self-efficacy	SE1	0.831	0.741	0.846	0.649
	SE2	0.860			
	SE3	0.719			
Subjective norms	SN1	0.878	0.915	0.946	0.853
	SN2	0.954			
	SN3	0.938			

Convergent validity measures the degree to which there is a significant association between the latent variables, which are theoretically identical. In contrast, discriminant validity judges the degree to which a survey item diverges from other items (Garson, 2016). Table 2 indicates that all reflective indicators possessed factor loading of at least 0.7, and this finding confirms the convergent validity of the indicators (Hair et al., 2014).

Discriminant validity was verified by conducting a Heterotrait-Monotrait ratio of correlations (HTMT). Hair et al. (2014) defined HTMT as the value created by matching the averages of correlations of indicators within each construct and across different constructs. Hair et al. (2017) recommended that HTMT provides more precise and correct outputs than the cross-loading and Fornell-Larcker criterion. Discriminant validity occurs between two reflective constructs if the HTMT is less than 0.90. As demonstrated in Table 3, all HTMT values are under 0.90, and the highest value is 0.837. Therefore, this is an indication that discriminant validity exists in the proposed model, precisely at the construct level.

Structural model: Hypotheses testing

After the measurement model of the proposed theoretical model was established to be reliable and valid, the next stage of the SmartPLS 3.7 analysis was evaluating the structural model which describes the teachers' intention to continue to use technology in English teaching. This model was assessed by conducting a bootstrapping technique which is a non-parametric statistical technique that draws many sub-samples from the sample data and observes models for each sub-sample (Hair et al., 2014). The outputs of the bootstrapping were used to test the model hypotheses, as shown in Fig. 2 and Table 4.

The bootstrapping results indicated that perceived attitude toward using technology in English teaching has a significant positive effect on the teachers' intention to

Table 3 Heterotrait-monotrait ratio of correlations

	Anxiety	Attitude	Behavioral intention	Perceived ease of use	Perceived usefulness	Self-efficacy	Subjective norms
Anxiety							
Perceived attitude	**0.672**						
Behavioral intention	0.871	**0.837**					
Perceived ease of use	0.793	0.434	**0.603**				
Perceived usefulness	0.730	0.649	0.768	**0.547**			
Self-efficacy	0.707	0.558	0.562	0.589	**0.755**		
Subjective norms	0.515	0.427	0.389	0.434	0.511	**0.548**	

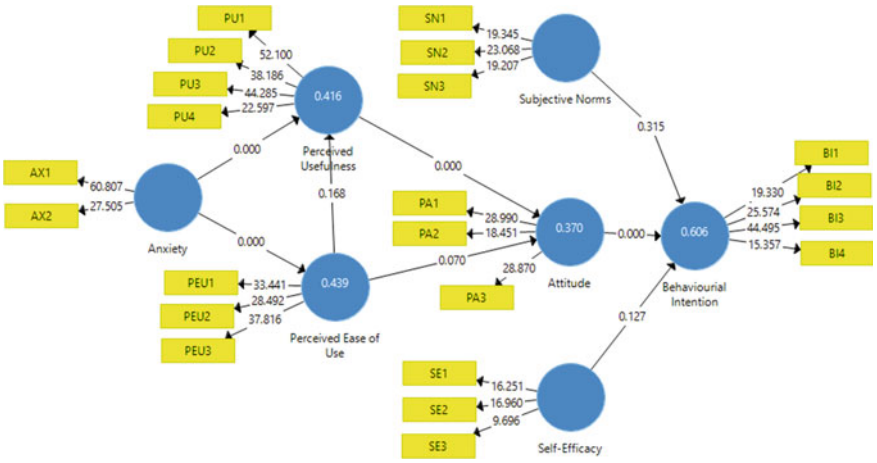

Fig. 2 Bootstrapping outputs

Table 4 Structural model results

Hypothesis		Path coefficient (β)	Sample mean (M)	Standard deviation (STDEV)	T Statistics	P Values	Results
H1	PA -> BI	0.683	0.633	0.153	4.462	0.000	Supported
H2	PU -> PA	0.536	0.538	0.089	6.030	0.000	Supported
H3	PEOU -> PA	0.128	0.122	0.083	1.539	0.070	Not supported
H4	PEOU -> PU	0.110	0.110	0.111	0.990	0.168	Not supported
H5	AX -> PEOU	−0.663	−0.664	0.054	12.266	0.000	Supported
H6	AX -> PU	−0.567	−0.562	0.112	5.081	0.000	Supported
H7	SN -> BI	0.030	0.025	0.056	0.526	0.315	Not supported
H8	SE -> BI	0.145	0.191	0.127	1.147	0.127	Not supported

Confidence level: $p < 0.05$

continue using technology in the post-COVID-19 era ($\beta = 0.683$, $t = 4.462$, $p < 0.05$), and thus the first hypothesis was supported. Likewise, the second hypothesis was supported as the results revealed that the perceived usefulness of technology in English teaching positively predicted the perceived attitude ($\beta = 0.536$, $t = 6.030$, $p < 0.05$). However, perceived ease of use was not found to be a predictor for perceived attitude ($\beta = 0.128$, $t = 1.539$, $p > 0.05$), and thereby, the third hypothesis was not supported.

In the same way, perceived ease of use had no influence on the perceived attitude ($\beta = 0.110$, $t = 0.990$, $p > 0.05$). Therefore, H4 was not supported.

The results from the bootstrapping technique showed that the anxiety toward using technology had a negative effect on the perceived ease of use ($\beta = -0.663$, $t = 12.266$, $p < 0.05$) and perceived usefulness ($\beta = -0.567$, $t = 5.081$, $p < 0.05$). Thus, H5 and H6 were supported. On the other hand, the results indicated that subjective norms ($\beta = 0.030$, $t = 0.526$, $p > 0.05$) and technology self-efficacy ($\beta = 0.145$, $t = 1.147$, $p > 0.05$) did not have a positive direct effect on the teachers' intention to continue using technology in the post-COVID-19 era. Hence, H7 and H8 were not supported.

4.2 Qualitative Phase of the Study

The findings indicated the impact of using technology in teaching during the COVID-19 pandemic in Oman and teachers' perspectives and intentions to use it in the future. Teachers' experiences and outlook on integrating technology and the existing cultural-contextual issues provided a unique approach for long-term impact deeply established in the teachers' mindset. A number of issues raised indicate that the benefits of technology integration have been far greater than prior to shifting online, as learning to work with new digital tools are being embraced to enhance teaching in the future.

The inductive analysis of data yielded four core themes, including (a) teaching benefits, (b) challenges of integrating technology, (c) institutional support, and (d) future intention to use technology. Each theme is worthy of attention, as it reflects teachers' lived experiences of using technology during the pandemic and their future intentions of using technology.

Teaching benefits

The participants stated that the advantages of using technology played a major role in their intention to continue using technology in the future. Various factors contributed to making teaching more efficient, which is reflected through a number of subthemes: ubiquitous learning, immediate feedback, differentiated learning, student engagement, and facilitated learning.

Almost all participants shared the idea of ubiquitous learning, as they believe that technology in learning gives students the opportunity to learn anytime and anywhere. Furthermore, many online digital tools provide immediate feedback to the students, which enhances their learning and facilitates the teaching process. Ali (pseudonyms are used in this context to maintain confidentiality) states that, "*differentiated learning is another aspect as well because, for example, if we've got students of varying abilities in one group, then I can set activities that are based upon the needs of the individual students."*

Regarding student engagement, all teachers believed that technology integration increases student participation and engagement in class activities, thus enhancing the learning process. For example, Rashid states that, "*some students are also interested*

to learn some things by using technology, so I think that's one very important benefit in using technology, and Maryam asserts, "…*students are nowadays familiar with technology more than anything else*…. Likewise, Asiya stated that, *"most important advantages of using technology in the classroom is keeping the students interacted, attracting the students' attention to the content or the subject matter."* Helen also confirms this belief, *"when I think of the use of technology its like the first thing that comes into my mind is the ways it can facilitate learning …".*

Challenges of integrating technology

There was unanimous agreement that two sub-themes of network/connectivity issues and inability to use new technologies were issues of concern when integrating technology in the classroom. So enhancing infrastructure and training for both teachers and students when it comes to new technologies should be kept in mind. Helen states, "*The new tools coming in, but also training the students to get used to anything that I want to introduce. It takes time."* Overall, it could be said that the hindrances are negligible and can be overcome, as stated by Ali, "*I think the advantages outweigh the disadvantages and barriers are surmountable with the correct planning."*

Institutional support

All participants agree that organizations need to keep technology updated and support teachers in the use of technology. Issues such as technical support, professional development, improved infrastructure, and access to premium programs are among the sub-themes observed. Asiya states that, "… *you know, like technology is developing very fast… so we need to be updated from time to time…."* Regarding the financial aspect and having access to premium packages, Rashid states, *"So hopefully they will decide to let teachers use this, then they should purchase like the premium apps…"* Likewise, Faisal said, "*I think they should provide us with up to date equipment*." Asiya states, "… *I also would like the management to provide us with some apps… and providing all the classrooms with the Internet, smart boards* etc.*"*

Future intention to use technology

It was observed from the participants' remarks that a number of factors have contributed to their positive outlook on continuing to use technology in teaching. Sub-themes include colleagues' support, student feedback, and student motivation to continue using technology. As Ali asserted, *"I love it when someone comes to me with something that's worked well for them, sharing a new piece of technology…."* Helen also stated that, "*what these students think …. it's always positive… always pushing me for more, … to learn more to try to catch up with whatever is new."* Students' motivation and engagement in the use of apps entice teachers to continue using them, as Maryam, Yousef, and Peter asserted that technology helps them to get students' attention and keep them engaged, and motivates them to study the subject matter. It was strongly agreed by all that using technology has numerous benefits and all were keen on even learning how to use new apps to keep up with today's tech-savvy world of education.

5 Discussion

Education worldwide has encountered a critical disruptive shift in response to the COVID-19 pandemic surge. Technology has been impressively and innovatively explored to lift teaching and learning suspension. Many educational institutions achieved remarkable advancement in providing education for their students through innovative technology (Toquero, 2020). However, as the situation recovers and education returns to the on-campus mode, these innovative changes may fade. The current analyses revealed that the proposed model is valid and reliable to sufficiently explain Omani teachers' intention to continue using technology in the post-COVID-19 era. Perceived attitude toward using technology was found to have a positive effect on the teachers' intention to continue using technology, and this finding concurred with the results of previous studies (Padilla-Meléndez et al., 2013; Park, 2009). This implies that it is vital for institutions to ensure that teachers form a positive attitude so they continue to invest technology in their teaching. On the other hand, the perceived attitude was positively influenced by the perceived usefulness of the technology used in teaching. Huang et al. (2012), Kanchanatanee et al. (2014), and Shodipe and Ohanu (2021) reported similar results, and this directs the educational institutions need to be selective in choosing technological teaching tools for the teachers.

This study has not confirmed previous research (Moses et al., 2013; Munoz-Carril et al., 2021), which revealed that perceived ease of use is a positive predictor of perceived attitude and usefulness. Yet, the findings of this study are consistent with previous results (Brown, 2002; Faulconer & Griffith, 2022; Rahmi et al., 2021), which emphasized that anxiety negatively affected perceived ease of use and perceived usefulness.

This study confirmed that social influences (subjective norms) are a fundamental construct in shaping teachers' behavioral intention in continuing to use technology in the post-COVID-19 era (Buabeng-Andoh et al., 2019; Wang & Tsai, 2022). This finding can be inferred as teachers are significantly determined by the recommendations of colleagues or peers. In terms of technology self-efficacy, this study supported Li et al. (2012) and Moreira-Fontán et al. (2019) that technology self-efficacy positively impacted behavioral intention, emphasizing that teachers with high self-efficacy are more likely to continue using technology in their teaching. Similarly, Saeed Al-Maroof et al. (2021) conducted a study on the continuous intention to use e-learning from both students and teachers' perspectives. They provide empirical evidence of a relationship between perceived organizational support and perceived pedagogical content knowledge, emphasizing that they are, in fact, considered the key factors that support the use of technology continuously.

6 Conclusion

The data collected in this study are from teachers' lived experiences of using technology post-pandemic, as the survey and interviews were conducted after Omani institutions returned to face-to-face teaching. The results revealed promising prospects for teachers in Oman to continue integrating technology in their teaching. However, this requires much attention from the management to provide professional development for teachers on a routine basis. The gap that still exists in this context is the lack of teacher education both in the higher education curriculum and for professional development throughout the academic year.

As in any study, this research also has some limitations. While six factors were investigated to evaluate behavioral intention to continue using technology, variables such as gender, level of education, and teaching experience were not evaluated, which can be considered in future studies. While the focus of this study was on higher education institutions, further studies can also incorporate data from teachers in secondary schools across Oman to get a better understanding of high school teachers' technology integration in the classroom. In addition, future research could investigate differences between private/public universities in using technology, their teachers' behavioral intention to continue using technology, and the various forms of training available in this context. The findings provide a direction toward further exploration of teachers' professional development regarding the use of technology in teaching, with an emphasis on incorporating training programs for teachers across Oman.

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Part IV
Voices of Teacher Educators and Course Designers

Chapter 24
Teacher Education and Professional Development: Prepping Educators for Emergency Education Through Project-Based Learning and Technology

Christine Sabieh

Abstract The education sector in Lebanon was not prepared to address emergency education and online teaching, learning, and assessment with the onset of COVID-19. This chapter describes an intervention where eight Education graduates were mentored to use technology, emergency education strategies, and problem-based learning to address the needs of emergency online teaching. The participants' qualitative feedback demonstrates a need for mentoring as an important part of professional development programs for educators in high-risk contexts.

Keywords Emergency education · Problem-based learning · Online teaching and learning · Technology barriers · Professional development

1 Introduction

According to UNESCO (1999), educational emergencies are created when situations occur due to conflicts or disasters that have caused havoc and threatened the well-being of the educational systems. Lebanon continues to witness such destabilization mostly due to the economic and political instability, which has been further exacerbated by the COVID-19 pandemic. Prior to COVID-19, education in Lebanon already faced numerous challenges due to economic, political, social, and educational issues, as well as the impacts of the August 4th Beirut blast. In terms of online delivery of teaching, the digital divide was evident and prevented equitable delivery of online and remote teaching. With the onset of COVID-19, the education sector was wholly unprepared to address emergency education and online teaching, learning, and assessment. Thus, in line with Burde et al. (2017), the support for Lebanon's education communities was needed given that education remains a humanitarian need and human right. The approach to understanding this need is linked to contextualizing the emergency state and supplying education outreach to the surrounding

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institutions and contexts to try and ameliorate the dilemma and provide resource, teacher, and student access and presence. By ensuring access and presence exist, post-crisis response is minimized (Burde et al., 2017) since the impact of education diminishes the trauma of havoc and protects the students' right to education equity (Ravi, 2020; Sinclair, 2001). The goal remains to develop resilience, social cohesion, readiness, and sustained recovery by delivering packaged education in diverse learning spaces.

I believe that the ideal setup enables the creation of educational equity as opposed to equality that may endorse the presence of the digital divide. Although with equality, the learners are given access to the same education, equity identifies that many learners require diverse settings, tools, and resources to attain the same outcomes as others. Minimizing the digital divides and providing access and equity lay the grounds for fertile education endeavors.

Ravi (2020) noted that digital equity is essential for successful lifelong learning and survival. However, as schools integrate technology into their teaching, its impact in school and at home must be addressed since the divide may play an essential role in failure to succeed. Such awareness is often overlooked: Addressing achievement, resources, availability, tech-training, tech-support, finances, and learning strategies are barriers teachers and students need to be taught to work with to find ways to move forward. Providing access to education diminishes conflict since engaged presence builds accountability. However, is there readiness in the Ministry of Education and among the education sector to lay the ground to overcome education in emergencies? Through education, communities can build bonds, sustain peace, and develop to move their citizen forward. Readiness means there is the awareness and the know-how to react and still offer the right to an education. There has been very little constructive follow-up in this realm even though UNESCO and the Ministry of Education called for the appeal during an Internet Governance Forum (UNESCO, 2021).

Planned education transforms. Professional training facilitates awareness of this. The purpose of this chapter is to unfold this intention. Through a 3-month project-based learning endeavor and specific activities, the training sheds light on the current problem and enables solutions to overcome the dilemma.

2 The Dilemma

Lebanon continuously witnesses escalating emergencies that impact the education sector. Schools are closed intermittently. The Ministry of Education and school leadership vacillated between whether to open schools for face-to-face or blended teaching and hybrid teaching or whether to remain closed with online teaching. Plans for synchronous or asynchronous online and hybrid teaching initiatives were developed, but no viable solutions were identified. There remains the need to salvage the right to education for all by responding to the crisis and plan how to overcome the flaws in the system to ensure delivery of responsible teaching and learning in diverse

setups. Amid challenges in the country's infrastructure, prepping educators to accommodate emergency education through tech-based problem-based learning to ensure creating quality teaching and learning spaces to minimize the challenges and the digital divide was the solution. Project-Based Learning as a teaching methodology enables learners to acquire knowledge, skills, and strategies to brainstorm and reflect across an extended time frame in which they would explore real-world issues—currently the emergency state of education delivery in Lebanon—and authentically engage, question, collect data to address the problem and create or recommend the solution (Buck Institute for Education, 2017).

The main obstacle threatening Lebanon's survival in the country is financial. Additional needs threatening its education wellness include education methodologies and telecommunication. The country's poor infrastructure, in terms of poor internet connection, lack of technological resources, and electricity power challenges the whole educational sector across the country.

Another major obstacle to effective online delivery is the lack of trained teachers and students also impacts the teaching/learning success. To be able to plan for flip or tech-supported learning spaces, the education sector must have prepared contexts to welcome the transformation. Given that it does not, it is important to determine the training needed. The flip plan transforms the teaching space into a group learning medium to host the collaborative and interactive activities (Sabieh, 2016).

The purpose of the chapter is to describe how eight graduate Education graduates were mentored to use technology, emergency education strategies, and project-based learning to create such needed endeavors. The online learning and role definitions for the educator, leader, and student remain pivotal (Hung & Ding, 2018; Worldbank Brief, 2020).

3 Voices Already Heard

The flip teaching and learning activities designed reflected the assimilation of content acquisition (Sabieh, 2016). The material taught was accompanied by activities to ensure content assimilation and application know-how mirror real-world learning. Furthermore, a project-based tech-based learning task was designed. The outcome would recommend solutions to overcome barriers and deliver effective teaching and learning within diverse spaces. The participants were expected to share the initiatives within their teaching communities as well. Project-based learning is not new to the education stage (Gorman, 2016). However, it was adopted to help the participants acquire awareness and develop needed tech-based training for the emergency.

Moakofhi et al. (2017) classified technological barriers by challenges: course challenges of content, design and delivery, human challenges as an educator or learner, and technological and contextual challenges related to the organization, culture, and society. Moreover, barriers also include challenges related to pedagogy and e-learning, technology, challenges of learning styles and culture, challenges of technical training, and challenges of time management. Technology integration in school

settings needs to have accommodated for the effect and impact of technology and the barriers of the digital divide to provide equity as well as considered teacher and student role readiness and development, school-wide mission, vision, and policy growth, and curricular mapping, lesson planning, and CALL integration. Infrastructure and awareness of the challenge impact can be effectively addressed if the concept of technology integration is addressed as part of the education institution's mission, vision, and policies. Aiming to achieve these goals with project learning initiatives, Bauer-Ramazani and Sabieh (2018) noted that learners would increase their communicative knowledge in brainstorming needed solutions to consider online, blended, or hybrid teaching.

Dating back to the 2000s, Howell, Williams, and Lindsay (2003) noted that there are 32 trends that affect distance learning; trends that determine the feasibility of distance learning in a developing or underdeveloped setting. Given the threats of Lebanon's weak financial, economic, and technology infrastructure, student enrollment, employment, education, and online education possibilities are wedged. Bates (2000) in Howell, Williams, and Lindsay (2003) purported that lack of vision and technology strategy planning and building were the downfall of online learning. The Ministry of Higher Education and Higher Education in Lebanon did not implement a vision or a policy. Schools needed a vision to adopt the online education initiative. The dilemma existed; the emergency education set-up was there to serve the students; the endeavor needed to succeed.

The education setups may have decided quick fixes during the crisis, but the Ministry at large—the government by decree—had to provide the green light. To date, the struggle of recognition remains absent. Informed decision-making was needed.

Pandemic pedagogy became the norm globally and attempts to build the communities for online teaching became tangible (Pandemic Pedagogy, 2020). Lebanon needed this as well; there needed to be room to recognize and have a technology-based reform to open up education setting effectiveness and meet the needs of today, the challenges due to COVID-19, due to political and economic instability, as well as to meet 21st Century learning expectations. Professional development, faculty initiation, emerging technologies, new technologies, and space development were considered essential. Netiquette is also very important to ensure ethical maintenance of respect and practice in active, collaborative, and engaged learning spaces and communication (Winans, 2020).

Thus, the learners acquired readiness, leadership, and management to design and implement the needed transformation during emergency tech-needed education communities. Working with curriculum pages and lesson planning, these designers identified the needed changes to create new tech-spaces. I advocated the ASSURE model to help make the accommodation happen (Heinich et al., 1999).

The ASSURE Model facilitates evaluation and revision to accommodate educators and students in their professional development (Altin, 2021). Building curricular pages, the teaching/ learning assessment initiatives, tools, and learning management systems are considered for online or blended learning environments to facilitate teaching the content set by the Ministry of Education.

I believe that curriculum page building and implementing the ASSURE model facilitates the educators' attempt to redesign the new setting and deliver equity within the community. Daesang and Downey (2016) examined learning effectiveness based on curricula developed for teaching using the ASSURE model and found effective learning support accountability. Thus, integrating the technology required clear school vision, mission, and policies to address infrastructure needs, accountability, and ethical behavior (Patterson, 2019). Bauer-Ramazani and Sabieh (2018) advocated creating activities that engage students in authentic learning opportunities that expect role accommodation, content knowledge, and skills integration to practice inquiry and critical thinking to reflect on recommending solutions for tech-based spaces.

Many of its education institutes did not have well-defined mission or vision statements no less tech-integrated statement. A similar concern was that many policies were not specific or measurable policies; the language of most documents was general or very simple. In general, the education institutions needed to revisit, modify, or create mission, vision, and policies to actually address technology integration and accountability. The advocated purpose of the chapter unfolded through examples showcased below to warrant that during the designed awareness and training project learning exercise, other educators, curricular designers, and school leaders would be able to model to create, implement and promote ethical behavior with the tech-based environment they design.

4 Methods

The educator practitioners were a convenient sample of eight participants enrolled in a graduate Education course, entitled *Technology and Education.* The case study explored emergency education preparation by designing action research to solve the problem through a project-based learning journey. With permission granted by the graduate students, the culmination of content tasks shared qualitatively across the weeks, of course, mentoring served as data.

The qualitative data showcased the mentoring, the learning, and how the project-based learning emergency problem served its purpose. The research design could be mirrored to other education settings to prepare educational leaders for readiness to work in emergency mediums.

Of the eight practitioners, two held leadership roles in school, two were early elementary English teachers, two were special needs educators, two were science teachers and two were middle school English teachers. It was a sample that worked in diverse K-12 settings. The course, *Technology and Education,* emphasized the impact of technology on the total school environment. Students critically analyzed the role of technology in instruction and developed strategies for infusing technological resources into the curriculum and the classroom to improve the teaching–learning process (EDU 614 Course Description). Given that Lebanon is functioning in emergency mode, the course adopted this as the emergency education context.

In a flip-based setup, the participants (identified as P1, P2, etc.) read and partook in discussions, created real-life solutions to task activities, wrote reflections, and carried out a project-based learning endeavor based on emergency education. Weekly, all content, course development, and activity submission were communicated through Blackboard, the course learning management system. Online course sessions used Teams; participants actively engaged with content, reflected and discussed, worked individually and collaboratively, and carried out their action research, partnered with a school in the community.

For 15 weeks, participants engaged in critical thinking as they used course content in application activities. Topic work included activities related to the effect of technology on school environment, the digital divide, the infrastructure, the tools, the teacher development, the school mission, vision, and policy, curricular mapping, lesson planning, and CALL integration. They also worked on their research-based emergency education real-life project-based learning assignment. Weekly, they planned lessons, used online tools, partook in LMS workshops, and collaborated with their peers to reflect real-world content use. All that prepared them to create project-based learning scenarios to reflect real-life simulations.

5 Lessons Learned

Across the sessions, participants engaged actively with the content pre, during, and post: During round table sessions or on the Blackboard Discussion Forums, they discussed; they submitted reflections and task-specific activities based on the content being addressed; and they carried out the project-based learning task to reflect the know-how to function effectively in emergency or challenged work environments. They critically analyzed the role of technology in instruction and developed strategies for infusing technology to deliver effective teaching and learning spaces in the schools in Lebanon.

The collected data reflect the process used to make the participants aware of emergency education and the topic and strategies needed to consider for implementation in a successful teaching/learning community setup. The shared data showcases the journey to mastery, research functionality, and professional educator implementation. Participants answered assignments and brainstormed the emergency education scenario to plan and collect data to recommend solutions. The problem-based learning project showcased the assimilation as an outcome of the content training they received to create effective teaching/learning communities within the ongoing challenged education sector.

5.1 Activities to Set the Stage to Build on

To start off, a connectivity assignment had participants reflect on their roles as educators and their awareness of the need to integrate technology. Given that they had experienced emergency education conditions, hybrid work environments, online course teaching/learning spaces, and current challenges of COVID-19, infrastructure, economic, social, and personal wellness, they were asked to reflect on who they were or who they have become. This same assignment was requested at the end of the course to serve as their benchmark on the learning journey.

Throughout the course, they were situated in the content and related to it while relating to their state of emergency education. In one assignment, they were asked to identify the barriers and the digital divide and contextually relate them to Lebanon emergency. The task was to: *Reflect. Discuss. Relate and discuss and support with article example. Then, create a Table to see how Lebanon fits into it. Provide examples related to Lebanon. Is there a solution? State it. Then, create an info-graphic to show the barriers.*

As practitioners, they provided the reality of what was actually in the schools. Technology integration may have been challenging; however, with determination and correct use, they could integrate technology. According to **P2**, it could "occupy a major role in the students' learning experience." **P2** went on to explain the barriers: Technology "implementation forms an issue that leads to the lack of equity and equality in the learning experience… To start with, one of the main barriers is the uneven access to the educational tools. This is manifested in two levels: The first levels fall under the idea of being unable to access the tools themselves. The second level falls under the idea of students who have equal access to tools but are unable to access them in the right way (Ravi, 2020) … some students might use them passively. Examples include using laptops as an alternative for paper books and increasing the use of laptops, televisions, and smartphones. Another barrier is the teachers' abilities. Some teachers have gaps in their computer knowledge. Although teachers show motivation to use the technology, they sometimes do not know how to use the material (Moakofhi et al., 2017). The way they have learned is a traditional way, and they sometimes do not know how teach in another way as they do not have a background that includes technology. Other teachers know how to use technology tools, yet, they are cautious about its integration due to shortage in time or to the lack of help and guidance. In addition, some teachers are afraid that the use of technology will ruin their classroom management skills. It is also important to note that not only teachers face problems in their computer skills, but also some students are sometimes less knowledgeable in the field of technology (Saxena, 2017).

Barriers also include the lack of adequate training. Also, it does not always ensure that the application will be a success (Moakofhi et al., 2017). In other cases, the teachers do not have the confidence to apply what has been learned." **P2** identified some of the barriers and provided the examples as support. One purpose of this chapter was to show how such barriers could be avoided once the participants were aware of the digital divide and the barriers in the country.

The Lebanese Situation

Barriers	Does it exist in Lebanon?	Example	Solution
Availability of appropriate devices	YES	Most of the Lebanese families own only 1 or 2 laptops and have more than 2 children. There are families who don't have laptops and use tablets or phones which limits the student's interaction	Try to find funding from external sources (NGOs).
Content adaptation	YES	Private school are allowed to adapt parts of the curriculum However public schools suffer from this barrier the most since they're not allowed to adapt the content.	Continuous adaptation of the curriculum by the ministry of education. Allow public schools to adapt the content as they see fit similar to private schools.
Lack of teacher contribution in program development	YES	During the breakdown of the coronavirus, teachers did not have a say in which platform or program the school will adopt.	Involve teachers in decision-makings that affect them directly.
Lack of technological knowledge (teacher)	YES	Not all teachers follow the latest advancements, specially in technology, and some find it hard to transition out of traditional teaching.	Conduct regular workshops and training sessions.
Lack of technological knowledge (student)	YES	Not all students have access to laptops and internet making it difficult for them to keep up with the needed programs.	Conduct regular workshops and training sessions.
Improper consideration for students with SEN	YES	The lack of knowledge and awareness of the teachers about the latest learning theories and the specifics of each child's case affects their ability to adapt the technological tools to fit the student's needs.	Conduct regular workshops and training sessions.
Funding	YES	Insufficient funds due to the economic crisis that's affecting the entire country	PRAY
Advancement in technology outpace curriculum development	YES	The last curriculum development happened in 1997.	Urgent update for the curriculum to be able to keep up with technological advancement
Infrastructure (internet connection, electricity)	YES	Lack of expensive electricity which disrupts the already frail internet connection	On a personal level: buy a UPS for the router, charge the laptops when there is electricity. On a national level: PRAY harder
Social interaction	YES	From a student's point of view, they are not participating enough leading to low interaction between themselves and the teacher.	Include group work and alternate members each time. Use the student center approach.
Difference in social classes	YES	The drastic difference in provided utilities between rural and urban areas in the country.	A nationwide campaign in the hopes of achieving similar opportunities for all students in the country (NGO, ministries).

Fig. 1 Infographics to show the barriers

P1 also addressed the barriers in her reflection; however, I selected to share the visuals (Fig. 1) she created to show digital divide challenges and the state of Lebanon dire scenario.

5.2 Activities and Reflections

Reflecting on Empowerment

In the planned activities, participants reflected on the topics either in writing or as part of a group discussion.

As an example of a reflection task, participants were asked to reflect on empowerment. *Empowering the teaching/learning environment is a must in today's challenging world. It is important to empower individuals, educational institutions, & communities. Consider the references so far read in Units 1 and 2, and reflect on what do we need in terms of technology and education to make this possible? Also feel free to do your own research. List needs identified and referenced. In your essay, reflect and support your ideas with examples as you advocate your position. Also, be ready to discuss your views in class next time.*

P3 noted that "the concept of empowerment can appear abstract, and its meaning can be ambiguous at times… Teachers can now teach from anywhere, and the number of tools that allow for increased interaction between them and the students as well as the content, continues to rise. Online technologies provide for more variation and differentiated instruction, as well as chances for students to become classroom leaders and innovators." However, **P4** was quick to point out that "Although technology is there to empower students and teachers, we still have to face that there are many divides that we need to narrow down. Students and teachers are in need of high-quality internet and fast speed in order to be able to publish, and work online. Students and teachers need to have the right training to be able to use technology with everything it has to offer… if equity is not provided, neither students nor teachers will be able to get this empowerment and minimize the digital divide".

Reflecting on Online Education in Lebanon

Learning online continues to be debated in Lebanon. It was the immediate solution to an emergency, but it is not recognized by the government in Lebanon. The reflection they were to advocate had to address what Howell, Williams, and Lindsay's (2003) *article advocated informed planning. Twenty years later, we need to acknowledge how important it is to make decisions based on being informed of the context and content needs. As we know, this is a big issue in Lebanon today: Many—in Lebanon for the past two years or Lebanese living abroad—are working or studying in distance learning spaces. We expect the government to recognize the earned academic year or degree as credible. To what degree should we recognize distant learning set ups or degrees as credible teaching/learning endeavors? What is it that we as educators need to do about this?*

Consider Lebanon—a country in need of education reform and acceptance of distance learning. Write to the Minister and advocate a position.

P5 developed the appeal through persuasion; she wrote:

> "Dear Minister,
>
> I write this letter to you with much hope and expectation… I want to start by telling you that we, educators, are your partners in education… we are all connected together with education and are expecting some positive change in the online teaching/learning field.
>
> As of march 2020, our country closed all education institutions and shifted us to remote learning using whatever technology, device, tool at the reach of our hands. It was a mess but as Reimers, 2019 said, "make sense of the mess", you, Mr Minister, have to start organizing and prioritizing problems and challenges to later turn them into a strategy for action. Decisions have to be made concerning online teaching including digitalizing the curriculum, adapting its content to the new emerging technologies.
>
> Online education has become indispensable during the pandemic, but the ease and convenience it offered should be considered legally and acknowledged by the Lebanese government.
>
> The United States of America, China, the United Kingdom, Malaysia, Australia, Canada, North Korea are some of the nations that are leaders in online education.

> Despite that these countries are considered developed, and very advanced comparing to our country, their online education system faces a lot of barriers -- most of which are common with ours.
>
> You may say that our situation in Lebanon does not even apply to any kind of these countries, I say true, but when there's a will, there's a way. With a vision and a positive initiative towards implementing e-learning successfully, I'm sure that technology and a good strategic plan considering different pedagogical, social and technical issues and designs, will take us all as a nation in general, and as an education system in particular to a new level of evolution and change…" P5 went on to appeal using information related to design contexts and tables to compare online to face-to-face teaching with; then, she concluded: "… To conclude, dear Minister, let's support online teaching by acknowledging it legally and officially, let's make it accessible to all students, let's give them the power of decision, … While providing traditional and online teaching to all the students, we'll be exposing them to international education and hence wide and various options and horizons.
>
> Sir, you have the opportunity to make a change in our education system, you have the power to shape the future of our student's online education. Let us all work together and share the responsibility.
>
> Sincerely yours, …"

Reflecting on Technology Knowledge

The assignment on tech-literacy and its need in the Lebanese context, was three-fold. The showcase below will reflect different parts of the advocacy task. *We talk about the importance of tech-literacy for practice and meeting needs of 21 C real life learning. You have been continuously reading about this throughout the semester…*

a. What did EDUCAUSE 2021 have to say in relation to this in their Horizon report? How did they consider: Gender? Distance Learning? What are we as educators and leaders expected to build? Are we building tech-supported, tech-based T/L spaces, technologies, innovations and new technologies and emerging technologies? Are we changing educator and leader roles and are they able to move the roles and the environment to new heights—are we able to efficiently make effective change happen to be successfully measure to show accountability to learning?

According to ***P1****, "…* it is essential to have educators with high-tech literacy to ensure that the needs of modern-day learning are met…. DL in the twenty-first century is the crucial need to provide an equal playing field for the different genders and the minorities to access high quality learning. In my opinion, the most fundamental expectation from teachers and leaders is their eagerness and willingness to keep educating and training themselves in order to be able to understand and utilize any new emerging technologies. However, I believe that their role doesn't end here and should expand to include building tech-supported T/L spaces. Educators should have a say in the development of these spaces. They are the ones with the deepest understanding of the curriculum. Change doesn't come without risk: it should be thoroughly planned with the objectives, steps, methodology, and assessment criteria…".

In Task part b, P1 discussed the points raised in the assigned articles and related them to Lebanon's scenario (Task part c): *How can these points relate to the use of new technologies and active learning to build the learning tech - communities*

of today in Lebanon? Are they realistic? Would they create teaching and learning success? Why?

P1 felt that "Lebanon has always been a pillar in the education field and in order to keep it that way we should evolve and follow the latest educational trends. It is certain that the points raised in the articles can be implemented in Lebanon." P1's reflection was based on what she had written in a previous assignment when appealing to the Minister to accept the idea of online learning in Lebanon. In the build-up **P1**went on to say that "one of the articles even dealt with challenges that might face struggling countries and offered possible solutions. The Ministry of Education as well as the private educational sector have the possibility to see this implementation through and to make sure that these hypothetical ideas turn into a reality where they benefit both students and teachers alike while taking Lebanese education to new heights."

It is important to point out that through the course assignments, the participants' reflections continuously displayed their cognitive growth maturation–assimilating and advocating their knowledge to reflect awareness.

Reflecting on Professional Development

Faculty needed to be able to use the technology and plan the use of the technology in the teaching/learning space. The participants read and discussed articles related to this and addressed the idea that *Faculty development and the effectiveness in the education space is not an issue to overlook in today's world of education. However, should it be a one-time deal or is it a continuous undertaking? Do we need tech -professional development with the technology in question or should we have educators explore and master through their own means? You read literature, you pondered; what have you now decided?*

P6 argued that "there are many factors that decide whether a teacher is ready to use technology or not when it comes to technology literacy. As a teacher, I consider myself able to join technology, pedagogy, and content through my daily lesson plans. Another important idea is the teacher's self-efficacy (Joo et al., 2018) … I am concerned in two points. First, the availability of technology tools… Second, the availability of constant training. Teachers need to be technology literate… (Pota, 2021). One other factor was the teachers' intention to use technology. They should be trained on how to integrate these tools through practical examples related to their own syllabi and curriculum."

5.3 Planning to Integrate Technology into Curriculum and Lessons

Knowing how to use the technology to enhance the content for learning was addressed with the Curriculum page and ASSURE lesson plans. Participants selected a grade level and topic from the Lebanese Curriculum set by the Lebanese Ministry of Education and were told to *consider best practices, equity, infrastructure, the barriers and*

School name

Middle Year Program - 2 (Grade 7)

Teachers: P7 & P6

Subject: Science – Chemistry

Unit Title: States of matter

Objective:

- Identify the three states of matter.
- Analyze the different properties of the three states of matter.

NGSS Standards: MS-PS1-1 MS-PS1-2 MS-PS1-4 MS-ESS2-4

Chapter planner

Week	Inquiry Question	Learning Outcomes	Key Terms	Guided Practices	Independent Practices	Skills	Informal Assessment	Formal Assessment	Materials and Resources
1 (2 sessions)	What are the states of matter? How can you describe a solid, a liquid, or a gas?	-Identify the states of matter. -Recognize the differences between the states. -Make inferences about the states of matter.	- Matter - Solid - Liquid - Gas	- Direct lectures on matter.	- Activity: Why is the liquid boiling? - Round Robin discussions. - Search about the types of matter and prepare a presentation. - Add the grasped information on a blog	- Critical thinking - Time management - Communication skills - Digital literacy - Research - Written skills	- Observation while the Round Robin discussion is taking place. - Check the PPT for understanding	- N/A	- Laptop - PPT - McGraw Hill Book Inspire 7 unit1 module 1 Page 7 (Activity: why is the liquid boiling)

Fig. 2 Example of curriculum page

Daily Lesson Plan

Date / Week	Unit/Course	Topic		Instructor
19-10-2021/2 Lesson 1	Unit 1 - States of matter	Properties of matter		P7 & P6
Overview & Purpose		Prior Knowledge Needed		Steps to be done before the session
The students will be able to categorize, compare, and contrast the different properties of the states of matter.		Identification and recognition of the states of matter. Adding blog entries to the blog.		Teacher should test the 3D model and
Bell to Bell	**Teacher Guide**	**Student Guide**	**Student outcome**	**Teaching Aids\Materials Needed**
Warm Up starter activity 5 min	Entry card, questions about the previous session, what are the three types of matter.	The students will answer the questions in the entry card.	Students will remember what they took last session.	Online - Classnotebook
Guided Practices 5 min	The teacher will provide information about the virtual reality activity and the 3D model for the topic of	The students will listen and choose which model they prefer to use (Students who prefer to learn visually can	The students will understand the 2 models and choose one of them.	PPT - 3D model - https://www.youvisit.com/tour/ian.bu
Idependent Practices 10 min	The teacher will observe.	The students will analyze the model and take the properties of states of matter.	The students will be abel to categorize and compare the different properties.	Virtual reality - 3D model
Summary 10 min	The teachers will ask the students to search for youtube videos and deduce the properties from them.	The students will search for the videos and perform a think-pair activity focusing on the properties.	The students will learn the whole properties of matter that he didn't take	Online -youtube- Classnotebook
Blog 5 min	The teacher will ask the students to add the information to their blog.	The students will add the properties of matter to their blog.	Students will have a summary of the information.	Blog
Assessment students need to show	The teacher will send the students a multiple question google form to assess their understanding.	The students will answer the questions from the form using their ipads or laptops.	The teacher can assess the understanding	Google Form

Fig. 3 Outline of one lesson

digital divide to design the new learning initiative. Make sure the curriculum page and lesson plan indicate tool use and resource integration and accommodation. Develop the curriculum page and the lesson plans, and, then reflect on the lessons. Be ready to showcase the Curriculum page and at least one of the lessons.

As part of course pair work, **P6** and **P7** selected to develop an eight-session curriculum page on a science topic. Figures 2 and 3 showcase part of their curriculum page and a lesson.

5.4 Reflecting on Netiquette

Netiquette was made aware of as well. After reading and discussing, participants considered the value of netiquette. **P5**'s reflected that "When communicating online, the norms of etiquette differ from those that apply when communicating in person. It

is unrealistic to expect students to automatically understand how to communicate in an online setting. Understanding network etiquette helps to prevent incorrect online behavior and conflict. Netiquette-based class interactions promote social connection, community building, and trust among students …".

As participants progress in the awareness of the overall picture, the training also contextualizes the concept of tech-integration into the school mission, vision, and policies.

5.5 *Creating the Mission, Vision, Policies and Forms for the Education Setting*

It is the school's responsibility to deliver and initiate the expected tech-based learning. The mission, vision, and policies must reflect this. The stakeholders must be aware of the expected limits of their power and technology use. School leaders, teachers, tech-support, staff, students and parents are privy to the mission, vision, and policies and the consequences, accordingly.

The assignment was multifaceted. Participants were told: *Consider creating the Mission, Vision, Policy and Forms of an education institute. Read the course resources and think about what our Lebanese education settings needs.*

> *(a) Create a checklist for schools (learning spaces) to consider when thinking of creating the Mission, Visions, and Policies for the whole set up …*
>
> *(b) With the assimilation of the course resources, take the endeavor one step further: Think about addressing the whole of Lebanon and the Ministry of Education when creating policies to address the education policies of the country.*
>
> *Create the Mission, Vision, and Policies. Advocate your position by addressing what would be our challenges for Lebanon?*

P3 and **P5** collaborated and created a list of rules and responsibilities the school stakeholders were held accountable for (Fig. 4).

P1's Mission, Vision, and Policy statements are created for an education institution that caters to students with special needs and memory difficulties (Fig. 5).

5.6 *Prepping for Emergency Education Through Project-Based Learning and Technology*

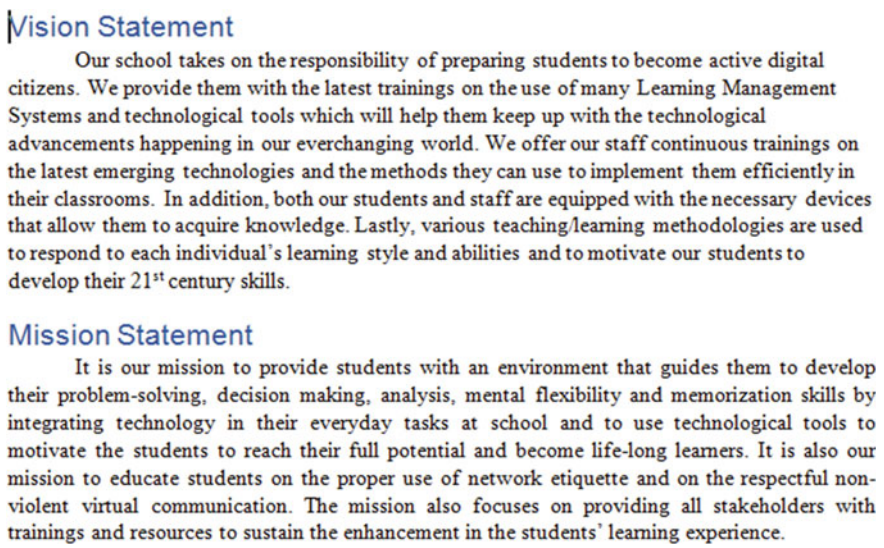
The final course activity had participants assimilate all the learning and activities. They were to provide solutions to the emergency education dilemma. The project-based learning endeavor was to stem from the community. They were to describe the problem, develop a purpose, identify the barriers and the digital divide through field research, and analyze, compile and recommend the outcome to overcome the dire

General Rules and Responsibilities:

All users of the school's IT resources shall be subject to the following regulations and responsibilities:

- All regulations, including copyright and privacy, must be followed by users.
- Users are only allowed to use software that has been approved or purchased by the school.
- Without the approval of the administrator, technology resources or software will not be deleted.
- It's prohibited to:
  - Make use of someone else's password or ID.
  - Share your user ID or password.
  - Delete, copy, or edit the data of another user.
  - Take control of all accessible technological resources.
  - Use the technology at the school for marketing and/or commercial reasons.
  - Use the school's technology tools to get access to pornographic or other potentially harmful content.
  - Minors are not authorized to use any product or service unless they are supervised.
  - Any use that infringes on a person's rights, religion, race, or ethnicity.
  - Unauthorized or careless behavior that causes harm to the school's technology.

Fig. 4 List of rules and responsibilities



Vision Statement

Our school takes on the responsibility of preparing students to become active digital citizens. We provide them with the latest trainings on the use of many Learning Management Systems and technological tools which will help them keep up with the technological advancements happening in our everchanging world. We offer our staff continuous trainings on the latest emerging technologies and the methods they can use to implement them efficiently in their classrooms. In addition, both our students and staff are equipped with the necessary devices that allow them to acquire knowledge. Lastly, various teaching/learning methodologies are used to respond to each individual's learning style and abilities and to motivate our students to develop their 21st century skills.

Mission Statement

It is our mission to provide students with an environment that guides them to develop their problem-solving, decision making, analysis, mental flexibility and memorization skills by integrating technology in their everyday tasks at school and to use technological tools to motivate the students to reach their full potential and become life-long learners. It is also our mission to educate students on the proper use of network etiquette and on the respectful non-violent virtual communication. The mission also focuses on providing all stakeholders with trainings and resources to sustain the enhancement in the students' learning experience.

Fig. 5 Example of mission and vision

setup. The research task was: *The project will be a real-life reflection of the learner's education institution and will address the issues and solutions to make the Emergency education set up an effective learning community catering to the needs of the learners in its community. Learners will be expected to carry out field research, reflect, and provide the solution. Steps and plans must be shared and approved throughout the semester by the instructor.*

P1's paper was used to showcase different parts of the project-based learning assignment. The Table of Content below reflected the project. The Method part gave details of the plan to collect data. One set of results was shown as was the conclusion (Fig. 6).

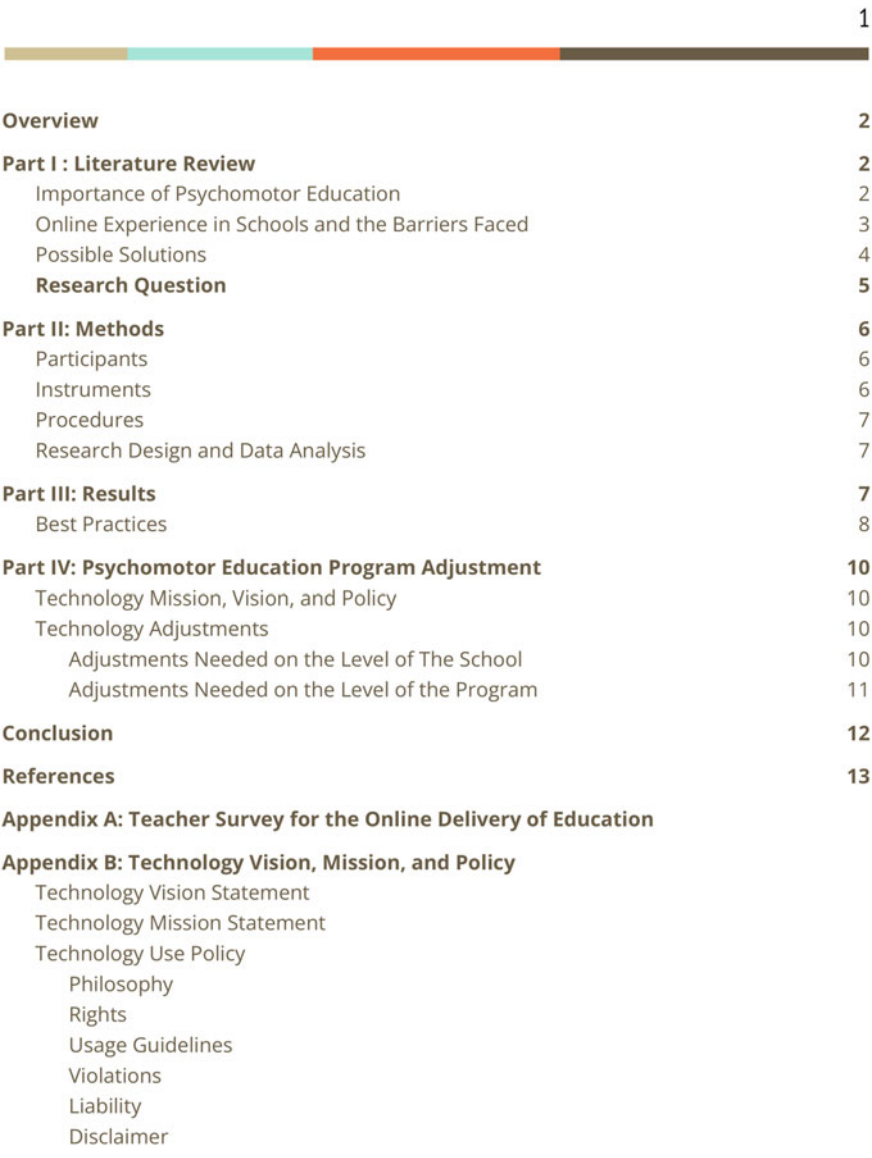


Fig. 6 Sharing parts of project-based-learning assignment

P4's presentation slides were showcased to reflect part of the project (Fig. 7).

Fig. 7 Examples of presentation slides

6 Conclusion

The participants were actively engaged and interactive throughout the course. The tech-based activities and the continuous momentum maintained the impact such that the implication to use such a model to build expertise to address a real-world dilemma appears possible. I recommend the use of a tech-based PBL medium to witness emergency education growth to minimize the divide. To conclude my chapter, I will use the participants' post-reflections to support my recommendation.

According to **P6,** "change needs to start from a place in order to have real change in the future. Hence, starting from technology is a smart act, and an act that insures that change will be of value." **P3** shared that "this course taught me about the importance of properly utilizing technology in teaching. It taught me how to navigate around digital divides and make the most of accessible ICTs, as well as how to ensure that all of the skills I obtained during the course are successfully used in my classroom." Moreover, **P3** emphasized that her interest in learning about other new tools, platforms, and LMS was to utilize the technology in her current teaching position: "Technology became the cornerstone of my teachings."

The post-reflections evaluated the participants' perceived value in their learning endeavor. The expedition allowed them to become consciously aware of the quandary technology posed and the weak infrastructure that forced Lebanon's education sector to suffer not only because of COVID-19. Politically, financially, and economically, and the digital divide impacted the barriers. They actively emancipated their roles as educators through their graduate course content, discussion, reflection, and hands-on activities. They brainstormed, planned, problem-solved, and recommended with confidence real-life sustainable solutions. **P5** acknowledged that "in order to efficiently implement technology into classrooms, schools have to have a clear tech-vision and mission." The ongoing exercise of thinking and reflecting in the context provided the graduate students the fertile stage for their sustainable learning journey. They partook in using the real-world learning and application to build the know-how.

P2's post-reflection indicates this clearly. She agrees that "this course was very informative; it had varied teaching and assessment strategies, and it modeled the way technology should be used in education. I loved how we were requested to summarize the information learned in every unit inside our reflections. These reflections have helped me assimilate the material and relate them to one another. Second, I loved how the course used project and problem-based learning to utilize the information in real life. As learners, we also got the chance to translate our knowledge into presentations, reflections, lesson plans, and research papers. The course was also beneficial in terms of the angles from which the information was given. For instance, the course tackled technology in education from the point of view of a leadership position and from the point of view of an educator. The idea of the flipped classroom also allowed me to go beyond lower-order thinking and fact recall. Thank you Dr. for your efforts. Second, this course taught me how to plan the implementation of technology in education from a holistic point of view while keeping equity in mind. I also developed my skills when it came to research-based methods. The course helped me identify the

barriers that were present in my working environment. The course taught me equity and how to implement technology into the curriculum and lesson plans. In short, the course helped me develop more advanced problem solving skills and widened my view." In addition to that, P4 felt that she "developed as a student and as a teacher. It broadened my knowledge about what I can do with the use of technology, … From my project-based learning experience, I learnt that I could make a change in the education world."

What more validation do I need for my purpose?

The projects were assigned to have the participants critically analyze the role of technology in instruction and develop strategies for infusing technological to deliver effective teaching and learning spaces in the schools in Lebanon. They created the projects to provide the schools with recommendations to address emergency education. For the course learning outcomes, the projects were the means to showcase that the students accommodated the merits and overcame the barriers of teacher education during the present-day dilemmas.

In summary, it is true that the challenges of the crisis remain in Lebanon, but with the needed training, as showcased above, the trainees will be able promote life-long quality education to students and strengthen the education systems. The chapter discussed the theory and practice aspects of the course, the assignments, and overall project-based learning endeavor, as well as showcased assignments to illustrate the assimilation of professional development for use in contexts of educational challenges. It is recommended to mentor and adopt the course model in education and professional development programs and training that cater to high-risk contexts, in Lebanon or globally.

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Chapter 25
CALL Teacher Trainers' Challenges and Coping Strategies: Voices from Vietnam

Luan Thanh Nguyen, Tho Doan Vo, and Ngoc Giang Tran

Abstract This study investigated how CALL teacher trainers adapted their practices for delivering training planning in the CALL teacher training and development programs in Vietnam. The data were collected from three trainers who have been conducting the CALL training programs at Vietnamese higher education institutions through semi-structured interviews via Zoom. Data analysis revealed CALL teachers trainers encountered challenges related to their participating EFL teachers in CALL courses and programs with a focus on the lack of professional knowledge and their well-being issues. The analysis also highlighted coping strategies that CALL teacher trainers used to arrange their process of training and address trainee-related issues. The study suggests that CALL teacher trainers placed emphasis on coping strategies for their practices. The study also suggests the synergy of policies with attention to CALL teacher trainers' voices and their opportunities for continuing professional development.

Keywords Computer-Assisted Language Learning (CALL) · CALL teacher trainer · CALL teacher development · Coping strategies

1 Introduction

At the turn of the twenty-first century, Computer-Assisted Language Learning (CALL) has gained increasing significance and interest among educators and researchers, especially in the areas of CALL teacher education and development

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(Gillespie, 2020; Han, 2020; Hubbard, 2019; Son, 2018; Torsani, 2016). The future of language teacher education and that of CALL are closely intertwined because language teachers are the decision-makers in choosing which CALL applications to support their learners (Hubbard, 2008). In the same line of thought, Garrett (2009) emphasizes the inseparable bond of technology, theory, and pedagogy; and defines CALL as "the full integration of technology in language learning" (p. 719).

In recognition of the pivotal role of CALL, Vietnam has considered the integration of technology in education, in particular CALL teacher education, a key focus in its ongoing national English language teaching reforms. The Vietnamese Government's strong determination was clearly demonstrated through a huge number of professional development courses in CALL for teachers in National Foreign Languages Project 2020 (NFLP 2020) and its extension (The Government of Vietnam, 2008, 2017). However, CALL teacher training and development in Vietnam is still considered an under-represented context. Only a limited number of studies have been conducted in this context, and they have explored some aspects related to the language teachers as well as students in the practice of CALL training and development. Specifically, in an attempt to evaluate the influence of CALL training in English as a foreign language (EFL) education context, Nguyen (2019) focused on the EFL teachers' perspectives in a case study and found missing opportunities for EFL teachers' training. With a similar emphasis, the findings of Gruba and Nguyen's (2019) study showed positive perceptions of the administrators and lecturers toward the integration of technology into an English language tertiary program in Vietnam. These two studies focused their attention on just teachers' perspectives about CALL training. In a recent cross-sectional study that employed the analyses of exploratory factor, confirmatory factor, and Rasch model, Nguyen and Habók (2022) investigated the attitudes toward CALL instruments of nearly 2,000 Vietnamese undergraduates and found that there was no difference in measuring students' perceptions of how technology was integrated into EFL learning in both online and paper forms. Earlier, also focusing on students' perspectives, Nguyen and van Rensburg (2016) utilized a quasi-experimental research design to investigate the effectiveness of CALL training on 20 Vietnamese students aged between 14 and 16. The findings showed students in the treatment group expressed more motivation and interest in EFL learning, in particular, improved their listening skill more strongly.

It is noted that previous research conducted in the Vietnamese context has centered around the perspectives of the learners and teachers in CALL training. Few studies to date have investigated the views of CALL teacher trainers in their professional development teaching and training. The current study is one of the first attempts to investigate how CALL teacher trainers organize their pedagogical practices in the CALL-related training and development courses and programs in Vietnamese higher education.

2 Voices Already Heard

2.1 CALL Teacher Development and Challenges

In recent years, CALL teacher education and professional development have received increasing attention from researchers and experts (Torsani, 2015; Son & Windeatt, 2017). It has also become one of the significant areas of discussion in the fields of CALL and language education (Son, 2018). As such, there have been quite a few studies addressing different aspects of CALL teacher education, such as the content and process of CALL training courses (Baser et al., 2016; O'Dowd, 2015), the effectiveness of teacher training (Hsu & Lin, 2020), transfer of coursework to classroom practice (Son, 2014), factors affecting technology integration (Joo et al., 2018), and continuing professional development in CALL (Park & Son, 2022). In this regard, the current study placed emphasis on the practices of CALL teacher training under trainers' perspectives.

Teacher trainers are those "who provide instruction or who give guidance and support to student teachers, and who thus render a substantial contribution to the development of students into competent teachers" (Koster et al., 2005, p. 157). In this context, we consider CALL teacher trainers as EFL teacher trainers who focus on promoting EFL pre- and in-service teachers' competence in using CALL technologies in their language teaching. Given their responsibilities, many CALL teacher trainers have been encountering multiple challenges in conducting training courses or programs for pre- and in-service teachers (Dashtestani, 2014). For example, 39 Iranian CALL teacher trainers in the study of Dashtestani (2014) reported that some problems they dealt with included teachers' reluctance to integrate technology into their teaching, the availability of technological facilities, and especially teachers' lack of skills and knowledge in using technology for teaching. This raises a question on what teacher trainers should focus on during their training courses or programs.

Studies have attempted to cover not only pedagogy and technology but also knowledge and skills included in CALL teacher training. In this respect, researchers have focused on the framework of Technological Pedagogical Content Knowledge (TPACK) (Mishra & Koehler, 2006), which looks at the relationship between technology, pedagogy, and content knowledge. It provides a general guideline on the nature of teacher knowledge required for integrating technology into teaching practices. Le and Song (2018) explored how Vietnamese pre-service EFL teachers perceived TPACK in a CALL training course and found that even though the teachers were confident with knowledge and skills to integrate technology into teaching, they were reluctant to do that "due to contextual factors pertaining to classroom facilities and curriculum-related constrains" (p. 48). These findings were congruent with a previous study in which Le (2015) found factors influencing CALL teacher education programs in Vietnamese higher education. These factors are related to teacher educator, institutional, technological, and contextual agencies. However, policy issue

with CALL-related teacher education was considered as a determinant (Peeraer & Van Petegem, 2012; Vo, 2019). In contrast, in a recent study by Tafazoli and Meihami (2022), the teachers stated that CALL teacher training programs should prioritize providing them with knowledge concerning the intersections of technological content knowledge/technological pedagogical knowledge and technological pedagogical knowledge/technological knowledge. In other words, insufficient knowledge in terms of both pedagogy and technology appears to be a barrier hindering teachers in using technology to teach, which might be one of the challenges in CALL teacher education and professional development (Alotumi, 2020; Crosthwaite et al., 2021).

The focus on CALL teacher development still received limited attention. CALL teachers actively sought opportunities for their continuing professional development, for example, enrolling in CALL professional development courses (Tafazoli, 2021) or joining the community of practices (Mai et al., 2020). Nguyen (2019) emphasized an absence of opportunities for EFL teacher development in CALL. These studies, however, did not describe how the practice of CALL teacher development was perceived by trainers. More research is needed to examine the perceptions of CALL teacher trainers who provided and organized the process of CALL training for teachers across levels.

2.2 CALL Teacher Trainers' Coping Strategies

Researchers have also paid attention to how both pre- and in-service teachers are trained in CALL training courses or programs (Foulger et al., 2017; Hubbard, 2019; Son, 2018). There have been a number of studies exploring the strategies or pedagogies deployed to enhance CALL teacher learning (Grosbois, 2011; McIntyre et al., 2020; Son, 2018). For example, Son (2018) suggested different approaches for fostering pre-service EFL teachers' knowledge and skills in the implementation of CALL, including role-based, language skill-based, tool-based, and activity-based approaches. In a similar vein, researchers employed and recommended the Computer-Mediated Communication (CMC) approach in CALL training courses as a tool to facilitate teacher collaborative learning and foster their development (Grosbois, 2011; Meskill, 2009; Son, 2004). Another example is Hubbard's discussion on four approaches of breadth-first, depth-first, integrated, and online, through which he emphasized the importance of selecting an appropriate learning process for the content of technology education (Hubbard, 2009). Recently, responding to the unprecedented impacts of the pandemic, some researchers have investigated ways that teachers used to accommodate multiple challenges of online teaching. For instance, MacIntyre et al. (2020) surveyed 600 language teachers and identified 14 coping strategies that they have been using to teach with technology. These strategies include acceptance, advanced planning, re-framing, actively doing something about the situation, using work or other activities as a distraction, disengagement, substance abuse, and denial. This raises significant implications for CALL teacher trainers and

training developers in opting for the most effective strategies and approaches for teacher learning in CALL training courses or programs.

In summary, previous studies showed that perceived issues significantly impacted on the effectiveness of CALL training process across contexts (Hsu & Lin, 2020; Joo et al., 2018; Le & Song, 2018). There is, however, a need for further research to investigate CALL teacher trainers' perspectives on how they organize and conduct their CALL-related training courses and programs. Despite the increase in the number of research on CALL implementation, little is known about the practice of CALL teacher development voiced by trainers. To fill this gap, the current study builds on previous research on CALL teacher education and development and timely addresses the following research questions:

1. What challenges do Vietnamese CALL teacher trainers encounter when conducting their CALL training?
2. What coping strategies do Vietnamese CALL teacher trainers deploy when encountering challenges in their CALL training?

Our primary aim was to explore what challenges were issued by CALL teacher trainers and what strategies were employed to organize and deliver the training plans.

3 Methods

3.1 Design

A qualitative research design was adopted to capture in-depth insights into challenges that were encountered by CALL teacher trainers and what coping strategies they deployed to deliver their CALL teacher professional development training courses and programs in Vietnamese higher education (Creswell & Clark, 2018; Dörnyei, 2007). In the analysis reported here, the focus was on the challenges faced by CALL teacher trainers and their coping strategies.

3.2 Participants

Three CALL teacher trainers from different Vietnamese higher education institutions participated in the study based on the adoption of the convenience sampling method (Creswell & Guetterman, 2019). Two of them hold a Ph.D. in Education and one holds an MA degree in Teaching English to Speakers of Other Languages (TESOL). All of the CALL teacher trainers had around 15 years of experience in English language Teaching (ELT) and an average of seven years of experience in CALL teacher training. These three participants were coded using pseudonyms (see Table 1).

Table 1 CALL teacher trainers' professional practice

CALL teacher trainers	Educational background	Teaching experience (years)	CALL teacher training experience (years)	Familiarity with CALL
Wealth	Ph.D.	15	5	Highly competent
Victory	M.A.	17	15	Highly competent
River	Ph.D.	14	3	Competent

All of these trainers showed high familiarity with CALL teaching, and one of them holds a leadership position related to the coordination of CALL courses at the postgraduate level. They first applied CALL in their teaching in their early career years and continued to pursue their passion for CALL technologies in education through the frequent update and upgrade to new trends to keep their practices fresh. They deployed a variety of CALL activities not only in their classroom practices but also in pre- and in-service CALL teacher training. They have been working as CALL teacher trainers for years and delivered numerous short-term and long-term CALL training courses, workshops, and seminars for both pre- and in-service teachers at different levels from school to university.

3.3 Data Collection and Analysis

Five CALL teacher trainers were contacted via email enclosed with the information statement of the study for participant recruitment. All of the trainers consented to participate in the research. Interviews schedules were sent to all of these voluntary participants; however, only three joined the interview appointment. The researchers employed the semi-structured technique to capture an in-depth exploration into challenges CALL teacher trainers faced in delivering training sessions and how they employed coping strategies to address these identified challenges. This qualitative data collection method was found to be helpful in capturing participants' interests and exploring their perspectives, values and attitudes (Johnson & Christensen, 2020). All the interviews were conducted via Zoom and audio-recorded lasting between 45 and 60 min. All the interviewees used mostly Vietnamese and sometimes switched to English when they felt comfortable. All the interview recordings were transcribed verbatim.

A thematic analysis method (Clarke & Braun, 2017) was employed for data analysis to explore how CALL teacher trainers arranged their practices in CALL teacher training sessions. The interview transcripts were coded iteratively using NVivo 12 software. The researchers focused on challenges faced by trainers in their delivery of CALL teacher training with an emphasis on knowledge domains in terms of technology and pedagogy, and coping strategies these trainers deployed in their practices to address their identified challenges. Codes were developed both inductively from

the data and deductively from the frameworks (MacIntyre et al., 2020; Mishra & Koehler, 2006) as guidelines to identify and report emerging themes. The coder read and re-read each transcript several times, took notes of patterns adding to the core category "CALL teachers' challenges" emerged from the frameworks and data. The researchers selected this core category and collated all relevant patterns to aggregate themes. The emerging themes helped answer the two research questions on what challenges CALL teacher trainers identified and what coping strategies they employed in response to these challenges.

4 Lessons Learned

The analysis revealed prominent challenges that CALL teacher trainers reported when delivering their training sessions. These challenges are mainly concerned with EFL teachers' lack of professional knowledge and well-being who attended CALL training courses, and the provision of resources. Also, the analysis highlighted coping strategies that CALL teacher trainers used to address these reported challenges.

4.1 CALL Teacher Trainers' Challenges

Professional Knowledge Challenges

The first issue trainers reported is that their participating EFL teachers in CALL courses lacked professional knowledge in terms of technology and pedagogy. Many senior EFL teachers had technology-related difficulties: "They [senior EFL teachers] did not know about the application of technology to develop language skills" (Wealth). While senior teachers found technology-related issues challenging, fresh fellows were very good at using technologies in their teaching practices. However, they overused these technologies unnecessarily but lacked essential pedagogical knowledge.

> Young teachers did not face several barriers regarding their use of CALL technologies to deliver their lesson plans. They showed their good technological skills. However, these teachers overused several educational technologies when these technologies did not significantly help develop their students' language skills. In other words, they did not master the pedagogical knowledge of using CALL technology. (Wealth)

However, some trainers noted a variety of their trainees' levels of technological knowledge and skills: "*I am delivering mixed-ability CALL teacher training sessions. Many of my trainees are not competent in using technology in their teaching practices*" (Victory).

These two CALL teacher trainers' responses indicated trainers' issues with regard to their teacher trainees' mixed competence with emphasis on the lack of technological and pedagogical knowledge. These trainees faced challenges in using CALL

technologies pedagogically to organize their practices and showed their reluctance to change their mindset. The explanation was that younger teachers were early in their profession or new graduates and may be less experienced in their professional competence, although they may have more advantages in updating their technological skills. Meanwhile, senior trainees were so used to the traditional ways of teaching; hence, they may be afraid of new technological adaptations and changes. They did not update their technological knowledge, which in turn made them more reliable on old-school methods of teaching (e.g., such as board and chalk).

Well-Being Challenges

The second issue related to CALL teacher trainees that trainers reported was their well-being issue. Some trainers highlighted psychological factors their trainees suffered from undertaking training sessions.

> Despite participating in CALL training courses, they [trainees] always feel stressed when having to apply technology. They are forced to attend these training courses by their senior management boards. Therefore, it is sometimes difficult to have them engage in the courses. (Victory)

Trainer Victory's sharing revealed issues with their trainees' well-being during the compulsory training courses for a long time. These issues referred to trainees' suffering from stress. The explanation was that trainees were overwhelmed with their required daily workload at their institutions.

Resources Challenges

Most trainers claimed the insufficient provision of resources for training sessions. These limited resources are related to infrastructure, internet connection, and materials.

> The first challenge I would like to mention is the infrastructure, or resources, for CALL training. The lack of well-functioned equipment for trainees is challenging for many CALL trainers, making it difficult for the training program to reach its full potential and benefits. Another matter related to infrastructure in CALL training is the provision of a fast and stable internet connection. Many CALL training activities could have been conducted more successfully with a more stable and higher speed internet connection. (River)

Trainer River's response in the interview excerpt highlighted issues faced by CALL teacher trainers related to the limited provision of resources necessary for CALL training sessions. These resources were concerned with equipment, Internet connectivity, and training materials provided to trainees. The insufficient provision and limited quality of resources were considered not only barriers to trainers but also to trainees.

4.2 CALL Teacher Trainers' Coping Strategies in Response to Challenges

When asked about strategies for addressing identified issues, all of the CALL teacher trainers placed more emphasis on coping strategies than acceptance strategies across two modes. That is, while the trainers deployed coping strategies approach to address issues that concern their teacher participants' lack of technologically and pedagogically professional knowledge, they showed their acceptance strategies to respond to the policy regulations.

Coping Strategies for Addressing CALL Teachers' Professional Knowledge Challenges

All of the CALL teacher trainers reported having adapted a variety of pedagogical coping strategies to address identified issues concerning their CALL teachers' lack of professional knowledge in terms of technology and pedagogy. For example, most of the trainers noted they delivered CALL training session plans with a focus on the theory–practice nexus in a flexible manner.

> For theory sessions, I often conducted lessons in an interactive way so that trainees could easily explore different theories and pedagogical knowledge through group discussions. I also had them become familiar with the research-based knowledge and skills by reading and sharing academic papers in CALL. For teaching practices, I provided my trainees with practical and hands-on experiences by encouraging them to do and learn by themselves. My trainees are teachers or teacher students, so they are really proactive and engaged in such meaningful activities. These days, I have been using a blended learning approach in my training courses in which I combined online and offline activities to provide my trainees with opportunities to expose to teaching and learning with technology by themselves. These practices also helped my trainees become more autonomous in their learning. (Victory)

Trainer Victory's response highlighted that CALL teacher trainers adapted their practices in delivering a sufficient diversity of training content to keep trainees on the right track and build up their theoretical knowledge and connect it to practical teaching in their classrooms. Notably, these trainers employed a blended approach flexibly and appropriately to meet different circumstances and situations. This view was shared by other trainers who placed more emphasis on the link between theoretical knowledge and classroom practices as well as the cluster of mixed-ability trainees.

> Through my three years of working as a CALL teacher trainer, I have explored, tried, applied, and sometimes combined a number of different strategies. First, I always want my training to be relevant to the trainees. I have constantly encouraged my trainees to think about their context and the application of CALL. They should learn about CALL by doing; hence, I have made my training practical with a bundle of hands-on examples and guidelines. Second, I aim to differentiate my training activities to cater to a wider range of trainees coming from various backgrounds. For those who have little experience with CALL, I start with basic instructions and provide scaffolding exercises. On the other hand, I design more challenging tasks for those who have more experience and knowledge about CALL. Grouping inexperienced CALL trainees with more experienced ones is also what I often use in order to promote peer learning in my training activities. (River)

In this notion, some trainers highlighted classroom scenarios in that they required their trainees to demo teaching sessions.

> I have conducted many different activities. I let teachers engage with CALL experience. They could do demo lessons in class. Then I asked them to read the theory and share their reflections to see how CALL activities work in their classroom. After that, they suggested some changes to their activities in their real classroom. For example, to teach listening using CALL technologies, I asked them to share with me the theory of teaching listening, then how to use CALL in teaching listening. After that, we had a discussion about how to use technology in teaching listening. Extensive listening with CALL, for instance, is one of the suggestions. Some teachers shared their experiences about teaching listening with CALL. Also, I required teachers to write a reflection about applying CALL technologies in teaching listening and submit it to the learning management system. (Wealth)

The three interview excerpts highlighted CALL teacher trainers adapted their practices in delivering the training sessions. The trainers activated their agentic practices through their willingness to further explore and employ a diversity of training activities. While trainers considered their identified challenges as opportunities to change and showed their agency toward coping with their adaptive pedagogical strategies in their teaching contexts, they seemed to ignore the acceptance or avoid strategies to policy issues with the provision of training resources.

Another interesting theme that emerged from the interviews, which is not concerned with the challenges of CALL teacher trainers, is their sense of continuing professional learning which is described in the following paragraph.

Continuing Professional Learning

The analysis revealed all of the interviewed trainers are interested in developing and upskilling their CALL teaching skills through continuing professional learning. Some trainers showed their instrumental support by seeking opportunities for CALL literacy professional development through seminars, workshops, conferences, courses, education programs, and large-scale government-funded projects (e.g., Project 2020). A few trainers reflected engaging with CALL training in their early days of teacher development career and kept pursuing higher education.

> In my last year at the university, I attended a short course called Intel Teach to The Future in which I had an opportunity to learn about instructional technology. This course provided me with lots of new knowledge and skills on how to integrate technology in teaching English. I have been interested in technology in ELT since that time. Thus, I have explored information about MALL [Mobile-Assisted Language Learning] and CALL already. I have also conducted some research on these two areas. After gaining a master's degree in TESOL in 2008, I started to work as a teacher trainer in the field of CALL. I have conducted different short training courses, workshops, and seminars for both pre- and in-service teachers at different levels from school to university. (River)

This view was shared by one trainer who adapted strategies to develop their continuing professional learning through their experiences in their delivery of CALL training course and feedback voiced by their trainees.

> During the process of conducting CALL training courses, I found a few problems that I experienced in my teaching or heard from my trainees. Despite using technology in our teaching,

> we still had difficulties making lessons more effective and engaging to students. After that, since starting my doctoral study in CALL, I have found that we lacked significant foundation knowledge about how to use technology in a strategic way to achieve our pedagogical goals. Since then, I have paid more attention to the pedagogical theory in training about CALL. I have been working as a CALL teaching assistant for my supervisor since my third year. (Victory)

Two trainers' responses in the interview excerpts noted the necessity of continuing professional development. Despite high familiarity with CALL training, trainers showed their willingness to upskill their expertise by undertaking professional development courses and programs.

In summary, CALL teacher trainers reported issues with trainees' insufficient knowledge, well-being, and the provision of resources. The lack of professional knowledge related to technology and pedagogy, and well-being issues were considered prominent. These trainers also highlighted their adaptations of coping teaching strategies to provide training content and deliver the training sessions in a flexible and appropriate manner. Furthermore, trainers valued the development of their professional learning and showed readiness for such opportunities.

5 Discussion

The current study advances research on CALL teacher training and development by capturing the experiences in challenges and coping strategies among CALL teacher trainers in their pedagogical practices. Our results aligned with prior research on the importance of CALL teacher development (Park & Son, 2022; Son, 2018; Tafazoli & Meihami, 2022). While previous studies revealed the challenges issued by CALL teacher trainers and how they coped with teaching strategies to respond to these challenges (Alotumi, 2020; Crosthwaite et al., 2021; Tafazoli & Meihami, 2022), our findings suggest that CALL teacher trainers' coping strategies are varied and at the core of the process of training planning.

5.1 CALL Teacher-Related Challenges

The results reveal the issues faced by CALL teacher trainers during their delivery of training plans. Trainers emphasized their teacher trainees lacked professional knowledge in terms of technology and pedagogy and had difficulties in following their instructions and meeting their requirements of the training content. These findings corroborate the findings of a recent study by Tafazoli and Meihami (2022) highlighting Iranian EFL teachers' needs for the provision of knowledge domains around content, technology, and pedagogy. Interestingly, in our study, while older trainees lacked technology-related knowledge and skills, younger fellows found pedagogy-related knowledge challenging. One possible explanation in the current

study conducted in the Vietnamese context may be that senior EFL teachers are reluctant to make changes to update new trends in their areas of teaching, for example, CALL in language teaching and learning, in particular, those nearing their age of retirement. However, previous findings illustrated that younger teachers showed their willingness to approach new trends in educational technologies (Park & Son, 2022), although professional knowledge in terms of content and pedagogy may be their barrier as they are new in their early careers. The study suggests that CALL teacher trainers should cluster senior and fresh trainees in groups when conducting their training sessions to promote their mutual collaboration and enhance their engagement.

It was found that CALL trainees had issues with their mental health conditions when they both were forced to undertake the long-term compulsory CALL training courses during their whole semester or school year and were required to fulfill their tasks and duties at their institutions at the same time. Stress and well-being as stressors are existent as important factors influencing teachers' engagement and pedagogical practices (MacIntyre et al., 2020). The results suggest that the policymaker and institutional management board should reduce teachers' workload and/or assign part of their tasks to other teachers who were not required to undertake these mandatory training courses.

In addition, under-resourced training facilities and materials were issued by CALL teacher trainers during their delivery of training sessions. These barriers hinder trainee engagement (Le & Song, 2018). The results suggest a call for institutional investment into the provision of resources for both CALL teacher trainers and trainees to effectively organize and attend the training sessions or programs.

5.2 CALL Teacher Trainers' Coping Strategies

The results showed that CALL teacher trainers adopted coping strategies in their pedagogical practices. Trainers actively planned and reframed their instruction and training. They reframed and devised a wide range of activities to deliver their training sessions. These findings align with earlier findings in a recent study by MacIntyre et al. (2020) who revealed a wide range of coping strategies that trainers could use in their practices. While Son (2018) used strategies with attention to promote trainees' knowledge of CALL implementation and language, our findings highlighted coping or approach strategies are central to providing trainees with opportunities to better experience and engagement in various modes of professional training adding to lessening avoidance strategies (MacIntyre et al., 2020).

It was found that trainers expressed their awareness and readiness to upskill by taking opportunities for their professional development. Trainers were active in attending professional development courses and programs which were short-term and/or long-term. This finding confirms the importance of continuing professional development that is central to the areas of CALL teacher training as technology always needs to be updated to catch new trends (Tafazoli, 2021). Moreover, this

finding is different from the findings by Nguyen (2019) who admitted missing opportunities for CALL teacher development but aligns with Mai et al.'s (2020) findings showing that CALL teacher trainers upskill themselves through the communities of practice.

The results raise implications that there is a need for synergy between top-down and bottom-up policies so that CALL teacher trainers could confidently raise their voices and proactively engage in the organization and implementation of training courses and/or programs. Also, there is a need for providing CALL teacher trainers with ongoing opportunities for further continuing professional development in which they are able to upgrade and attain not only their professional knowledge but also enhance their coping pedagogical strategies as well as reduce or avoid the avoidance strategies. Furthermore, CALL teacher trainers could adapt their training planning using a variety of CALL-related resources that are practical, hands-on, and appropriate to trainees' levels. They could combine synchronous and asynchronous practices and considers these as part of the assessment to promote trainee engagement in the training courses and programs.

6 Conclusion

The current study adds to the limited literature on CALL teacher training and development. The study found that interviewed CALL teacher trainers focused on the challenges regarding their participating EFL teachers' limited professional knowledge categorized as technology and pedagogy and their well-being issues. The study also highlighted coping strategies that CALL teacher trainers deployed to enhance the trainee learning experience during their whole training attendance and engagement. We argue that CALL teacher trainers' agency is active in coping with a wide range of pedagogical practices when they organize and deliver the CALL teacher training and development programs across levels. These findings contribute to further insights into the practices of CALL teacher training and development from trainers' voices in under-represented contexts.

Despite the highlighted contributions, we also acknowledge the limitations. First, our participants may not be representative of CALL teacher trainers across contexts. Future studies may investigate participants' perspectives in other under-represented contexts. Second, the current study has not explored all the possible factors influencing teachers' adaptative practices (e.g., age, gender, socioeconomic status). Future research may be conducted to investigate how these factors impact the practices that CALL teacher trainers to arrange their training planning. Third, the focus on CALL teacher development in the areas of English language education limits the findings to other subject matter areas.

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Chapter 26
The Reality of CALL and IT Literacy in Under-Represented Contexts: The Case of EL@N, a TEFL Platform in Algeria

Tarek Assassi and Abdelhak Chenini

Abstract Computer-Assisted Language Learning (CALL) has recently been the main focus of education practitioners around the globe due to its nature as a solution for the global pandemic consequences, chiefly the total lockdown. Researchers paid extra attention to the practical endeavor associated with online teaching and learning, in addition to the main difficulties faced by instructors in dealing with the relatively modern teaching mode and its requirements. The current study focuses on eliciting the difficulties faced by Algerian EFL course designers in developing online materials for a multilingual platform (EL@N). Furthermore, the researchers seek to highlight the sources of the difficulties by elaborating practical suggestions to enhance the quality of the professional experience, most notably in relation to continuous professional development. Through document analysis and participant observation of the authors as members of the EL@N project, it has been noticed that the adaptability to online course design was the main issue faced by course designers. This is clearly seen in the developed courses (levels A1–A2–B1) and the visible influence of conventional face-to-face teaching on the selected materials and activities. The aforementioned issue is the result of several causes chiefly related to IT literacy, lack of computing skills, and professional development programs.

Keywords Computer-Assisted Language Learning (CALL) · IT literacy · Professional development · Online learning · E-learning platform · Distance learning

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1 Introduction

As a result of the increasingly interconnected world, we live in, the COVID-19 pandemic has severely impacted life on our planet and has led everyone around the globe to share the same risks and adapt to new, unusual, and demanding day-to-day tasks. Education was no exception. According to the International Monetary Fund (IMF) nearly 1.6 billion students and more than 85 million educators in at least 190 countries had to adapt to new or at least more modern teaching methods following the closure of most educational institutions (2021). The global higher education community faced significant challenges given the international mobility aspect of students, teachers, and employees in comparison to elementary and secondary education establishments. The fast-growing business of educational technology may have helped developed countries more than underprivileged communities and low-income societies, which statistically represent a significantly larger proportion vis-à-vis education worldwide.

As far as teaching foreign languages, more challenging demands are added to the teacher's agenda in and outside the classroom (Tafazoli, 2014). Technologically advanced countries compete to create cutting-edge online educational materials and platforms. Accordingly, their scholars and researchers focus mostly on the creativity facet of Computer-Assisted Language learning (CALL). On the other hand, underdeveloped societies, such as the Algerian higher education context, still struggle with different levels of issues to cope with the shift toward online education (Assassi, 2020).

2 CALL Teacher Education and Professional Development Concerns

The use of CALL in Algeria did not take its fair share of research or practice, especially in official educational institutions for teaching languages (Boucherfa & Baghoussi, 2017). Although the use of technology in teaching languages faced technical and cost issues during its beginning in the early 1960s, the spread of inexpensive microcomputers at the beginning of the 1980s and the introduction of multimedia and the internet in the twenty-first century helped immensely in the use of such technology in teaching languages (Chapelle, 2012). Additionally, the awareness of the potential benefits of technology in language learning led to an increase in the use of technological tools in language instruction (Chapelle, 2012). The use of technology in teaching languages can be helpful in the design of several educational tasks as Soleimani (2021) states that "instructors can exploit new technology facilities such as authentic materials, multimedia, and communication through networking to improve language pedagogy" (p. 165). In primary and secondary education institutions, there has been little to no use of extra tasks and activities with a technological touch.

In higher education institutions, teachers rely on classroom practices and homework in teaching language production in courses such as grammar, oral, and written expression.

Like many other countries, Algerian educators were caught off-guard. The majority of instructors faced several issues in shifting toward the new teaching mode; this has been noticed by the authors of this chapter and several colleagues around the country in unstructured meetings. During the academic year 2019/2020, online teaching and learning was a trending concept in the educational and academic sphere. However, Algerian instructors of languages relied mostly on delivering videoconferences and uploading written lesson plans and contents. The result was total confusion among learners and students vis-à-vis their studies and progress, in addition to difficulties in the assessment procedure and efficiency for teachers (Assassi, 2021, 2022). He added that educators were not very familiar with the use of technology and the e-creation of learning materials both as teachers and even as learners; this shift came as a professional shock that pushed them toward an inefficient teaching/learning experience. As a result, training and workshops were a must and still are for educators to meet the technological necessities of modern language teaching and today's learners as technology skilled (Khedim, 2020).

In tertiary educational institutions in Algeria, namely, universities, newly hired teachers are required to take a 1-year in-service training that consists of weekly workshops at their institutions and regional online training. This in-service training is scheduled for instructors to be familiarized with their rights and duties as higher education teachers and to develop their skills in online course design via Moodle platform. Since 2017, teachers have taken this training for the sole purpose of developing their pedagogical performance in and outside of the classroom (Khedim, 2020). In reality, the training does not serve modern teaching techniques since most of the concepts and techniques shared are either outdated or impractical for modern online language teaching that relies on the development, selection, and sharing of materials in a creative and interactive manner. During the last five years, we have noticed that the training taken by all teachers had no efficient and reliable result. In other words, the global pandemic pushed these teachers, same as their colleagues, to use CALL to deliver their courses online, and the result was not encouraging as they just shared documents (lectures contents) or organized videoconferences to lecture online as we have noticed in several departments throughout their Moodle platforms.

The global pandemic, modern language teaching, and sustainable professional development for teachers resulted in the need to discuss efficient training and the main issues facing language teachers, more specifically teachers of English as a foreign language, in developing their IT skills, innovation, and creativity in their teaching practices. The researchers chose the case of the EL@N, which is an international cooperative project under ERASMUS + Key-Action 2 Capacity Building between Algerian and European universities funded by the European Union to create a multilingual platform for teaching three languages (Arabic, French, and English). Accordingly, this paper discusses the main issues and impediments facing course designers of the English language online syllabus, in addition to the main causes of the aforementioned hurdles and their effect on the quality of the designed materials.

Despite the fact that the Algerian government has stressed the inclusion of ICTs into education with the 2002 educational reforms (Guemide & Benachaiba, 2012), CALL and the integration of ICT tools are still working their way into Algerian EFL classrooms so that learners cope with the basic requirements of the twenty-first century (Bouchefra & Baghoussi, 2017). The slow advance in this area of Algerian education was mainly because of the teachers' resistance and their tendency to stick to traditional education. Add to that the absence of well-studied and systematic teacher training and the lack of the appropriate ICT facilities that would encourage the shift toward CALL (Bouchefra, 2016). As for the resistance of the teachers, it is highly recommended that stakeholders examine the teachers' attitudes vis-à-vis this form of teaching and introduce it smoothly so that they accept it and adopt it (Sabzian & Gilakjan, 2013). Concerning the importance of teacher training, Kessler (2005) suggests that CALL teacher education should be considered at an earlier stage of pre-service teacher training, arguing that novice teachers join their classrooms without satisfactory formal training and a noticeable lack of autonomy when technology is involved. Therefore, teachers must rethink their teaching and reconsider their traditional roles and be ready to adapt to new and modernized instruction strategies. More importantly, the availability of ICT tools in the workplace and especially in the EFL classroom contributes to the teachers' computer-based teaching mastery which is not limited to their manipulation of the device itself. It is, however, related to the ability to interact with students and create educational products that facilitate language learning (Özsevgeç, 2011). As a step to encourage the use of ICTs in general and CALL for specific, the Algerian ministry of higher education launched a number of projects and cooperation programs with foreign partners to benefit from their expertise and to promote e-learning across the universities. In this regard, the Academic Research Network (ARN) was launched to connect all higher education institutions where later "Virtual Libraries" and "Tele-enseignement" projects were created via this network (Benhamadi, 2002). As an attempt to introduce computer-based education, the ministry launched projects such as "e-learning," "Med-twinning," and "e-link" and worked on providing online lessons and tutorials that enhance the use of ICTs in classrooms with a major focus on CALL (Hamdy, 2007). To emphasize the quality of teacher training, "Tempus-Meda Ide@" was created in collaboration with European universities to promote distance learning (Bouchefra, 2016). The "El@n" is another CALL-based project that was founded to encourage learner-centeredness and facilitate language learning. It requires systematic preparation of the lessons and activities to meet the students' needs and objectives, where the computer is the main medium of interaction. The "El@n" focuses on the learner and minimizes the role teacher. However, the teacher's intervention in situations where artificial intelligence is inefficient is still of utmost importance. Therefore, teacher training, whether pre-service or in-service, must be reconsidered and systematically conducted to better integrate technology in the foreign language classroom, especially in under-represented contexts where challenges and problems are greater than the proposed solutions.

CALL is a prevalent area of importance and research interest to cope with the twenty-first-century digitalization requirement in different fields and, most importantly, education. Therefore, the main research outcomes will help in identifying the main issues faced by course developers in designing online courses on foreign language learning platforms. To achieve this aim, this paper is designed to answer the following research questions:

RQ1. How proficient are course designers in terms of online course development?

RQ2. To what extent did course developers succeed in drawing a link between pre-defined course objectives and material selection accuracy/efficiency?

RQ3. How did course designers respond to the demanding nature of interactiveness (interactive activities and assessment)?

3 Methods

3.1 Research Design

In general, the research aims at finding practical solutions to problems in the field. To do so, it is imperative for researchers to follow a logical, reasonable, and systematic set of steps to ensure the validity and reliability of the research outcomes. Accordingly, the nature of the study and the complexity of the issue at hand dictates we establish research based on a qualitative design. Depending on the research problem and the aim of the study, we opted for the case study design as a catch-all method. This method helps study a specific unit intensively, and this is what the researchers focus on primarily. Furthermore, we opted for a case study as we seek "establishing a framework for discussion and debate" (Yin, 2009, p. 5). As active members of the EL@N project, the researchers took advantage of the meetings and professional gatherings to collect data via participant observation focusing on teachers' performance in CALL and online course design. Also, analyzing teachers' designed courses through content analysis and based on the feedback and training they received was an important segment of this investigation.

3.2 Participants

The EL@N project is an international project that incorporates the efforts of teachers of English, French, and Arabic in Algeria with their counterparts in Europe, France, Italy, Spain, and Turkey who oversee professional development and online course design. The main purpose of the project is to create a platform for teaching languages at language centers across Algerian universities. The participants in this project are all university teachers with former or current experience in language centers. As for our study, we purposively chose (Mertens, 2014) 16 participants who represent six Algerian universities from the total number of 50 project members. The

chosen participants are university teachers (assistant and associate professors) who all belong to the English language and literature departments at their universities (Biskra, Tlemcen, Bejaia, Oran, Ouargla, and Guelma). A total of 10 participants were females, while 6 of them were males. These teachers were trained as online course designers (still in training) and participated in most of the meetings, discussions, and training sessions provided by colleagues from Algerian and European universities who are also members of the project. As mentioned above, the participant observation process took place from April 2020 to December 2021. The researchers in this period focused on eliciting data related to the efficiency of the training sessions as well as participants' attitudes and perspectives on the steps and objectives of the project vis-à-vis their professional development. As for the document analysis, the researchers analyzed the produced courses of English for levels A1–A2–B1 by the participants taking into account specific points such as the adaptability of the designed courses to CALL and the practicality of the activities for modern language learners.

3.3 Data Collection

It is important to note the efficacy of the observation process as a data collection tool in teaching and learning contexts. The clear advantages of observation are still not quite exploited yet in the area of digital skill development, as it is noteworthy that the existing digital skills literature lacks participant observation studies of the lived experience of learning skills (Allmann & Blank, 2021; Smythe & Breshears, 2017). The researchers opted for the participant observation process since they are already active members of the project without neglecting the ethical part of the research. The researchers consulted the issue with the local and national coordinator of the project and were ensured that it was accepted and were also encouraged to share research outcomes for the development of the project. The observation process was organized via an observation grid to specifically observe participants' perspectives, attitudes, and learning development in the natural environment. It started in April 2020 to December 2021 with weekly meetings scheduled for sharing work progress in developing courses, in addition to issues and challenges faced by designers throughout the different steps of online course design. Another point we considered for observation is the participants' post-feedback performance; in other words, the efficiency of the feedback provided for the challenges they faced and the effect on their performance and learning progress. Additionally, two training programs for participants were observed based on the same rubrics of the observation grid. The professional development program was provided by Santiago de Compostela university for the sake of developing participants' pedagogical engineering skills, which is very crucial for this study to discuss. In relation to the objective of the current study, Allmann and Blank (2021) support the use of observation in this research area by claiming that "participant observation captures digital skills in real-life scenarios. This qualitative data adds important nuances to prior, predominantly qualitative analyses of digital skills and suggests ways to rethink the theory of skills" (p. 636).

Document analysis for the designed courses of English is crucial for reaching the research objectives. The researchers analyzed the designed courses in levels A1, A2, and B1 which were the courses developed based on the Common European Framework of References (CEFR) for teaching foreign languages by the end of the observation process. Corbin and Strauss (2008) summarized that document analysis requires that data be examined, then interpreted for eliciting meaning, gaining, understanding, then developing empirical knowledge. This way, the researchers will be able to consolidate and cross-check the obtained data, then ensure triangulation for the sake of the validity and reliability of the research outcomes. The study, through document analysis, aimed at analyzing 36 units designed by participants for the abovementioned levels. The researchers paid more attention to practical issues in CALL, challenges, and technical issues in online course design, participants' performance, and production quality vis-à-vis online course design requirements.

3.4 Data Analysis

Content analysis refers to the process of categorizing verbal or behavioral data to classify, summarize and tabulate the data (Dudovskyi, 2022). In this sense, the data analysis process began with data sorting, data grouping and classification, analysis, and interpretation. By the end of December 2021, the researchers had finished collecting data and grouping the courses produced by participants for levels A1, A2, and B1. Each level consisted of 12 units, and each unit presented three (3) sequences/lessons.

For the collected set of data, we relied on descriptive coding, open coding, then axial coding (Fatorić & Egberts, 2020; Scott & Medaugh, 2017) to analyze the collected data from the observation process since it helped us modifying and editing data through the meetings and training sessions organized for participants; as well as with analyzing the designed lessons.

With descriptive coding, the researchers set three main themes for observation, which are: participants' IT skills, continuous professional development in CALL, and the organization of the training. As for content analysis, the main focus was the efficiency of the training, its effect on participants' IT skills and online course design strategies, and the practicality of designed courses vis-à-vis CALL requirements. Open coding helped more with clarifying and detailing data by creating subthemes for each of the three main themes set for observation. As an example, the researchers sorted out several subthemes throughout observation for the organization of the training, such as the physical professional context, materials provided, participants' attitude toward the work environment, and the availability of a working platform for practicing online course design. The same goes for designed course analysis. As an example, the researchers developed subthemes for the efficiency of the training sessions, such as the application of the learned strategies, the adaptability to online course design, and the compliance of designed lessons to online learning management systems. Lastly, axial coding was opted for to sort out and compare data in the form

of themes and subthemes, then determine the recurrent ones that are more salient in both sets of data. It is worth noting that the themes and subthemes stated in this section are developed from single or multiple lexical units for the sake of elaboration, as we are aware of the conventional coding systems in qualitative data analysis.

4 Lessons Learned

4.1 Participant Observation

The El@n project began with a considerable number of online meetings and video-conferences with the project coordinators using Zoom in order to share the steps of the whole process of creating the languages platform and exchanging different perspectives between partners. The designers faced the following problems.

Technical Issues

The technical issues had an impact on the continuity and the smooth transition between the steps of course design for both project members and coordinators. Several members could not attend online meetings because of their teaching duties and the absence of a reliable internet connection at their workplaces, while others faced the same issues even at their homes. This created many issues such as misunderstanding of assignments, gaps in work progress between members, and the inability to share issues on time and solve them efficiently as a group.

The Absence of a Working Platform (Learning Management System)

One of the most impeding issues that the first and second authors, as a member of the project, pointed out during the project members' meetings is the absence of a platform for practice. The project coordinator focused more on creating materials for the online course without paying attention to the compatibility of the materials with both educational platforms and effective online teaching. It is worth mentioning that the project, theoretically, has a platform that is not developed yet up to the minute we are writing these words. The IT team of the project was supposed to have training with the European partners to create the platform. As this did not happen yet, the course designers find themselves currently selecting and creating materials such as videos, texts, and activities and pasting them as hyperlinks and citing sources in word files, which contradicts online teaching and learning and CALL. In essence, we have found that most of the selected and developed materials are not compatible with online courses and are not quite efficient due to the absence of the platform itself, which made designers basically design courses for conventional face-to-face teaching without the use of any e-tools. As a result, this procedure was not of any help for the technology-driven educational process that the project is based on.

Teachers' IT Literacy

Discussing teachers' IT literacy in our context (Algeria) is an interesting, lengthy, and exhaustive subject. In relation to the next section, there was a clear loophole in the project that would have led it toward failure, which is IT literacy. There was no IT literacy requirement for choosing members for this project; accordingly, project managers anticipated this and planned for training with project partners to develop designers' IT skills. However, the training did not take place at the beginning of the project. It was planned for the second and third years, but then it was postponed due to the global health situation. This has led designers to work for nearly eighteen months on selecting and developing materials for levels A1, A2, and B1 before receiving any training, and therein, we discovered the problem with IT literacy. Even if using computers appropriately for educational purposes seems to be of paramount importance (Overbaugh, 1993), course designers struggled with different tasks, especially the ones related to selecting appropriate material sources, adapting them to the preassigned learning objectives, and using e-tools to create or modify activities and communicative assignments.

Deficiencies in the Training Program

During the second year of the project (2020/2021), the designers of the English language courses were supposed to take an on-site training program with European partners to develop their IT skills and be more familiarized with IT tools. Again, due to the COVID-19 pandemic, the training was altered to take an online mode with a limited number of post-conference assignments. Based on the designers'/teachers' feedback, the training was not as helpful as expected due to several concerns. First, the training program was designed to be an on-site training with the supervision of IT and pedagogy experts, which did not give a chance for trainees to interact efficiently with their trainers; therefore, there was no adaptation of the program to the new online mode. The second concern for the trainees was related to the heavy load of meetings/videoconferences in a short period of time, which did not help them conceive the information provided for them. This is also related to the teachers' busy teaching schedules that were not taken into account by the project coordinators, which resulted in some absentees. Finally, the content of the training program consisted of classroom management and cultural aspects of language teaching which was not what designers lacked or needed. As for the technical part of the training, the e-tools and the software provided by the trainers were not very encouraging and helpful for trainees for three main reasons: either they were too complicated and could not be managed by trainees on their own, the tools were not available for designers (paid tools), or they were not efficient and not adaptable to teaching foreign languages online. Consequently, the trainees were not very satisfied with the lack of organization and efficiency of the training.

Teacher Development Before and After "Compostela" Pedagogical Engineering Training

The course designers, by the end of the training, resumed their course design tasks. One of the main issues discussed earlier, which is the unavailability of a platform, remained problematic for material display. During the training, the designers had the chance to attempt a few activities on the European partner's Moodle platform as a learning management system. Amidst the end of the training program, trainees were advised to practice designing courses on their university's Moodle platforms. There were two main issues. Designers still could not design any courses or use e-tools to design materials for their students. Second, the e-tools and software they used during the training, such as H5P, a content collaboration framework for the creation and sharing of interactive HTML5 content, were not available on their university's platforms and to be able to use such interactive tools, they had to buy a premium subscription from the official website, which they did not. To sum up, what has been noticed after the training was not encouraging as researchers did not notice any considerable development neither in the course design process nor in the creative selection and development of teaching materials. Therefore, the training program was not helpful for trainees because they kept working on their courses in a similar manner as before they took the training.

4.2 Document/Content Analysis (Critical Analysis of Designed Courses)

Having obtained data through participant observation, it was important to confirm the research findings using a critical analysis of the designed courses in order to identify the challenges that course designers faced and highlight the reasons behind their slow advances in this area of teaching. The focus was on the following.

Teachers' Failure to Adapt to Online Course Design

The course designers were provided with a lesson plan template where lessons are presented in the form of units, every unit covers 03 sequences, and each sequence is divided into two main entries (Oral and Written). Taking into account that every level contained 12 units, the oral and written entries contained the same rubrics, but the focus was on listening and speaking in the former while it was on reading and writing in the latter:

Oral/written comprehension

Language aspects (vocabulary, grammar, and pronunciation)

Sociocultural competence

Final tasks

After an examination of 36 units of the three levels (A1–A2–B1), we concluded that the majority of the teachers' failed to adapt to online course design and their lack of experience was highly noticeable. The teachers' failure was apparent in the activities they designed and in the ways, they addressed the learners. This failure can be justified by the following:

The Influence of Traditional Face-to-Face Teaching

All the selected teachers for the project have never experienced any online or CALL-based teaching before the outbreak of the pandemic; therefore, most of the activities they designed were of a face-to-face nature. Moreover, unawareness of asynchronous online teaching was seen in most of the activities that stressed the presence of the teacher.

The Absence of Practical On-Site Training

The teachers' lack of experience and the absence of practical training before the phase of designing lessons and activities led to a mismatch between the idea and objectives of the project and the way the activities were presented.

The Pre-defined Objectives (Unrealistic) Cultural Aspect

Another obstacle that disturbed the teachers' progress when designing lessons was the pre-defined objectives that were set by the pedagogical managers of the project. The main issue here is that all the pedagogical managers of the project are teachers of French, their main role was to prepare the skeleton and the objectives of all units at all levels, and thus, everything was conducted in the French language. This served as a demotivating factor and obstacle for the teachers of English who were obliged to follow the suggested plan. The concerned teachers faced lots of difficulties as they tried to meet the pre-defined objectives of the lessons when designing activities. The EFL teachers were limited to build upon the ideas that were constructed in French in the first place and which seemed, most of the time, to be unrealistic and hard to meet the sociocultural competencies and the final tasks that the learners are expected to be able to do by the end of the lesson. Moreover, the pre-defined objectives were meant to be achieved in every single activity throughout the whole unit, which made it extremely challenging for teachers to find appropriate pedagogical oral or written material that would help both learners and teachers to reach those objectives.

Material Selection and Development

On the one hand, the EL@N project is purely based on CALL, while on the other hand, we have inexperienced specialty course teachers who are not used to teaching the English language to beginner-level students. The process of material selection and development was a real burden. Having examined the designed lessons at different levels, we found out that in addition to the teachers' lack of online teaching experience, they do not have enough teaching knowledge when it comes to teaching EGP courses to beginner-level students. More importantly, we noticed that teachers' inability to adapt to online teaching affected the process of material selection, where the results tend to work better with traditional face-to-face classes rather than online

platforms in terms of learnability, frequency, coverage, and usefulness vis-à-vis the language points being introduced to the learner. Add to this the fact that the majority of teachers relied on ready materials available on YouTube and other language teaching websites and platforms; here, we can open a bracket and highlight the copyright issues that may face the course designers and the EL@N project. Therefore, some teachers resorted to developing materials by themselves in the form of audio recordings, videos, and texts. After a careful evaluation of the developed materials, we could state that the developed material lacked authenticity and linguistic accuracy, as well as a weak degree of online learnability.

5 Discussion

The experience of the EL@N project gave the researchers the opportunity to explore the Algerian EFL teachers' weaknesses in terms of CALL-based teaching and their reluctance to shift toward modernized teaching approaches that involve ICT tools. All these factors contributed to the teachers' inability to adapt to online course design and 21st-century digital generation requirements.

The researchers' participant observation and the critical document analysis revealed very important facts about CALL teaching in the context of Algerian higher education. The principal issue is related to the total absence of CALL-based teaching in EFL classes and the teachers' resistance toward attempts to shift to blended learning or integrate ICT tools to facilitate distance education. The EL@N course designers showed limited knowledge about CALL and weak IT literacy levels. The teachers' unawareness and misconceptions about CALL as well as the unavailability of the necessary IT material in the language classroom, contributed strongly to delay the integration of such a modernized teaching approach. Some individual timid attempts to integrate CALL in EFL classes are reported; however, they do not rise to the expectation of the twenty-first-century digital generation.

Based on the analysis of the available data, a lack of systematic teacher professional development in the area of distance education and CALL is reported. Despite the fact that the ministry of higher education has stressed and encouraged blended learning even before the outbreak of the pandemic, what has been observed and reported does not meet its objectives and expectations. Furthermore, the absence of CALL-oriented teaching in the language classrooms led to the lack of experienced teachers who would share their knowledge and train other teachers. The shortage of experienced teachers necessitated the adoption of an alternative policy represented in international cooperation projects such as EL@N. The latter carries the notion of pedagogical engineering that is the result of the investment in the combination of subject teaching knowledge and IT literacy. The main objective of the project is to train teachers who would accompany and share their experience about the different methodologies of online foreign language teaching with their colleagues.

The results obtained from the current study summarize the main issues faced by course designers in selecting and developing materials for the multilingual platform of teaching foreign languages. These issues are mostly related to the gap between theory and reality; in other words, what the project dictates and how the actual course design practice operates. Additionally, the struggle of designers with material selection and development of software and practices reveals deficiencies in IT literacy and computing proficiency within the sphere of EFL teachers' professional development.

Regarding the implications, the main proposed implications focus on course designers' IT literacy and their need for technology-driven education training through the application of CALL. The following points represent the main recommendations proposed by the researchers to develop course designers' skills for the overall success of the EL@N project.

5.1 Creation of the EL@N Platform for Training Designers to Operate on It

It is high time the project coordinators provided the designers with the platform. The learning management system is highly needed as designers need to comply to CALL and make sure the asynchronous teaching process is provided via reliable and teachable materials rather than designing them on a Microsoft Word file and then finding more problems to adapt it to a platform that is not available yet. Course designers must also take courses and get used to platforms, preferably taking roles both as teachers and as learners to build their knowledge of online teaching procedures and challenges.

5.2 Trained for Online Course Design, Online Material Selection/Development, and Using Tools and Software

As observed, a number of software and e-tools might not be available for designers in this specific context or might even be paid versions that designers cannot afford. This cannot hinder the development of the project and break the process of creating the language learning platform. Designers must find alternatives and try other types of software and e-tools to develop their materials. There is a large number of educational e-tools that are open-access and free of charge. Teachers must share and try different tools and build their own electronic tool-shed in order to create valid, learnable, adequate, and interactive teaching materials that are adaptable to their working platform and learners from different backgrounds.

5.3 Introduce Teachers to Their New Role as Pedagogical Engineers Rather Than Mere Language Teachers

The materials checked by the researchers and their adaptability to educational platforms raised many red flags given the inadequacies noticed with the materials themselves and their quality vis-à-vis modern computer-based language learning. As shared in the desk-based section where researchers critically analyzed the designed courses, a large number of materials were neither adaptable to online learning nor efficient as far as language assessment is concerned. The creativity and interactiveness of educational materials, be that in the form of input materials such as texts and videos or practical activities, were not ensured and many materials lacked both requirements; that is, minimum creativity and no interactiveness. As a result, designers need to be adapted to their new roles as pedagogical engineers and online course designers rather than mere language teachers.

5.4 Continuous Professional Development, Feedback, and Cascading New Knowledge

There is an incredibly fast pace of development in regard to information and communication technologies and computerized operations nowadays. The educational part is no exception, especially in teaching foreign languages throughout CALL. Accordingly, teachers, practitioners, and course designers must stay up-to-date and develop professionally at a steady pace as well since technology often acts as a facilitator toward a simpler and more efficient operations guide in language learning. Additionally, language course designers are encouraged to enroll in teacher education and professional development programs without neglecting the benefit of exchanging information and peer feedback. On the same train of thought, cascading new knowledge and sharing information between colleagues can be very helpful in saving much more time and effort in learning more about CALL operations, given the specificity of the Algerian context and the several impediments faced by Algerian educators, mostly in relation to technical issues. In summary, teacher training, professional development, equipment, finances, and infrastructure are among the main issues impeding educational development in these countries.

6 Conclusion

In summary, this novel study considering the underrepresented context and the new teaching mode in both the national and regional spheres revealed critical and imminent issues that need to be discussed further and addressed systematically. The EL@N project's objective to create an online multilingual platform is representative of online

teaching and learning of foreign languages in Algeria. Furthermore, the current study sought to examine the use of CALL and the different issues faced in developing online materials for EFL courses through the aforementioned project. Add to that the reality of online course design in this context and the sources of problems designers face in this relatively modernized mode of education, more specifically, teaching foreign languages.

Some of the broad conclusions drawn from the results exposed the reality of EFL course design throughout several impediments designers faced in developing online courses, especially in material selection and development. The designed materials for levels (A1, A2, and B1) revealed the overshadowing of face-to-face material selection on both the selection and development of online materials. The researchers noticed that most of the activities and tasks might not be quite compatible with educational platforms. The materials lacked both creativity and, most importantly, interactiveness. Designers relied on ready-made materials they selected from different websites and platforms and usually failed to draw a link between the learning needs and objectives of the courses. This resulted in ineffective educational resources caused by IT and CALL illiteracy. Another problem we have noticed is the ineffectiveness of the online training taken by designers for pedagogical engineering. The members of the EL@N project faced several technical issues and failed to meet the training's expectations due to their inability to grasp the presented ideas and techniques online; thus, on-site training was more than a necessity given the aforesaid IT/CALL illiteracy datum. Ultimately, the inadequacy of the training was clearly noticed by the researchers through the designed materials after the training, where they did not observe any development or change in the designed materials. As a result, professional development related to IT and CALL literacy is more than needed; however, only if applied appropriately, serves the professionals' needs, and targets their weaknesses vividly in relation to the task at hand, i.e., developing online resources for an educational platform.

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Part V
Voices of Researchers and Research

Chapter 27
Professional Standards in CALL Teacher Training in Vietnam: Towards an Ecological Approach to CALL Integration

Paul J. Moore, Giang Hong Nguyen, and Quang Vinh Nguyen

Abstract Vietnam's National Foreign Languages Project (NFL) is a far-reaching national initiative that aims to develop national policy and practice in foreign language education, with a strong focus on the English language, as well as the use of emerging technologies in the teaching of languages. As an under-represented context in CALL literature, Vietnam provides the international research community striking insights into attempts at CALL integration and its links to national educational development and economic growth, from macro-level policy development to meso- and micro-level implementation, in all its complexity. In this chapter we explore contexts of ICT integration into Vietnamese educational policy, methodology, and practice, from a sociocultural ecological perspective, highlighting tensions between a desire for autonomy and technological and pedagogical innovation on one hand, and existing top-down structures and historically embedded educational practices on the other. After a brief discussion of the relevance of competency-based education—with a specific focus on technology standards—we provide an in-depth analysis of Vietnam's aspirational (and expensive) educational, language, and technology policy frameworks, highlighting challenges related to the borrowing of policies developed in other contexts, and top-down, across-the-board methods of implementation. We then explore, at the micro-level, challenges for CALL integration in language teacher education in ICT, in the specific context of *Public University* (PU, deidentified). Drawing on our reflections on PU's policy-driven implementation, and recent research literature into CALL integration, we conclude with a set of contextualized principles aimed at sustainable CALL integration at the micro-level, while acknowledging the existing meso- and macro-level requirements, aspirations, and challenges.

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Keywords Technology standards · Information and communication technologies (ICT) · Computer-assisted language learning (CALL) · Teacher education · Vietnam · English as a Foreign Language (EFL)

1 Introduction

Vietnam's National Foreign Languages Project (NFL) (Government of Vietnam, 2008, 2017) is a far-reaching national initiative that aims to develop national policy and practice in foreign language education, with a strong focus on the English language. A major part of this initiative has been a large-scale train-the-trainer professional development initiative aimed at the integration of ICT into English language teaching and learning across sectors (Ministry of Education and Training [MOET], 2014a; Nguyen, 2018a, 2018b). This approach has been marked by attempts to adopt standards developed for and in other contexts, like the Common European Framework of Reference for Languages (CEFR) (Ngo, 2021). A similar approach is commonly taken in research into computer-assisted language learning (CALL) integration, whereby researchers appear to uncritically adopt a well-known set of standards or a framework with little discussion of the relevance of these to the specific contexts of the research. In teacher training practice, it has been noted that a primary focus on technological tools has been taken at the cost of a pedagogical focus on the sustainable integration of technologies into curricula (Nguyen, 2018a, 2018b).

From an ecological perspective, this chapter explores challenges in the integration of technologies into language teaching practice in the context of the teaching strand of an undergraduate languages program in Vietnam. We first provide a historical overview of the NFL—including its aims, aspirational and actual outcomes (intended and unintended)—and its relevance to the higher education sector and *Public University* (PU, deidentified) and language program at the center of our ongoing research. Drawing on van Lier's (2004) ecological approach to SLA (see also Douglas Fir Group, 2016) and Gruba's (2021) argument for a contextualized principles-based approach to sustainable CALL integration, we then evaluate state policy at the macro-level and its implications for institutional and departmental policy and curricular decision-making at the meso evel, with a view to developing realistic and sustainable approaches to teaching trainee teachers about sustainable CALL integration at the micro-level. Based on our analysis, we extrapolate principles for sustainable CALL integration, relevant to language-teachers-in-training in the current context, with advice for teacher-educators in similar contexts.

2 Technology Standards and Under-Represented Contexts

In his recent discussion of the TESOL Technology Standards for teachers (TTST; TESOL, 2008), Hubbard (2021) asks the question "are they still relevant?", given

that they have not been formally revisited in over a decade. But relevance is contextually determined, and some have questioned whether the "standards" movement, as reflected in competency-based education (Murphy-Judy & Youngs, 2006; Richards & Rogers, 2001), is a universally appropriate approach to the myriad contexts of second or foreign language teaching and learning around the world. Competency-based language teaching involves breaking broader language-based (or professional) goals into specific, objective, measurable, and modular outcomes (Richards & Rogers, 2001). Within this broader movement, the creators of the TTST drew on broader sets of standards to provide benchmarks for the integration of technologies into language teaching and learning (Healey, 2018). The emphasis for the TTST was on demonstrating knowledge and skills for the sustainable, creative, and effective pedagogical integration of technologies and on "supportive rather than punitive" (TESOL, 2008, p. 4) professional development.

On the positive side, The TTST and supporting documentation (Healey et al., 2011) provide comprehensive expert advice for teachers across a range of contexts. And as Hubbard (2021) describes, the "can do" statements (performance indicators) are relatively amenable to adaptation, and the standards publications themselves remain relevant as a tool for continuing professional development, if in need of updating. It must be recognized, however, that there are several challenges in implementing standards in any context. These generally relate to mismatches between the intentions of the designers and the interpretations of those involved in implementation. Kessler (2016, p. 67) observes that "[a]ll standards projects are likely to face a healthy amount of suspicion or skepticism. After all, standardizing anything can be seen as controlling or stifling the creativity of those teachers involved." He argues that a mix of well-designed standards and allowing flexibility for individual teachers in their specific linguacultural and institutional contexts is key to meeting "unique situational needs" (p. 67). In the remainder of this chapter, we seek to complexify the macro-, meso- and micro-level contexts of technological integration into the professional development of language teachers in the context of Vietnam.

3 The Under-Represented Context: Technology and Language Teaching in Vietnam

3.1 Regional Economic Integration and the Role of English Proficiency

Since the introduction of the *Doi Moi* (literally "restoration") Socialist market economy policy in Vietnam in 1986, the country has experienced intense economic growth. National economic and trade initiatives led to Vietnam joining ASEAN in 1995, as well as the ASEAN Economic Community (AEC) in 2015 and the Trans-Pacific Partnership Agreement in 2016, all of which are aimed at regional integration and open trade within an expanding list of member nations within the region

and beyond. Nonetheless, significant challenges remain for Vietnam in terms of human resource development and the preparedness and qualifications of its workforce. Importantly, integration into the regional and international economic communities rests on the English language proficiency of Vietnam's workforce (Dudzik & Nguyen, 2015).

The English language has long been seen as an essential tool for integration among ASEAN members, as represented by its status as the official working language of the AEC (Nguyen & Mai, 2018). As Stroupe and Kimura (2015, p. 4) note, "English language proficiency and the ability to use English to develop and make use of technical, business, and negotiation skills are areas in which capacity is being enhanced for the successful implementation of the AEC."

Many AEC members, including Vietnam, do not have a history of using English as a community language, leading member nations to implement significant language policy reforms, supported by vast public funds, over the past few decades (Kirkpatrick, 2011). In the case of Vietnam, English is now the main foreign language taught and is a compulsory subject from primary school, Grade 3 (Government of Vietnam, 2008). Thus, the enhancement of English proficiency in Vietnam's workforce has been inexorably linked by the government to the success of the country's integration into regional and global markets (Ngo, 2021).

3.2 Policy Background: Reforms in General Education (1996-Present)

Two major general educational reforms have been announced by the Vietnamese government over the past 25 years (Government of Vietnam, 1996, 2013), changing the face of the Vietnamese education system. The first, aimed at the strategic development of the education and training sectors, led to the development of a national education and training system encompassing all levels of education (Government of Vietnam, 1996). In 2013, it was decided to extend this initiative, in order to achieve the government's target of making Vietnam's education system one of the most advanced in ASEAN by the year 2030 (Government of Vietnam, 2013). The 2013 resolution, in particular, aims for "fundamental and comprehensive reform" of all areas of education, from policy to implementation, including educational theory, course objectives and content, and classroom teaching. This involves the promotion of institutional autonomy (discussed below), as well as innovation in teaching and learning, with an explicit focus on the principled use of information and communication technologies (ICTs). The resolution also recognizes the need for the professional development of teachers, to enable such curricular innovations to succeed.

3.3 Challenges in the Devolution of Autonomy to Educational Institutions

One of the highlights of the 2013 resolution (Government of Vietnam, 2013) was the devolution of autonomy to educational institutions. Although the principle of autonomy is clearly stated, there has been little progress in the handover of educational management mechanisms from state agencies to educational institutions. State agencies and institutions remain intertwined in a top-down centralized system with a history of top-down decision-making. Figure 1 provides an overview of the structure of the existing centralized model.

For the purpose of our argument, we consider the macro-level of this reporting structure to include national policy-making agencies, including the Government, MOET, and other relevant Ministries, Departments of Education, and Training in cities and provinces. The meso-level (institutional level) includes leaders of educational institutions, faculty deans, and heads of academic divisions, who are involved in interpreting government policy and creating institutional educational and curriculum policies, while reinforcing the cultural-historical top-down nature of the policy enforcement. At the micro-level, teachers are then responsible for interpreting policy and curricular decisions made at higher levels into effective teaching learning and assessment activities in the nation's classrooms. In such a system, it could be argued that attempts to enforce a policy of autonomy at the macro-level can be scuppered by long-established cultural-historical practices enmeshed in the system from which such a policy has emerged (Moore, 2022).

In Vietnam, autonomy in general pre-tertiary education is only partially practiced. The central government has determined what the "fundamental and comprehensive reform" of education and training entails and how it should proceed (Government of Vietnam, 2013), while MOET determines (Circular 32/2018/TT-BGDDT, 2018) has developed subject curricula and educational activities to implement central educational reforms across the country. Regarding English language teaching, it is expected that, by 2025, all students from Grades 3 to 6 will follow a 10-year foreign language curriculum (Government of Vietnam, 2017).

In addition, the amended Education Law No 43/2019/QH14 regulates the implementation of a unified curriculum across the country with different textbooks under a policy of socialization of textbook development (Education Law, 2019). In conformity with Circular 32 (MOET 2018, cited above), a National Textbook Evaluation Council, established by MOET, is responsible for the evaluation and approval of textbooks. The Minister is responsible for prescribing standards and procedures for developing and editing textbooks, approving the textbooks for use, and developing textbook selection regulations. Locally developed educational materials are then appraised by provincial-level textbook appraisal councils under the direction of the president of each province's People's Committee (Education Law No 43/2019/QH14, 2019).

In contrast, the tertiary sector enjoys more autonomy, with university autonomy defined in five areas, as enacted by the Higher Education Law No 08/2012/QH13

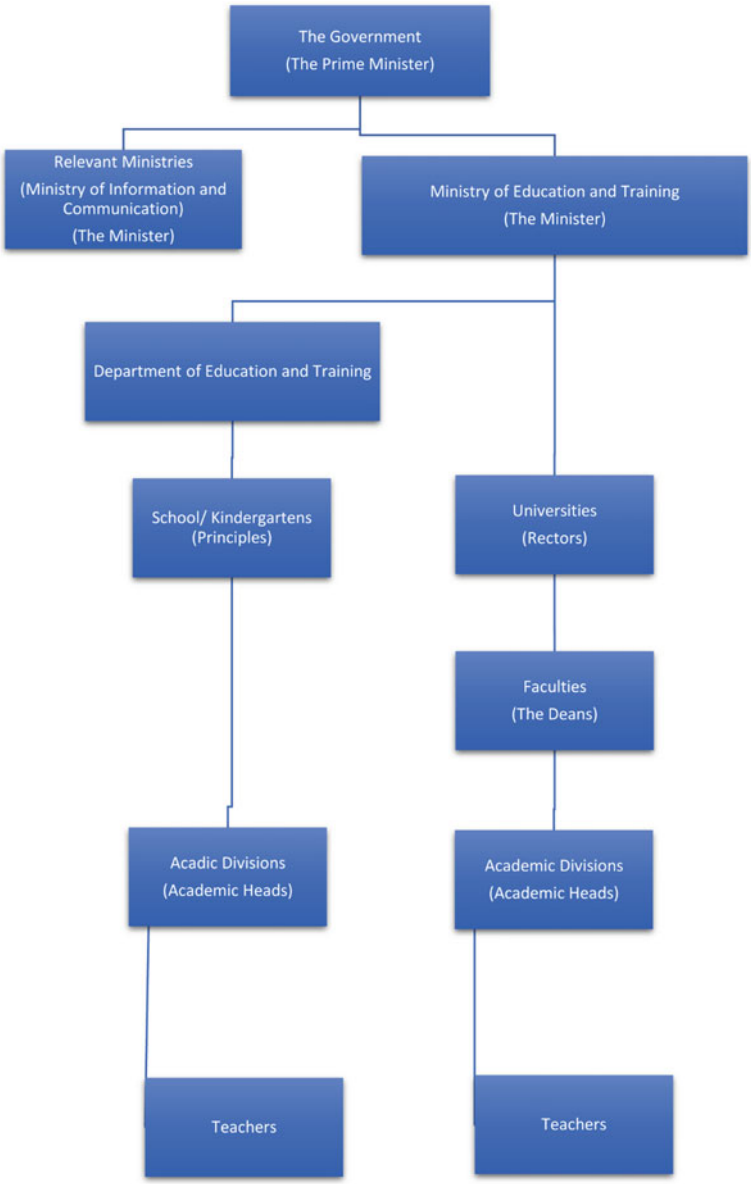

Fig. 1 The reporting structure of Vietnam's education system

(2012). These include autonomy with regard to (i) institutional organization and personnel, (ii) finance and assets, (iii) training, science, and technology, (iv) international cooperation, and (iv) quality assurance of higher education. Universities covered by the Higher Education Law are free to develop their own (professional development) curricula for accreditation by MOET, under point (iii) above. Under Circular No. 17/2021/TT-BGDĐT (MOET, 2021a), regulations on curriculum standards are introduced to help higher education institutions develop, appraise, approve, implement, evaluate, and improve their curricula. Embedded in this system is the expectation that universities develop and implement internal quality assurance systems, which are then open to external auditing against MOET's accreditation standards.

Given the central importance of the English language to Vietnam's *Doi Moi*, we now turn to a discussion of the impact of Vietnam's language policy over the period discussed above.

3.4 The National Foreign Languages Project 2020 (NFL)

It is apparent that the goals of Vietnam's education and training reflect the ambition for the ASEAN 2015 integration, especially in the areas of international integration for education, science and technology, and economic development. In response to the major government decision to build national foreign language capacity, Decision No.1400/QD-TTg, entitled "Teaching and Learning Foreign Languages in the National Educational System, 2008–2020" (Government of Vietnam, 2008), was issued to address Vietnam's competitive advantage through foreign language capacity. In 2010 the NFL 2020 management board was formed to implement the project's tasks under MOET.

This reform aimed to address two major issues: first, after having learned English for seven years, from Grades 6–12, Vietnamese children remained unable to communicate effectively in English (Le, 2015); and second, the teaching of English being traditional, test-oriented, and focused on the development of vocabulary and grammatical skills, was unlikely to have an impact of the development of communicative language proficiency (Le & Nguyen, 2017).

The goals of the project were as follows:

(1) to comprehensively reform foreign language teaching and learning throughout the national education system; and
(2) to implement new foreign language teaching and learning programs at all levels of education and training.

Its objectives were:

(1) by 2015, to advance foreign language proficiency of Vietnam's workforce, especially in a number of priority fields;

(2) by 2020, to ensure that young graduates of secondary and tertiary institutions have the ability to use foreign languages independently and confidently in communication, study, and work in multilingual and multicultural environments (Government of Vietnam, 2008).

NFL 2020 can be seen as the most ambitious attempt in Vietnam's history to reform its education system (Le, 2015), with an investment total of over 9,000 trillion Vietnamese Dong or US$400 million (Government of Vietnam, 2008). Two significant outcomes of the project so far include the Foreign Language Competency Framework for Vietnam (CEFR-VN) (MOET, 2014c); and the Standardized Test of English Proficiency (VSTEP) (MOET, 2015), itself based on the CEFR levels. Nonetheless, the success of the program has been limited (T. Nguyen, 2017), with researchers criticizing the wholesale adoption of the CEFR (Ngo, 2021), and so-called "one-size-fits-all strategies," such as the adoption of a standardized test of English proficiency and ineffective teacher training strategies (Le & Nguyen, 2017). As part of NFL 2020, thousands of English language teachers across Vietnam were tested via the VSTEP, with 80% of teachers failing to meet the benchmark set by MOET. While a large proportion of the NFL 2020 budget was dedicated to teacher (re-)training in language pedagogy, as well as developing language proficiency, the training itself has been criticized on several levels. For example, language proficiency courses were problematic in that they were more focused on language test preparation than proficiency development (Dudzik & Nguyen, 2015), and courses in language pedagogy were judged as ineffective, partly because the educators were university lecturers whose experience was mismatched to the teaching contexts of the trainees, meaning their understanding of English language teaching in pre-tertiary contexts was limited (Ngo, 2021).

Acknowledging the weaknesses of NFL 2020, the Government extended the project for the period of 2017–2025 (Decision No. 2080/Q-TTG; Government of Vietnam, 2017) with seven adjusted and extended goals. Notably, these goals include extending English language learning beyond formal curricula and contexts and language socialization, including promoting learning in family and cultural activities. The second of the seven goals specifically addresses the incorporation of ICTs for communicative language teaching and learning:

> Goal 2. Promote the application of advanced technologies in teaching and learning foreign languages via electronic learning systems so learners can learn foreign languages and access native languages anytime, anywhere, by any means—especially in developing listening and speaking skills.
>
> Government of Vietnam (2017)

As such, the revised goals underscore the need to develop teachers' capacity to apply advanced technologies in English teaching and learning.

4 Technologies and Educational Policy

4.1 Technologies and Education in Vietnam's National Policy Framework

As with the educational policies above, the government plays a key role in developing and implementing ICT policy in education, providing further evidence of the vigorous culture of centralism in decision-making in all fields in Vietnam (Hayden & Thiep, 2010), aimed at boosting the socio-economic status of Vietnam (Vo, 2019). One such policy is the National Digital Transformation Program to 2025, in which education is identified as one of eight priority areas; the others being health care, banking and finance, agriculture, transportation and logistics, energy, natural resources and environment, and industrial manufacturing (Government of Vietnam, 2020). Proposed educational initiatives under this policy include: developing distance learning platforms, incorporating technologies in management, teaching, and learning; digitizing curricular documents and textbooks; building platforms for sharing resources; and developing educational technologies that support individualized learning (Government of Vietnam, 2020).

This was followed in 2022 by an ICT policy specifically dedicated to the education sector, to be implemented from 2022–2025, to promote ICT and digital transformation in education (Government of Vietnam, 2022). Objectives for this project were categorized into five main groups as presented in Table 1.

As observed by Peeraer and van Petegem (2012), past policies aimed at the enhancement of ICT use have effectively supported education reform in Vietnam, both in the development of the nation's technological capabilities and as an important pedagogical tool for the development of innovative teaching methodologies. At the operational level, MOET delivers a range of formal decisions, circulars, action plans, and annual guidelines to implement this policy.

Table 1 Major objectives of the project for promoting ICT and digital transformation in education 2022–2025

Major tasks and objectives	Improving conditions to ensure the application of information technology and digital transformation in education and training
	Developing an ecosystem of digital transformation for teaching, testing and assessment, and research
	Implementing an education management system and educational database
	Capacity building for teachers, administrators and learners; improving Human Capital Index (HCI) for e-government
	Mobilizing resources to participate in the application of information technology and digital transformation in education and training

4.2 ICT in Foreign Language Teaching and Learning

As noted above, the incorporation of ICTs in language education is seen as central to improving the quality of foreign language teaching and learning in the context of NFL 2020 (Government of Vietnam, 2008, 2017). In addition, recent research has reported that the incorporation of ICTs into language classrooms has resulted in improvements in communication, feedback, and resource sharing (Le, 2021). At the same time, however, there are continuing systemic issues which prevent across-the-board uptake of ICT use by teachers, including a lack of ICT resources, contextualized support, and effective training, meaning that many teachers are simply not equipped with the skills or resources to implement ICTs effectively in their classroom teaching (Nguyen, 2018a, 2018b).

5 Standards and Frameworks in Vietnamese EFL

5.1 ICT Standards at the Macro-, Meso-, and Micro-Levels

The role of ICT in language education in Vietnam is perceived differently at different levels. Integrating ICT into language education, including pre-service EFL teacher education, follows a top-down administrative process involving three levels of control: government policy (macro) level, institutional (meso) level, and individual (micro) level (Vo, 2019).

At the macro-level, policies about technology standards introduced by the Government and its ministries are diverse and integrative. Technology standards are integrated into professional standards for teachers of different levels, including foreign language teachers (e.g., MOET, 2020, 2021b). These circulars specify professional standards for teaching staff in public childhood education, primary schools, secondary schools, teacher training colleges, and higher education institutions, and technology standards are included as one component of the professional standards. Notably, technology standards for teachers in these documents are generally and simply stated as being capable of applying ICT in fulfilling all duties of the teacher, such as teaching, assessment, and administration. Such a simple statement opens an opportunity for institutions to either adopt a ready-to-use technology standard or set their own standards in training and recruiting teaching staff.

At the meso-level, the lack of clear guidelines for embedding technology into training programs, coupled with different institutional visions, results in diverse policies regarding technology standards. Institutional leaders are responsible for interpreting national policies and translating these policies into directions for implementation in their organization (Vo, 2019). As a result, criteria regarding ICT application and technology standards differ from institution to institution. Leadership, investment, and support for the implementation of technologies vary from institution to institution, depending on each institution's vision and policy framework (Peeraer &

van Petegem, 2012). Some institutions, especially private colleges and universities, have their own standards based on guidelines and standards set by the government. Others have adopted or adapted existing standards, such as the UNESCO ICT Capacities Framework, for integration into their education plans (Le, 2019).

At the micro-level, teachers and their classroom-based practices are subjected to top-down policy, especially from the meso-level. Therefore, institutional guidelines and policies strongly influence the application of technology in the classroom. In addition, as outlined above, where teachers and students are ready to experiment with new technologies, a large number of teachers do not have sufficient ICT skills to implement these new ideas, and government-sponsored professional development courses are limited in meeting teachers' and learners' needs at the micro-level (Nguyen, 2018a, 2018b).

5.2 Teacher Education in ICT in English Language Teaching in Vietnam

As required by MOET, pre-service EFL teachers need to meet basic competency requirements. Apart from content knowledge, English language proficiency, English teaching pedagogy, the ability to understand learners, professional attitudes and professionalism, and capacity for professional development, the teachers in training need to know how to exploit ICT to support English language teaching and learning (MOET, 2014a).

Teacher education in ICT in English language teaching in Vietnam has been influenced by top-down policies (Peeraer & van Petegem, 2012). Many national initiatives have been launched focusing on developing teachers' ICT application competencies (Nguyen, 2018a, 2018b). For example, the largest-scale course on ICT in English Language at the national level, the ICT Competencies Development Program in 2014, attempted to prepare the core force of 834 teachers of all levels across the country to implement the project of fostering ICT application competencies in English teaching (MOET, 2014b). The course was designed in alignment with the first trial ICT Application Competency standards for English Language teachers. The proposed standards included teacher training in using basic ICTs, application of ICT to ELT, using technology to store, respond, and assess learning outcomes, and using technology to improve communication and collaboration in ELT.

ICT training in institutional planning is considered essential for teacher-educators and future teachers. ICT training is often limited to basic skills like teaching how to use ICT tools or search for information on the Internet (Peeraer et al., 2009). At the institutional level, ICT training in Vietnamese EFL teacher education programs aims to prepare pre-service teachers with technology knowledge and skills in EFL teaching at basic and advanced levels (Vo, 2019). At the basic level, a basic ICT Application course, which is required for any institution, is designed to prepare pre-service teachers to meet national basic ICT standards, as guided by the Ministry of

Information and Communication. Higher education institutions are responsible for the development and delivery of course content in order to help pre-service teachers to achieve the basic ICT competence standards. Basic courses teach essential skills in word processing, the use of spreadsheet and presentation software, and web browsing and communication. At the advanced level, the ICT Application in ELT aims to provide in-service teachers with advanced ICT knowledge for developing an online language course. This includes the use of ICT tools to design lesson plans, teaching materials and assessment and testing (Vo, 2019). However, the implementation of ICT policies is heavily dependent on universities' preparedness in the interpretation of the policies to meet the vision and missions of the MOET. Therefore, each university has its own ICT plans and ICT training programs based on its interpretation of ICT standards and requirements for its pre-service teachers.

5.3 Vignette: Pre-service Language Teacher Training at "Public University"

The Context

Public University (PU, deidentified) is based in one of Vietnam's major cities. It was established over eighty years ago and is well known for its foreign language and language teacher training programs. PU is a multi-disciplinary higher education institution with full autonomy. It is an internationalized institution with English-medium programs in the fields of Business Management, Finance & Banking, Hospitality and Tourism Management, Marketing, Corporate Communication, Multimedia Communication, International Studies, and Information Technology. In this context, pre-service EFL teachers are third-year English language majors on track to work as English language teachers after graduation. These students are trained to be teachers of English who can work at different school levels, at state-run or private educational institutions. The basic ICT application course at PU is delivered in Vietnamese for all students of the institution. The course meets the requirement that every student must have the basic knowledge of ICT use, as outlined in the previous section (six basic modules as prescribed in Circular 03/2014/TT-BTTTT).

The Course: Integrating ICT in Language Teaching and Learning

The advanced course "Integrating ICT in Language Teaching and Learning" is an eight-week short course that runs for four hours per week, a total of 45 hours. It is completed by 60 to 100 students each year. The course aims to: help pre-service EFL teachers to understand the need for using ICTs in foreign language teaching; to know how to employ ICT tools (the internet, software applications) in second/foreign language teaching; to gather information, design lessons, exercises, quizzes, games, assessment tasks; and to promote pedagogical interaction--.

The course's content includes the following topic areas: introduction to ICT in education, the well-known generalist TPACK (Technological Pedagogical Content

Knowledge) framework (Mishra & Koehler, 2006) and its implications; pedagogies of technology-enhanced learning; the affordances of multimedia technologies; representing and sharing content using technology; learning design and models of online learning; design of activities using web 2.0 tools including social networking and mobile learning. The major assessment of the course requires learners to design a 90-min language lesson within the program's Learning Management System. This is accompanied by a 900-word justification of the design, supported by relevant literature. Justifications include how the lesson was designed to help achieve the learning outcomes in consideration of the educational context. Other criteria relate to the appropriateness of the proficiency level, mixed ability, and ease of use of the ICTs used.

Reflections on the Course

The existence of the course itself is a reflection of the success of the national policies in the implementation of basic and advanced training for teachers in training. The aims of the course—in particular the aim to promote *pedagogical interaction*—and its content also reflect a move away from simply teaching basic skills or how to use technologies (Peeraer et al., 2009), to actually considering the pedagogical infusion of such technologies (Vo, 2019). The use of the TPACK framework (often used to assess teachers' knowledge of the three components and their integration) is interesting on three levels. First, it reflects the popularity of TPACK; a recent review found that most research applying this generalist framework to language teaching has been conducted in Asia and the Middle East (Tseng et al., 2020). Second, it reflects a level of success in the devolution of autonomy to higher education institutions, as well as the diversity in which universities are able to interpret ICT policy.

Third, it raises questions as to which framework or principles might be most effective for teacher training in computer-assisted language learning. In PU, TPACK was selected; others have adopted UNESCO's ICT Capacities Framework (Le, 2019) or adapted the TTST (Hubbard, 2021)—each having been designed for a different purpose. More broadly, the question may be, in the contexts outlined above, which framework(s), standards, and/or principles might be most effective in assisting teachers in training to sustainably integrate ICTs into their language teaching and ultimately positively impact their future students' communicative language capabilities.

6 Context-Based Principles for Sustainable CALL Integration

6.1 The Problem

The overall aim of Vietnam's NFL project is to improve the communicative English language capabilities of the nation's citizens. This is no simple task, given that,

like many other nations across Asia, (i) English is not a community language in Vietnam, and (ii) Vietnam's education system is wedded to top-down policy processes and a longstanding reliance on the teaching and testing of discrete linguistic skills. Nonetheless, as outlined above, substantial progress has been made, in terms of autonomy for higher education institutions, preparation of future teachers for technologies-infused communicative language teaching, and classroom innovation. In this section, we outline some principles which may further support such innovation in ways that may lead to sustainable technological integration in the service of language learning and teaching in the diverse language classrooms across the nation.

6.2 The Role of Macro-, Meso-, and Micro-Level Stakeholders in Policy Creation and Implementation

Gruba (2021), in his ecological approach to CALL integration, argues that stakeholders at each of the three levels (government policymakers, institutional and curriculum leaders, and classroom teachers and learners) need to engage in leadership to ensure a shared perspective on core goals of a policy, as well as how these goals might be planned for, enacted, and evaluated at each level. This also requires awareness of the division of labor among these shareholders, as well as evaluation of the success of any actions performed in service of those goals. Policymakers might outline broad aspirational goals and desired outcomes, provide funding and engage experts and relevant professional bodies to determine broad principles for implementation. Institutional and curriculum leaders, at least at the tertiary level, are required to interpret such policies and expert advice into workable curricula, and teachers and learners must implement these curricula in the context of their classrooms. If, as suggested by the analysis in the current chapter, this process is conducted mainly from the top down, then information, ideas, and strategies flow downwards only, and successes or failures ultimately become the responsibility of the policymakers, and the actions of those at lower levels are more likely to be aimed at addressing the standards or benchmarks set at the macro-level, at the expense of critically addressing the overarching aims of the project in the particular contexts at each level. It could be argued, for example, that the introduction of "basic" and "advanced" short courses satisfies the government-set benchmarks, but an *across-the-curriculum* approach to CALL integration is more likely to lead to sustainable systemic integration of technologies. If opportunities for leadership are shared, and encouraged, at macro-, meso-, and micro-levels, then information, ideas, and strategies are more likely to flow in both directions, with successes and failures treated equally as developmental opportunities in service of the ultimate goals of the project.

6.3 Principles for CALL Integration

Drawing on broader research into leadership (e.g., Schunn et al., 2005), principles-focused evaluation (e.g., Patton, 2017), and SLA-specific ecological approaches outlined above (e.g., Douglas Fir Group, 2016), Gruba (2021) outlines five principles for CALL integration which may be applied to the current context. He argues that CALL integration initiatives should be: (i) *theory-based*, in that they should draw on relevant SLA, CALL, principles, and concepts; (ii) *sustainable*, both in terms of effectively and efficiently using available resources and in recognition of the fact that CALL integration requires ongoing support, professional development, and recognition of the efforts and time dedicated to its success; (iii) *collegial*, in that processes need to be in place to support those at the micro-level to uptake CALL in an ongoing basis, and to share the outcomes of their efforts; (iv) *innovative*, in the sense that they foster creativity and risk-taking, and that failures should be recognized as a necessary part of the sustainable success of CALL integration; and (iv) *aligned*, meaning that the aim of CALL integration at the microl level, rests on its alignment with program, faculty, institution, and national strategies, policies and visions.

These principles are intended to reflect the complexity of the undertaking a nationwide project which aims to influence local language learning and teaching by integrating available and emerging technologies. The ecological approach embedded within these principles not only reflects the ideational differences in how policy is created, variably interpreted, and implemented at the macro-, meso-, and micro-levels, but it also intends to make explicit the ideological, social, and interactional structures embedded in the various systems, sometimes with contradictory effects (e.g., top-down implementation of a policy to devolve autonomy in the teaching of ICTs; or the tension between existing grammar- and textbook-based curricula and communicative approaches; or a benchmark to introduce stand-alone courses aimed at integrating CALL across language learning curricula). Bringing such processes to the fore may go some way in solving issues that have arisen thus far and creating an environment that supports the integration of CALL into language classrooms.

7 Conclusion

In order for the NFL project's goal of technological integration into language learning and teaching to be successful, it is clear that Vietnam's macro-level leaders acknowledge the need for leadership to be delegated through all levels of education, down to the micro-level, as represented by their policy of devolution of autonomy. If true devolution of autonomy is the aim, real change can only occur through principled innovation and experimentation in the diverse classrooms across the nation—in *micro-level* contexts. It is in the hands of teachers, learners, and their communities. This must be recognized, accommodated for and valorized at all levels of the policy chain (Murphy-Judy & Youngs, 2006). The vignette in this chapter, alongside the

small but growing number of qualitative studies into CALL integration in Vietnam, provides examples of innovations that may inform successful strategies in other micro-contexts across the nation. A system that relies on top-down processes and leadership may actively prevent such innovations at the micro-level from feeding back up through the system to inform meso-level and macro-level policies and curricula which may inform teaching and learning in other micro-contexts. It could be argued that a competency-based system adds to this problem, but competencies and standards are enmeshed in most educational systems across the world. In our view, it is more a matter of how such standards are used at each level of the system: in "punitive or supportive" ways (TESOL, 2008, p. 4). Lessons from the across-the-board implementation of the VSTEP support the argument that creativity can be stifled by top-down (negative) evaluation of the nation's language educators, leading them to prioritize "meeting standards" or "passing tests." Teachers and learners, upon whom the success of the NFL project's outcomes rest, need to be valorized so their stories—successes and failures—can be fed back up through the policy chain, allowing classroom experimentation to be scaled up, and shared around the nation via institutional and national policy which is informed by bottom-up processes.

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Chapter 28
CALL Teacher Education Models, Methods, and Theoretical Groundings: A Systematic Review of the Studies in Under-Represented Contexts

Fatemeh Nami

Abstract This chapter reports a systematic literature review of CALL teacher education research conducted in under-represented geographical contexts, namely Asia, the Middle East, and Africa over the past two decades. The main objective was twofold: first, to explore how CALL professional development (PD) is approached in these contexts with special attention to the educational and geographical contexts of the studies, their design features, and their study-related qualities; and second, to identify research gaps. Drawing on the PRISMA model as the main analysis procedure, 89 articles published in peer-reviewed scholarly journals were screened from a pool of 3495 works. Applying geographical context filtering, 12 papers were finally selected as eligible to be included in the study, of which 61.6% were conducted in the Middle East and 38.4% belonged to Eastern Asia. No accounts of CALL PD attempts in African educational settings were found in scholarly journals. Several design-, context-, and study-related categories were explored to understand the approaches toward CALL PD and the research gaps. The analyses revealed the dominance of qualitative studies and self-report data sources in the CALL PD studies. Drawing on the findings, some pedagogical implications are generated for future research.

Keywords Computer-Assisted Language Learning Professional Development (CALL PD) · Asia · Africa · The Middle East · Systematic review

1 Introduction

Language teachers, as one of the key determinants of successful integration of the pedagogical approaches, require relevant and adequate professional development (PD). Second and foreign language teacher education is not a new concept in PD research. Despite this, teacher preparation for computer-assisted language learning (CALL) is a more recent research focus. Technology-enhanced language education has come under the spotlight over the past few decades. This young research

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strand mainly encompasses accounts of PD and teacher education for CALL in North America and Europe. How CALL teacher education is attended to in other contexts, such as the PD systems in Asia, the Middle East, and Africa, remains largely vague.

Although more than three decades have passed since the first introduction of computers into classrooms, the pace of educational technology uptake for language learning/teaching has never been as accelerated as it has been over the past two decades. In line with the growing proliferation and sophistication of digital educational technologies, the consensus has grown about the essence of defining relevant theory-oriented instructional designs for effective CALL PD. In practice, however, there is no consolidated picture of the theoretical groundings, methodological approaches, and instructional design models that can be productive for CALL teacher education.

Considering the differences in the learning styles and pedagogical preferences of student teachers and teacher educators in different educational systems, it is anticipated that the instructional design models may vary in efficiency from one context to another. In other words, what constitutes effective CALL teacher education in Asian educational systems might differ from what is experienced in western systems of PD. This necessitates due attention to under-represented research contexts to gain a more comprehensive picture of what works well for CALL PD in different contexts.

In an attempt to contribute to this underexplored research base, the present chapter features a systematic review of published research about CALL PD conducted in Asia, Africa, and the Middle East. Research articles published in peer-reviewed scholarly journals during 2000–2022 were reviewed with special attention to the underpinning theories, methodological approaches, and design/implementation plans. The results of this systematic review can be used to address the gaps in CALL PD research when designing instructional plans.

2 Voices Already Heard

2.1 Language Education and CALL Teacher Preparation

Digital educational technologies and online learning/teaching platforms have turned into integral parts of today's educational systems across the globe. In the same vein, the language education profession has been largely transformed by advances in information and communication technologies (ICTs) (Huynh & Nguyen, 2021). As one of the key players in any pedagogical design, teachers need relevant knowledge and preparation to function in classroom settings effectively (see Hubbard, 2008). Implicit in this assumption is the significance of designing proper PD courses, and programs that address the knowledge and proficiency areas the language teachers need to possess (see Kessler, 2007; Polly et al., 2010). As Tondeur et al. (2019) put, PD is essential for developing language teachers' pedagogical knowledge of CALL, enabling them to integrate digital technologies into their instruction.

As a relatively recent field of study, CALL PD is still in its infancy and has not found its way into the teacher preparation programs in certain countries. A careful look at the available literature on CALL PD indicates that while teacher preparation for CALL is gaining more prominence in Europe and North America, it has still not widely gained recognition in the educational and research contexts of many countries in Asia, the Middle East, and Africa. Huynh and Nguyen (2021) similarly noted that "the under-researched situation in the area of CALL teacher education with few empirical studies documented is not only the case in Vietnam but also in the Southeast Asian region" (p. 31).

2.2 CALL Professional Development Design

Just as effective CALL experience is largely dependent on prepared language teachers, effective CALL PD is widely shaped by the design and focus of the preparation attempts. To be productive, such a design should address the contextual peculiarities and teacher demands. In other words, an effective CALL PD design should be essentially context specific. Context, in this chapter, encompasses not only the educational and technological backgrounds and preferences of pre- and/or in-service teachers but also the geographical district and educational grade level for which PD is designed.

CALL PD designers are partly informed of these context-specificities for the design and development of relevant preparation courses via published research and empirical studies. The wider the geographical and contextual ranges of the conducted studies, the more comprehensive the understandings about the similarities and differences in teachers' needs across various contexts. This necessitates systematic reviews that carefully explore CALL PD research conducted in different contexts to identify relevant design requirements. In practice, however, such reviews are largely missing (e.g., in the Middle East, Asia, and Africa). To contribute to this research base, the following research questions were addressed:

1. How is CALL PD approached in the research conducted in the Asian, Middle Eastern, and African teacher preparation contexts?
2. What are the main research gaps in the CALL PD research in these contexts?

3 Methods

Quality systematic literature review, according to Valle et al. (2021), requires (a) relevant research questions worthy of review, (b) transparent analysis procedures, and (c) results presented with reference to the posed questions. To achieve these objectives, Moher et al.'s (2009) PRISMA model was applied as the main analysis procedure. The model features four steps (i.e., identification, screening, eligibility, and included) for reviewing information.

The *identification* phase included the application of the Education Resources Information Center (ERIC) database for identifying relevant studies conducted on CALL PD in the Asian, the Middle Eastern, and African educational contexts. The combination of the following keywords was searched in the titles and abstracts: 'CALL + teacher education,' 'CALL + teacher training,' 'CALL + professional development,' 'computer assisted language learning,' and 'technology enhanced language education' in April 2021. The search yielded 3493 papers, book chapters, reports, and theses.

This was followed by the *screening* phase, during which the works published in non-scholarly, non-peer-reviewed journals and reports, and unpublished theses were excluded. Of a total of 3495 works, 89 were retrieved at this stage. In the second round of screening, the research papers that reported studies which were conducted in contexts other than Asia, the Middle East, and Africa were screened out.

The *eligibility* phase included full-text review of the 89 articles extracted from the database during the screening stage in the search for empirical studies on CALL PD in the contexts mentioned above. Studies that offered no accounts of a specific treatment for language teacher preparation for CALL were not included in the analysis. A total of 12 articles published in scholarly journals were finally selected for inclusion and analysis in the final review (the *included* phase). To ensure the credibility of the analysis procedure, a code list was developed to ground the processes of screening, eligibility, and inclusion on it (see Table 1).

During the second phase of the analysis, the selected papers were reviewed based on context-related (i.e., the geographical and educational context in which the study is conducted), design-related, and study-related categories (see Tables 2, 3, and 4).

Table 1 The code list criteria applied for paper inclusion/exclusion in the review

Codes	Inclusion criteria	Exclusion criteria
Research context	Asia, the Middle East, and/or Africa	Countries other than Asia, the Middle East or Africa
Research focus	CALL PD	Teacher preparation for technology-enhanced education (not CALL)
Research design	Empirical studies reporting specific treatments and entailing qualitative, quantitative, or mixed data	Non-empirical studies and studies without methodological accounts
Publication nature	Studies published in peer reviewed journals and academic books as chapters	Non-peer-reviewed works, unpublished theses and dissertations, and reports
Recency	Studies conducted since 2000	Studies conducted prior to 2000

Table 2 The distribution of articles based on context-related categories

Articles	Geographical context		Freq.	%	Educational context
Jeong (2017)	South Korea	Eastern Asia	4	33.3%	Higher education
McNeil (2013)	South Korea				Higher education
Chao (2015)	Taiwan				Higher education
Huynh and Nguyen (2021)	Vietnam				High school
Fathi and Ebadi (2020)	Iran	The Middle East	8	66.7%	Private language institute
Meihami and Esfandiari (2021)	Iran				Higher education
Mohsenishad et al. (2020)	Iran				Private language institute
Nami et al. (2016)	Iran				Higher education
Nami et al. (2018)	Iran				Higher education
Nami (2022)	Iran				Higher education
Cengiz et al. (2017)	Turkey				High school
Kılıçkaya and Seferoglu (2013)	Turkey				Higher education

4 Lessons Learned

Of a total of 12 retrieved articles, four (33.3%) reported studies conducted in Eastern Asia, namely South Korea, Vietnam, and Taiwan (Table 2). The remaining eight articles (61.6%) focused on CALL PD in the Middle East (i.e., Iran and Turkey) (see Fig. 1). No published article or book chapter with a focus on CALL PD in African contexts was found. The limited number of published works on CALL PD across these contexts not only confirms the infancy of this profession in Asia, Africa and the Middle East but also indicates that teacher preparation attempts for effective CALL in these contexts seriously lags the mainstream PD research. In other words, CALL PD might not have found its way into the educational paradigms and teacher preparation curriculums of the countries in these regions as much as the conventional language teacher education.

4.1 CALL PD Research Foci in Asia, the Middle East, and Africa

As indicated in Fig. 1, 67% of the papers reported CALL PD attempts in higher education settings (i.e., colleges and universities). There were two articles with a

Table 3 Design-related categories in the selected papers

Articles	Design	PD design Model/ framework	Pedagogical approach	Theoretical groundings	Data sources	Analysis procedures
Jeong (2017)	Qualitative	Mononey and O'Keefe's (2016) four-step approach	Project-based learning	Student-centered constructivist paradigm	Online Likert-scale & open-ended questionnaires, discussion forum, focus group interviews	
McNeil (2013)	Qualitative (Exploratory case study)		Situated learning	Situated learning	Pre- and post-course CALL skills surveys, Situatedness perception questionnaire, and relevant activities questionnaire	Descriptive statistics, Pearson correlation coefficient, Bogdan and Biklen's (2006) coding scheme
Chao (2015)	Qualitative (Case study)	Mishra and Koehler's (2006) TPACK	Project-based learning	Situated and reflective learning	Presentation projects, teacher presentation videos, and follow-up interviews	Constant comparative analysis, content-holistic procedure in narrative inquiry
Huynh and Nguyen (2021)	Quantitative				Attitude, pre-competence, and post-competence questionnaires	Descriptive statistics and paired sample t-test

(continued)

Table 3 (continued)

Articles	Design	PD design Model/ framework	Pedagogical approach	Theoretical groundings	Data sources	Analysis procedures
Fathi and Ebadi (2020)	Qualitative (Heuristic multiple case study)	Mononey and O'Keeffe's (2016) four-stage model	Project-based, practice-oriented learning		Semi-structured interviews, observations, open-ended field notes, and open-ended questionnaires	Thematic analysis, constant comparative analysis, and open coding
Meihami and Esfandiari (2021)	Qualitative (Narrative research)	Werbińska's (2016, 2017) 3ATIF framework: affiliation, attachment, and autonomy of Teacher Identity Formation	Project-based instruction		Teachers' interactionally oriented narratives, classroom CALL practice reports, and a pre-program survey to explore	Dialogic and performance analysis
Mohsenishad et al. (2020)	Interpretive and qualitative		Scaffolded dialogues	Sociocultural theory and Zone of proximal development	Three rounds of semi-structured interviews, classroom observation, and classroom data transcripts	Grounded theory and conversation analysis
Nami et al. (2016)	Qualitative (Case study)		Inquiry-based learning	Reflective teaching, constructivism, and inquiry-based approaches	Written interviews and teacher reflection journals	Constant comparative method of content analysis (open coding)

(continued)

Table 3 (continued)

Articles	Design	PD design Model/ framework	Pedagogical approach	Theoretical groundings	Data sources	Analysis procedures
Nami et al. (2018)	Mixed method research design	Garrison et al.'s (2000) community of inquiry (CoI)	Collaborative learning and peer mentoring	Social constructivism, theory of distributed knowledge, and community of inquiry,	Archived logs of discussion list posts	Origun and Cave's (2008) SQUAD approach for content analysis, computer-mediated discourse analysis, and descriptive statistics
Nami (2022)	Qualitative (Case study)	Reflective practice	Project-based learning	Situated learning and social constructivism	Audio-narrated technology-review projects and classroom discussions	Content analysis (A priori coding
Cengiz, et al. (2017)	Qualitative	Çağıltay et al.'s (2001) seven principles of good practice			Background questionnaire, interview, and weekly teacher reflection reports	Content analysis (open coding)
Kılıçkaya and Seferoglu (2013)	Qualitative		Conceptual development		Semi-structured interview, survey data, lesson plans, and teacher journals	Content and code analyses

Table 4 Study-related categories in the selected articles

Articles	Participants	Sampling	Age-range	Course type	Digital platforms applied	Duration
Jeong (2017)	82 pre-service Korean EFL teachers			Blended	Moodle	15 academic weeks
McNeil (2013)	21 in-service EFL teachers (17 females and 1 male Korean, 1 male Pakistani, 1 male American, 1 male Canadian)	Convenience sampling		Face-to-face		15 academic weeks
Chao (2015)	19 Taiwanese in-service K-12 teachers (18 females and 1 male)					8 months
Huynh and Nguyen (2021)	84 Vietnamese junior high-school teachers		30–50	Blended		
Fathi and Ebadi (2020)	6 Iranian pre-service EFL teachers (5 females and 1 male)	Convenience sampling	21–26			4 weeks for training and 7 weeks for implementation
Meihami and Esfandiari (2021)	2 in-service Iranian EFL teachers (1 male and 1 female)	Convenience sampling	35–36	Blended	Skype and WhatsApp	8 months (72 sessions)
Mohsenishad et al. (2020)	20 in-service Iranian EFL teachers (13 females and 7 males)	Convenience sampling				6 months
Nami et al. (2016)	5 female Iranian in-service teachers	Convenience sampling	29–50	Blended	WizIQ, AnyMeetings, Yahoo Messenger	3 months (an academic semester)

(continued)

Table 4 (continued)

Articles	Participants	Sampling	Age-range	Course type	Digital platforms applied	Duration
Nami et al. (2018)	5 female Iranian in-service teachers	Convenience sampling		Blended	Yahoo Group's discussion list	13 sessions
Nami (2022)	6 Iranian in-service EFL teachers (5 females and 1 male)	Convenience sampling	35–56	Online	WizIQ	7 weeks (13 sessions)
Cengiz, et al. (2017)	8 in-service Turkish EFL teachers (7 females and 1 male)		37–50	Online	WizIQ, Edmodo, Pbworks wiki page, and Wordpress blogs	4 weeks
Kılıçkaya and Seferoglu (2013)	35 pre-service EFL teachers (28 females and 7 males) and 25 in-service teachers (21 females and 4 males)	Convenience sampling	18–24			14 weeks (5 h each week)

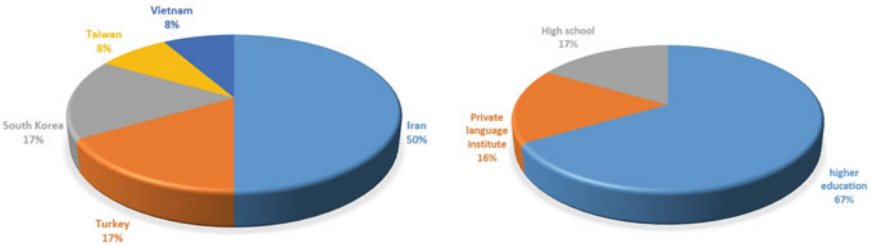

Fig. 1 The distribution of the selected papers based on the educational and geographical contexts of the studies

focus on private language institutes and two related to high school settings. Grouping the papers based on the countries in which the studies were conducted, it was observed that 50% belonged to Iranian CALL PD.

To understand how CALL PD was approached in these contexts, the research focus and design, PD instructional design, pedagogical approaches, theoretical groundings, data sources, and data analysis procedures (as design-related categories; Table 3) along with the participants, their age range, the sampling procedures, and the type and duration of CALL PD course (as study-related categories; Table 4) were reviewed. The research foci included:

- the relationship between teachers' perceived situatedness of the course and the development of CALL skills (McNeil, 2013);
- teachers' perception of the degree of situatedness reflected in a CALL course and its activities (McNeil, 2013);
- teachers' perception of the effectiveness of CALL PD, its impact on their pedagogical CALL knowledge development, and their confidence in CALL-integrated instruction (Cengiz et al., 2017; Chao, 2015; Fathi & Ebadi, 2020; Huynh & Nguyen, 2021; Jeong, 2017; Kılıçkaya & Seferoglu, 2013; Mohsenishad et al., 2020; Nami et al., 2016);
- effective syllabus design for CALL teacher education (Jeong, 2017);
- productive classroom activities for enhancing teachers' digital literacy and pedagogical understanding of CALL (Jeong, 2017);
- interaction patterns in in-service teachers' discussion list exchanges throughout CALL preparation and the cognitive, social, and teaching presence moves characterizing these exchanges (Nami et al., 2018);
- the contribution of scaffolded dialogues to teachers' CALL awareness development and the extent to which teachers' beliefs evidenced in their CALL actions (Mohsenishad et al., 2020);
- CALL teacher education and EFL teachers' professional identity development (Meihami & Esfandiari, 2021); and
- the contribution of problem-based learning (PBL) to teachers' technological pedagogical knowledge in an online CALL PD (Nami, 2022).

Exploring the design- and study-related categories in the selected papers, it was observed that qualitative studies and analysis procedures were exclusively dominant. Except for Huynh and Nguyen's (2021) quantitative study, the remaining 11 were qualitative in design. The most widely applied data collection instruments were surveys, interviews, and questionnaires which provided the researchers with self-report data.

Reviewing the articles based on the research questions, four main research foci were detected. These included the studies that (a) explored teacher perception of technology, CALL PD, the efficacy of the preparation, or the applied model; (b) focused on the potential of teacher practice and project-based learning through the course of preparation; (c) concentrated on the potentials of written or verbal teacher exchanges, scaffolding, and dialogues for CALL PD; and (d) explored the effectiveness of CALL PD attempts by observing teachers' performance in real-classroom practice after the completion of the PD courses.

Teacher perception studies

The most common research focus was an exploration of teacher perceptions using self-report data (see e.g., Cengiz et al., 2017; Chao, 2015; Fathi & Ebadi, 2020; Huynh & Nguyen, 2021; Jeong, 2017; Kılıçkaya & Seferoglu, 2013; Meihami & Esfandiari, 2021; Mohsenishad et al., 2020; Nami et al., 2016). Kılıçkaya and Seferoglu (2013), for instance, drew on interview data to explore the extent to which teachers applied the knowledge acquired through the course of preparation in their classrooms, the factors that might have affected this use, and the way they used to continue learning about new technologies and applying them.

Grounded on situated learning, McNeil's (2013) study focused on EFL teachers' perceived situatedness of a face-to-face CALL PD course (in a South Korean university) and its activities. McNeil also investigated the possible relationship between this perceived situatedness and the development of participants' CALL skills. Situatedness in PD, according to McNeil (2013), "can be achieved by structuring classroom environments that reflect the cognitive demands of real-life (i.e., out of the classroom) tasks" (pp. 217–218).

Nami et al. (2016) explored Iranian in-service EFL teachers' perception of different phases of lesson study practice for CALL PD. Cengiz et al. (2017), similarly looked at Turkish EFL teachers' perception of online CALL PD. Focusing on Iranian pre-service EFL teachers' viewpoints, Fathi and Ebadi (2020) explored the obstacles and motivators in CALL implementation and the main reasons underlying "teachers' maintained use of CALL" (p. 3901). The researchers access to technical support and equipment and inability to effectively transfer CALL knowledge to real-classroom practice as the main obstacles and teachers' perceived usefulness of technology along with their experience as motivators. They also noted that learners' requests, peer collaboration, and social influence were the main determinants of teachers CALL integration.

Huynh and Nguyen (2021) investigated the possible changes in high school Vietnamese teachers' perception of the affordance of the course for developing

their CALL-related competencies by comparing their pre- and post-treatment questionnaire responses. The researchers also focused on teachers' attitude toward CALL.

In almost all these studies, the researchers have provided positive accounts of teachers' perceptions of CALL PD after completing the preparation course (e.g., Huynh & Nguyen, 2021). Using self-report data, McNeil (2013) observed that the EFL teachers were generally positive about the situatedness of the course, although they believed that this quality was not achieved in some cases. For instance, the course did not provide adequate opportunities for participants to collectively get engaged in assignments. McNeil's (2013) participants found three out of the six main classroom activities relevant to their pedagogical needs. These included: micro-teaching and midterm and final projects. These activities "provided authentic contexts, collaborative assistance, and authentic tasks" (p. 226). McNeil also reported a strong relationship between teachers' perceived situatedness and their views about the development of CALL-related skill after attending the CALL PD. Jeong (2017) noted that 71% of the Korean EFL teachers participating in the study were willing to integrate CALL into their future pedagogical plans. Participating in the program, the Korean EFL teachers developed a positive attitude toward CALL and a sense of willingness to become CALL-oriented teachers.

On the contrary, participants in Nami et al.'s (2016) study had different perceptions of the lesson study practice. For instance, while several teachers found collective lesson planning a productive experience, there were teachers who were more critical of the experience. Nami et al. (2016) attributed it to the existing hierarchies among the participating teacher as some had more than 15 years of experience teaching English, while others were more novice in the field. The second possible reason underlying this different observation was the individualistic culture of learning to which the participants were accustomed. This might have turned collective lesson planning into a difficult task, affecting teachers' perception of the experience.

In addition to positive accounts, a number of these studies offered valuable implications for designing CALL PDs. Cengiz et al. (2017), for instance, extracted three main themes from participants' self-report data about online CALL PD. These included (a) the success factors for online CALL teacher education, (b) participants' contributions to the CALL PD, and (c) their suggestions for improvements. Cengiz et al.'s (2017) participants also offered some suggestions for improving the quality of the course. The teachers suggested offering a blended or face-to-face CALL PD experience to those teachers who do not possess adequate technological knowledge to effectively use and function in online platforms before immersing them in fully online preparation courses. They also highlighted the essence for teachers to have some basic technological knowledge prior to attending an online CALL PD.

Participant characteristics, in Cengiz et al.'s (2017) terms, encompass teachers' digital literacy and prior experience in using technology. Their participants also found the design of the course as a determining factor in the success/failure of online CALL PD. For instance, the courses that do not address the hectic work schedule of the teachers may not be fully productive as the participants cannot meet the requirements of the course. The participants also highlighted the need for the course to be flexible

in the choice of tasks and their submission deadlines. Practicality is another essential design requirement for effective online CALL PD. Accordingly, such preparation needs to be "situated in teachers' classroom contexts, in order to get them apply the technological tools of training in their classes and reflect on their practice as a way to boost their capability to integrate these tools into their teaching" (Cengiz et al., 2017, p. 34). Situating the course in an online context provided in-services teachers, who were mostly accustomed to face-to-face instruction, an opportunity to experience using online learning platforms and; thus, develop a positive perception of it. This also increased the likelihood of teachers' technology integration in their future classrooms.

Focusing on Korean pre-service teachers' perception of educational technology, Jeong (2017) observed that most of the participants had experienced using smart devices for purposes other than teaching/learning. Where teachers mainly lack relevant technology-integration culture, the efficiency of preparation attempts largely depends on teacher enculturation to help them develop confidence in using technology for pedagogical purposes (see Compton, 2009). Jeong (2017) concluded that positive personal experience in using technology throughout the process of language learning can effectively promote pre-service teachers' tendency to adopt technology in their future classroom practice.

Exploring the contribution of a preparation program to EFL teachers' development of CALL identity, Meihami and Esfandiari (2021) attributed participants' development of willingness to become CALL teachers to the potential of their program to enhance their digital literacy. The researchers noted that adequate CALL literacy helps teachers develop a sense of self-efficacy and a positive attitude toward CALL. This, in effect, paves the way for acquiring advanced technological knowledge.

Project- and practice-oriented studies

Teacher practice and inquiry-oriented or project-based learning with digital educational technologies and online platforms was the second main research strand in the reviewed studies (e.g., Chao, 2015; Fathi & Ebadi, 2020; Jeong, 2017; Meihami & Esfandiari, 2021; Mohsenishad et al., 2020; Nami et al., 2016; 2022). Jeong followed Mononey and O'Keefe's (2016) four-step approach to develop teachers' EFL and digital literacy. These included helping teachers (1) develop pedagogical knowledge of language teaching, (2) become early adopters of technology for language learning/teaching, (3) turn into confident CALL users, and (4) become competent in CALL. It was noted that the course offered diverse opportunities for participants to experience using technology for language learning. In other words, the very design of the course encouraged using technologies for conducting their English-related activities (e.g., taking online quizzes, uploading assignments on the LMS). The rationale was that "only after prospective teachers themselves realized the advantages of studying English using technology, these positive learning experiences could be successfully transferred to their future English teaching practice" (Jeong, 2017, p. 9). The course also immersed participants in hands-on technology use for educational purposes, LMS design, EFL materials uploading on the LMS, and task or quiz generation to help them gain confidence in CALL. Participants in Jeong's course

were also engaged in individual and collective projects. Pre-service teachers experienced developing CALL-related flipped lessons by collectively editing YouTube videos or translating their contents for in-class use. The individual project work comprised creating a technology-enhanced English language teaching presentation. These individual and collective CALL practices helped teachers develop confidence in using technology for educational purposes.

Using the same four-stage preparation model (Mononey & O'Keeffe, 2016), Fathi and Ebadi (2020) engaged pre-service teachers in hands-on practice and collaborative projects to enhance their practical knowledge of CALL and help them become confident technology users. The final stage involved participants in individual project work to help them become competent in integrating technology for language learning/teaching purposes.

Nami (2022) reported an online CALL PD case study which engaged in-service EFL teachers in different technology review and use projects to enhance their technological pedagogical knowledge. She observed that engagement in practice-oriented PD helps teachers develop technological knowledge about different digital tools, the affordances and constraints of CALL, materials selection and development for technology-enhanced language instruction, and CALL evaluation as the main indicators of technological pedagogical knowledge of CALL (see Hubbard & Levy, 2006; Ertmer & Ottenbreit-Leftwich, 2010). It was concluded that "the contribution of mastery experiences (i.e., teacher practice) to the development of professional knowledge or a pedagogical know-how of technology" (Nami, 2022, p. 120).

The high frequency of practice-oriented, project-based pedagogical approaches in the studies conducted in Asia and the Middle East indicates a consciousness about the inefficacy of the conventional teacher-preparation attempts which largely focused on the introduction of technology and theories in mostly teacher-centered, lectured-based courses. It also reflects a similarity between CALL teacher education in these underrepresented contexts and what is reported in other CALL PD contexts (e.g., in Europe and North America) that effective teacher education provides relevant technology practice opportunities to prepare teachers for real-life classroom practice. Hence, regardless of the context of the study and the design of a PD program or course, real-life experiences and authentic tasks that engage teachers in technology integration for pedagogical purposes can prepare them for adopting CALL (Fathi & Ebadi, 2020). In other words, practice-oriented preparation and real-life projects are universal qualities that can work well in different CALL PD contexts, even those in which the transmissive and individualistic teaching/learning approaches dominate, as it is the case in a number of Asian and Middle Eastern educational contexts.

Studies exploring the potentials of interactive exchanges and dialogues

Of the 12 retrieved papers, two explored the potentials of in- and/or out-of-classroom interactive exchanges between teachers for developing their technological pedagogical knowledge of CALL. Nami et al. (2018) focused on Iranian in-service EFL teachers' discussion list exchanges throughout a blended CALL PD and the interaction patterns in these exchanges. Analyzing the content of 1091 posts left in an online asynchronous discussion list over a 5-month period, the researchers noted

that, despite selective participation in online discussions, all participants consistently contributed to the list. Using Origun and Cave's (2008) SQUAD (suggestion, question, unclassified, answer, and delivery) category, the researchers found suggestions as the most common type of exchanges implying that, in the absence of hierarchal relations in online discussion forums, teachers find the environment a more relaxed space for discussions. Teachers used the space to pose questions about different aspects of the course and the pedagogical knowledge of CALL.

Through a discourse analysis of the exchanges, the researchers also explored the distribution of the functional moves (i.e., teaching presence, cognitive presence, and social presence) in teachers' posts. It was observed that the majority of the moves were social (43.9%) and cognitive (36.4%). The researchers concluded that.

> taking part in situated interactive exchanges, teachers became sources of orientations for peers by offering their knowledge, which gradually developed into a distributed knowledge base… Through engagement in a process of problem-posing/solving in a social learning environment, participants had direct experience with the social constructivist notion of knowledge co-construction. (p. 392)

Mohsenishad et al. (2020) used scaffolded dialogues to prepare teachers for CALL in a longitudinal six-month study. During the first 12 sessions, the teachers had scaffolded dialogues about technology and its applications in language classrooms under the supervision of two experienced CALL teachers. They were then asked to apply technology for online language instruction and discuss its affordances/constraints in the forthcoming sessions. After three months, the participants were interviewed again to explore the possible changes in their perceptions of CALL. The third round of interviews was conducted after a six-month period.

Mohsenishad et al. (2020) noted that the participants were mainly reluctant to use technology prior to attending the CALL PD as they adhered to conventional language instruction and were confused about different tools. Scaffolded dialogues helped them feel more motivated and self-confident in using technology. Classroom conversation analysis revealed that participation in the experience significantly enhanced teachers' awareness of technology and its various uses for educational purposes.

Real-classroom CALL integration studies

As CALL PD studies are usually short in duration, teachers' real-classroom integration of technology after completing the courses or programs is not explored. The studies with such a focus can be particularly productive as they highlight the in/efficacy of the applied pedagogical approaches in common preparation practices. Kılıçkaya and Seferoglu (2013) used teachers' journals, interviews, and survey data to explore the extent to which EFL teachers applied the knowledge they developed through CALL PD in their real classroom practice. They noted that PowerPoint was the most used technology for teaching language structure and brainstorming. The researchers also identified a range of online tools and platforms which were applied by teachers to teach listening, writing, and grammar.

Language teachers' connection building and pedagogical solution development throughout CALL PD and how their learning is translated into real classroom practice eight months after the CALL PD were focused on in Chao's (2015) study.

Chao drew on interview data obtained from 4 out of 19 Taiwanese teachers in a CALL PD. Despite the impact of the course on teachers' understanding of TPACK, such knowledge was not essentially translated into their real classroom practice. Analyzing the data, Chao concluded that "the teachers did not often use the tools in ways that the teachers or the teacher educator had expected them to" (p. 112). The research, however, observed that the teachers had developed a deep understanding of the content presented during the CALL course.

4.2 The Gaps

While these studies provide valuable data about the status of CALL PD in these contexts, there are study- and design-related areas that have not been adequately addressed in them. The methodology- and design-related gaps identified in these works include:

- educational context,
- CALL PD modality,
- sampling and participants,
- theoretical groundings, PD design model, and pedagogical approaches,
- data analysis procedures,
- research life-span, and
- design approaches

Reviewing the educational contexts, for instance, it was observed that 67% were conducted at colleges and universities. CALL teacher preparation for technology integration across K-12 settings is a research strand that is almost scant.

Additionally, the modality of CALL PD reported in these studies is mainly restricted to blended courses and programs (5 out of 12 studies) which feature a combination of face-to-face and online sessions. The mode of delivery of the CALL PD was not mentioned in four studies (i.e., Chao, 2015; Fathi & Ebadi, 2020; Kılıçkaya & Seferoglu, 2013; Mohsenishad et al., 2020). Fully online CALL PDs were focused on in Cengiz et al. (2017) and Nami's (2022) studies. In line with the growing popularity and integration of fully online language courses and programs, the consciousness has grown about the importance of using online learning platforms for language PD. Situating teacher preparation in online learning environments enables pre- and in-service teachers to not only practice using these platforms and learn about their peculiarities for future language teaching attempts but also address the accessibility problem (Powell & Bodur, 2019) or "insufficiently responsive" teacher preparation attempts (Yurkofsky et al., 2019, p. 1) by moving beyond the physical and temporal confines of the physical CALL PDs. In practice, however, online CALL PD has not still found its way into CALL teacher education research. And the scarcity of studies that offer a focus on online platforms in Asia and Middle East clearly reflects its relative recency.

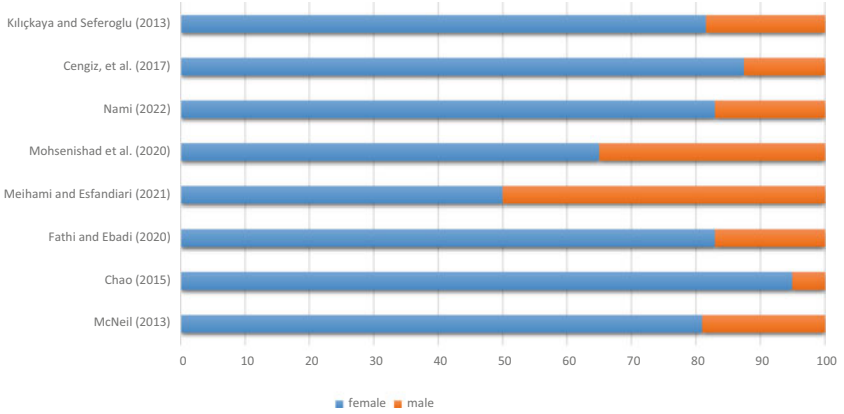

Fig. 2 The distribution of female and male participants reported in the papers

The review also revealed that the majority of the participants who attended the CALL PD courses in almost all of these studies were female (see Fig. 2). In addition to the limited number of participants in the majority of studies, the only sampling procedure reported was convenience sampling. While volunteer sampling results in participants who are more eager to follow the pedagogical approaches, it might affect the results as not every pre- and/or in-service teacher who attends common CALL PD is essentially positive toward technology or CALL.

Furthermore, the theoretical groundings, pedagogical approaches, and the design models/frameworks are either ignored or not mentioned in a number of studies. Huynh and Nguyen (2021), for instance, do not offer any details about the pedagogical approach or the treatment they applied in their study (also Huynh & Nguyen, 2021; Kılıçkaya & Seferoglu, 2013). Focusing exclusively on EFL teachers' pre- and post-treatment questionnaire responses and t-test results, the researchers attribute the changes in teachers' perception to the efficacy of the course. In the absence of a detailed description of the PD design, it would be difficult to make relevant conclusions based on the findings.

In a number of these studies, there is no reference to the analysis procedures. Despite a comprehensive discussion of the design of the CALL PD, Jeong (2017), for instance, does not offer any account of the analysis procedures applied. Of the three posed research questions in Jeong's study, the analyzed data (i.e., questionnaires, interviews, and teachers' discussions) are used to answer the two questions regarding teachers' confidence in using technology for pedagogical purposes and their opinion about the preparation activities. Jeong's question regarding how teacher educators can design an effective syllabus for CALL teacher education, however, is not empirically explored.

Kılıçkaya and Seferoglu (2013), similarly, note that the CALL PD focused on conceptual knowledge development or classroom applications of technology rather than developing teachers' technological knowledge. In practice, however, no specific

information is provided regarding how this goal was accomplished or which pedagogical approaches were applied. Chao (2015) does not discuss the nature of CALL PD, its mode of delivery, and the pedagogical approach applied for developing teachers' technological pedagogical and content knowledge (TPACK). Only by drawing on the information provided by the researcher, it can be concluded that the teachers were engaged in presentation projects.

Additionally, data analysis procedures were mainly restricted to content and discourse analyses. This can be largely attributed to the qualitative design of the studies. Data obtained from more diverse research designs (e.g., experimental and quasi-experimental and mixed-method studies) are required to gain a more comprehensive picture of the peculiarities of different CALL PD design elements.

The conducted studies feature a limited life span. In effect, the extent to which the CALL PD attempts have been successful in preparing teachers for real classroom practice is not commonly addressed. Of the 12 selected papers, only two (i.e., Chao, 2015; Kılıçkaya & Seferoglu, 2013) explored the efficacy of the CALL PD attempt by focusing on teachers' actual classroom practice in the post-PD period.

5 Conclusion

In addition to context-specific design features, CALL PD can be informed by some universal qualities. For instance, active project-based practice enables pre- and in-service teachers to experience using technology for language learning/teaching purposes (see Jeong, 2017; Meihami & Esfandiari, 2021; Nami et al., 2016). This can be achieved by defining different hands-on experiences in the design of the course. The efficacy of these context-specific and universal design qualities, however, largely depends on teachers' acceptance of the applied strategies. For this to happen, the teacher needs to be enculturated to these experiences. For instance, participants in Nami et al.'s (2016) study found collective lesson planning difficult as they were accustomed to the individualistic learning approaches applied in a number of Asian and Middle Eastern educational systems.

Hence, to help this group of language teachers get effectively enculturated to practice-oriented, project-based, collective learning through CALL PD, preparation courses need to draw on both conventional didactic and modern pedagogical approaches. Didactic instruction followed by different forms of experiential and practice-oriented learning enables teachers to develop both conceptual and procedural knowledge (see Wallace, 1991).

Alongside effective enculturation, hierarchical relations among participants that might negatively affect the nature of their collaboration during the preparation phase should be controlled. This can be partly achieved by involving more homogeneous teachers in preparation courses and programs. Participants in Nami et al.'s (2016) study, for instance, avoided generating critical and negative feedback for peers in order not to hurt the feelings of more experienced classmates. The same argument applies to participating teachers' background technological knowledge. As noted

by Cengiz et al. (2017), when teachers are heterogeneous in terms of technological literary, some might be at a disadvantage while others benefit the most.

The efficacy of CALL PDs largely lies in their success in preparing teachers to integrate technology into language teaching/learning experiences (Chao, 2015). Grounded on inquiry-based approaches, it is suggested that teacher practice is the key to effective knowledge construction that can be translated into real-life classroom practices. Although such practice may not entail exactly similar qualities as real classroom practice (Nami, 2022), it can help teachers develop the required skills to cope with the complexities of real classroom instruction (Grudnoff, 2011). This observation also indicates that, of different approaches toward teaching/learning applied in PD research, a number of them are more productive for CALL teacher preparation. These include inquiry-based approaches, project-based learning, situated learning, and social constructivism.

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Chapter 29
Exploring the Value of CALL Writing Theories in Bringing Under-Represented Research Contexts Out of the Darkness and into the Light

Lee McCallum

Abstract The role of theory in CALL research has been studied intermittently over the last three decades. In this chapter, I revisit the role of theory in published studies that focus on improving learners' writing. I do so with the aim of illuminating the different ways scholars embed or omit theories in their work. The chapter uses the theory typology from Hubbard and Levy (2016) to achieve this aim. After describing different patterns or 'shapes' of theory use, I conclude the chapter by encouraging CALL teacher-researchers, particularly those in 'under-represented' contexts, to develop a questioning sense when reading and producing such research in their future professional development.

Keywords Computer-Assisted Language Learning (CALL) theory · CALL research literacy · CALL research frameworks

1 Introduction

The rationale for this edited volume is based on the notion that certain voices may be 'under-represented' in computer-assisted language learning (CALL) teacher education research. The chapters in this volume are, therefore, indicative of 'pockets' of research scholarship that have previously been 'hidden' from scholarly view in publication platforms.

While it is hoped that the publication and dissemination of this volume will lead to these voices, geographical locations or education settings becoming more dominant in the literature, it is my belief that for this aspiration to be achieved, CALL teacher-researchers need to have a firm grasp of the key theoretical tenets which are used to shape CALL pedagogies and research studies. A firm grasp of these theoretical tenets would have two main benefits. First, it would allow these CALL teacher-researchers to better understand the research they engage with and allow them to use it to shape their classroom practice further. Second, it would allow them to understand how they

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may engage with these theoretical tenets in developing their own research literacy and reporting their research to others in the CALL research community.

The present chapter is written with these potential benefits in mind and is intended to be a thought-provoking take on CALL theories for CALL teacher-researchers who belong to this 'hidden' CALL community, as well as being of secondary value to the 'wider' CALL community as a practice of professional development. The chapter begins by outlining the importance of theory in both teaching practice and research consumption/production. I then use Hubbard and Levy's (2016) theory typology classification to model how theories are presented in L2 writing studies. The chapter concludes by offering advice on how CALL teacher-researchers may critique the theories they engage with and use in consuming and producing research.

2 Theory, Practice and Research

This section of the chapter sets out the relationship between theory, practice and research broadly and then narrows to consider this relationship in the CALL community.

2.1 The Recursive Nature of Theory, Practice and Research

Kerlinger (1970, p. 9) defines theory as a "set of interrelated constructs [concepts], definitions, and propositions that presents a systematic view of phenomena by specifying relations among variables, with the purpose of explaining and predicting the phenomena". For Cohen et al. (2011), theory gathers together individual pieces of empirical data/research into a coherent framework and is, therefore, a source of further discoveries. There can be multiple theories in a particular research area and these can vary in their nature, purpose and scope with some theories being empirical, some being 'grand' or speculative, while others may be critical in nature (Cohen et al., 2011).

Theory has an important connection to practice and research in a recursive manner. If we understand a theory to be a collection of 'bits' that form a coherent framework, we can start to appreciate that theories are constantly evolving yet are concrete enough to act as anchors for continuous research on a topic, with practice enabling the flow of research and theory generation, 'testing' and subsequent refinement or extension (Cohen et al., 2011). The cyclical nature of theory, practice and research is shown in Fig. 1.

Booth et al. (2016) make a distinction between pure and applied research. They state that research is said to be 'pure' when it tackles a conceptual problem that does not transcend into a practical real-world situation, while research is said to be applied when it addresses a conceptual problem that does have practical application. They summarize that what we should *think* is related to the conceptual problem, while

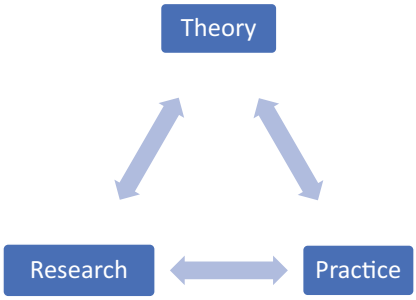

Fig. 1 The relationship between theory, practice and research

what we should *do* is related to the practical problem. While the thoughts of Booth et al. (2016) make obvious sense, there also needs to be an appreciation that, for fields like CALL, it is logical to assume that much if not all of the research produced will be 'applied' research with the intended outcome focused on improving classroom instruction because at the end of the day CALL is about instruction and learning enhancement.

The cyclical nature I mentioned earlier is therefore particularly important for the CALL teacher-researcher who engages with any or all three of these pillars on a daily basis in their duties. However, if we envisage theory, practice and research as being distinct yet linked pillars, we can also appreciate that the teacher's working knowledge, engagement and direct involvement with these pillars is unlikely to be equally strong across all three pillars. As Sect. 2.3 will show, many teachers have deep engagement with practice and research at the consumption level but their understanding of the theoretical underpinnings of such work is much more limited, as is their ability to use that understanding to produce their own research.

In this respect, CALL teacher-researchers have engaged with these three pillars inconsistently in conceptualizing, designing and sharing their work. Hubbard (2008, p. 387) states that "theory, research and practice are terms that permeate professional publications in any applied academic field. Of these, the most abstract and the one perhaps seen as holding the most legitimacy is theory". Hubbard (2008) believes that most research is expected to have a theoretical connection and holds that practice should reflect a theoretical orientation as well as a research basis. However, the section which follows will show how theory has occupied an inconsistent position in CALL research publications.

2.2 The Role of Theory in CALL

Hubbard and Levy (2016) echo traditional education research literature by highlighting that theory, practice, and research are three foundational pillars of any applied field, with this clearly applying to CALL. Mitchell et al. (2013, p. 2) set out that a theory is a more or less abstract set of claims about the units that are significant

within the phenomenon under study, the relationships that exist between them, and the processes that bring about change. For Coyne (1997) and Levy and Stockwell (2006), cited in Hubbard and Levy (2016), theory and practice are intertwined in obtaining successful solutions to problems. Hubbard and Levy (2016), therefore, see CALL theory as collectively representing the set of perspectives, theoretical models, frameworks and specific theories that:

- Offer generalizations to account for phenomena related to the use of digital technology in the pursuit of language learning objectives.
- Ground and sustain research agendas.
- Inform effective CALL design and teaching practice.

As an approach to language teaching and learning, many scholars have highlighted how CALL has relied upon an immensely complex array of theories (Akayoğlu, 2019; Hubbard, 2008; Hubbard & Levy, 2016). On the one hand, this complexity is to be appreciated, given CALL's relative youth as a field, while on the other hand, it presents a perplexing array of options for those with an interest in consuming and producing research in this field.

In light of these complexities, building on the work of Hubbard (2009), Hubbard and Levy (2016) developed a broad typology of how scholars use theories to design and narrate their published work. This typology includes focus on 'atheoretical' studies in the sense of published work not being informed by a theory, and also being grounded in a particular theory (theory borrowing), multiple theories (theory ensemble), or even blending theories to create a new framework, model or theory (theory synthesis). Other categories in the typology rely on a broad learning theory (theory instantiation) or orient towards refining a theory (theory refinement). Although rare, Hubbard and Levy (2016) also include theory construction, where researchers develop their own theory that is unique to CALL. The full typology and a description of each category are presented in Table 1.

A small number of studies have used this typology to inform an understanding of theory use in CALL studies. Hubbard and Levy (2016) note the lack of theory ensembles in the field, as well as a dearth in theory construction. A similar picture of scholars relying overwhelmingly on theory borrowing was also found in Akayoğlu (2019), with three theories emerging as the most popular: social constructivism, sociocultural theory, and interactionist SLA. However, to some extent, these patterns of borrowing and patchy theory use are to be expected from CALL. This is because of its status as a relatively young field while being influenced by educational research theory, which in itself is 'uneven' and in the early stages of formulation when compared to natural science (Cohen et al., 2011).

Table 1 Hubbard and Levy's (2016) theory typology

Category	Explanation
Atheoretical	This is where no theory is used to support the study
Theory borrowing	Theory borrowing involves taking a theory from another field, e.g., education, psychology or linguistics and simply using it in the CALL study without any changes. The theory/theories are used here as a frame to test the environment but the underlying theoretical construct is unchanged
Theory instantiation	Studies that rely on theory instantiation do so by taking broad learning theories (e.g., activity theory) and placing them in a language learning environment where technology and language are both explicitly recognized as elements for analysis
Theory adaptation	Theory adaptation begins with borrowing but it transforms the original theory
Theory ensemble	A theory ensemble is used when the researcher draws on multiple theories to support different parts of their study
Theory synthesis	Theory synthesis combines insights from two or more sources into a single entity. The result of the synthesis is a new theory, framework or model
Theory construction	A native CALL theory is produced. It is independent of all other theories
Theory refinement	Theories are improved as a result of new data coming to light to support or refute their existence/use

2.3 How the Relationship Between Theory, Practice and Research Helps Develop Research Literacy in 'Under-Represented' Contexts

Working on the premise from Hubbard (2008) that theory, practice and research are foundational pillars of an applied field, it is fair to say that teacher-researchers need to have an understanding of these pillars for professional development in their respective roles. However, it should be acknowledged that many teacher-researchers working in some of the 'hidden' contexts illuminated in this volume face a myriad of obstacles in developing such an understanding. Some of these challenges are acknowledged in the following paragraphs.

Although there is an assumption that these pillars are independent of each other, it is more realistic to appreciate their inter-relationship. An understanding of the theory influences how teachers develop curiosity about what is and is not working in their contexts, and this curiosity, in turn, feeds into changing practice. Indeed, many scholars have actually demonstrated how this recursive nature has been partly evidenced in a number of developing countries. For example, in Vietnam (a context represented by Chaps. 20, 25, 27 and 30 in this volume), there is a strong body of knowledge on the challenges of engaging with and/or producing research at a high level, as well as an acknowledgement of the desire to develop a stronger research culture. This desire can be seen in Hiep (2006), as well as the recent work from Vu (2021). Hiep (2006, p. 8) especially interviewed teachers in Vietnam and found that

their interest in research stems from "we may come up with some particular problem and this urges us to explore why this problem exists and if there is any possible solution to it", while others point out the importance of reflection: "but research for us basically means reflection on our practices, on a particular classroom problem to find out ways to improve our work". However, teachers also highlight their difficulties with navigating research reporting conventions. Hiep's (2006) work serves as a pertinent example of how interest in conducting research appears to be healthy; however, actual dissemination in the form of formal research papers and conference presentations is a stumbling block for many promising teacher-researchers. A similar picture was found in Vu (2021) who found that research was just a distant desire for many teachers.

At this point in the chapter, it is relevant to acknowledge that there are many documented reasons why particular research contexts are 'under-represented' with there being a disparity between the consumption and production of research. Amongst these reasons, there is strong evidence that CALL teacher-researchers may lack the necessary competencies to produce rigorous research which is solidly grounded in appropriate theories, knowledge production and practice improvement aims. In light of this, the remainder of this chapter taps into these deficiencies by providing a broad overview of how accomplished CALL teacher-researchers narrate their research by drawing on appropriate theory, practice and research in a convincing manner. The remaining sections of the chapter begin by providing an overview of the current state of play with writing studies and the extent they have drawn on theories to shape and inform their research studies. The chapter then moves on to consider where and how theories are used in different parts of research studies to present a coherent story to readers. It is hoped that such an analysis will allow CALL teacher-researchers to gain confidence in judging appropriate research design/writing methods that they see in research publications as well as enlighten them about options they have for crafting their own research papers.

3 Methodology

Before guiding readers through the theoretical landscape of writing studies, it is necessary to provide an overview of how writing studies were chosen for analysis in this chapter. The systematic literature review began with a selection of appropriate Q1-ranked journals which specialized in CALL. I decided to opt for Q1 journals as they represent the most widely read and impactful platforms for research publication in the field. It is hoped that by focusing on Q1-ranked journals, readers of this chapter will therefore gain an understanding of how writing theories function in highly ranked journals.

I opted to include six CALL-specific journals in the systematic review: CALL Journal, CALL-EJ, JALTCALL, ReCALL, Language Learning and Technology (LL&T) and CALICO. Although other Q1-ranked journals exist (e.g., Teaching English with Technology), I wanted to include the study of all languages, rather

Table 2 Study retrieval and exclusion/inclusion information

Journal	Search period	Initial study retrieval	Final studies included
CALL Journal	1990–2022	808	415
ReCALL	1989–2022	526	145
LL&T	1998–2022	371	153
CALL-EJ	1996–2022	274	101
CALICO	1983–2022	209	78
JALTCALL	2005–2022	139	55
Totals		2,327	947

than simply those focusing on English, which is already dominant in the literature. I included studies from each journal's first issue to the most recent in mid-2022. Time periods studied for each journal are shown in Table 2. In order to be as systematic and rigorous as possible, I downloaded every publication from these journals and then manually filtered them. The number of studies originally retrieved for each journal is shown in Table 2, alongside the final totals for exclusions.

For each journal, I manually filtered out the following:

- Review studies based on secondary data. This included meta-analyses and systematic reviews as well as bibliometric studies and citation patterning studies. This also included books and software reviews, lesson plans, work-in-progress reports of project designs.
- Studies where data was collected across multiple locations and so geographical location could not be separated out to a single location.
- Studies with unknown locations.
- Studies not written in English.
- Studies not focusing on an aspect of writing proficiency.

Across the spectrum of Q1 journals, out of 947 studies which focus on improving individual or clusters of language skills/proficiency components, I read through each study's abstract and where necessary the full paper to establish how many focused on writing. I focus exclusively on empirical primary studies where CALL has been used as an intervention to bring about improvements in writing. These improvements may be reported quantitatively, i.e., in the form of reporting quantitative gains before and after the CALL intervention, or improvements may be reported more qualitatively by learners in the form of survey and/or interview data. From this, 226 studies focused exclusively on writing or at least focused in part on improving writing skills. The breakdown of studies per journal is shown in Fig. 2.

I read all 226 studies and used Hubbard and Levy's (2016) theory typology to classify the theories present or absent in each study. I focused initially on where theories were used to 'set up' or act as a theoretical foundation/rationale for the study but also recorded whether studies referred back to the same or different theories elsewhere in the study (e.g., when discussing their findings). I also made comments

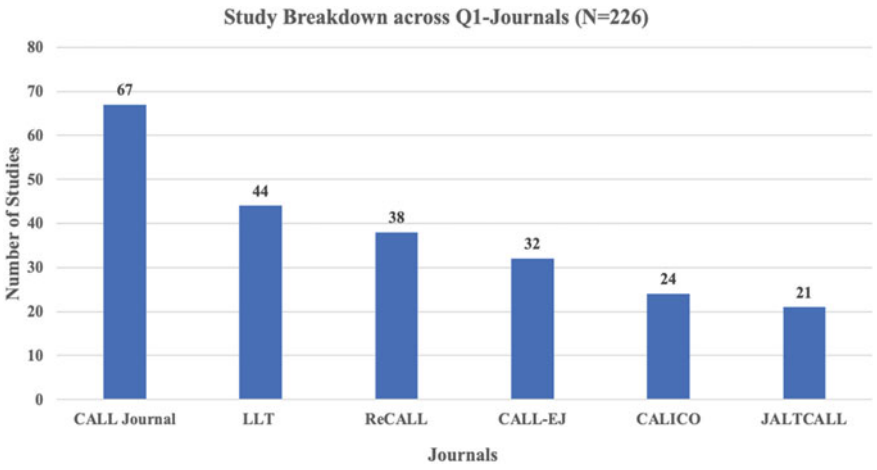

Fig. 2 Study breakdown

about the language/clarity of expression being used to describe the role of theory in the study. The analysis of the studies is presented in the next section.

4 Lessons Learned

4.1 General Trends

An interesting pattern emerged from the pool of studies in terms of the contexts being investigated. Although some contexts were the result of collaborations (e.g., collaborations between European countries), the majority of studies focused on a single geographical location. Table 3 shows the top five countries of study. Beyond this top five, there is then a sharp decline in commonality. This decline is seen in Table 4 which represents the remaining individual research contexts under study. Table 4 highlights the dearth of writing research in geographical locations which have been noted to be 'under-represented' research contexts elsewhere in this volume (e.g., few studies in Egypt, Indonesia, and Latin America).

Table 4 shows that several contexts have only been studied a handful of times, with more contexts only studied once or twice in the review pool.

From the study pool, analysis over time highlights the continuous focus on writing that some contexts have. For example, the top five contexts of study have focused on writing in a consistent manner. The leading context of the USA has a history of studying writing for more than 20 years (2000–2022), while Taiwan has focused on writing from 2007–2021. Contexts such as China (including Macao and Hong Kong) have studied writing consistently since 1994, with the number of studies increasing

Table 3 Top five geographical locations for writing studies

Country	Frequency
USA	45
Taiwan	41
China (+Hong Kong)	24
Iran	20
Japan	15

Table 4 Less frequent geographical locations

Country	Frequency
South Korea	11
Turkey	8
Spain	7
France	5
UK	5
Australia	4
Ireland	4
Jordan	4
Belgium	3
Egypt	3
Indonesia	3
Malaysia	3
New Zealand	2
Sweden	2
Vietnam	2
Canada	1
Chile	1
India	1
Israel	1
Lebanon	1
Mexico	1
Oman	1
Pakistan	1
Saudi Arabia	1
Singapore	1
Thailand	1

over the last decade. The same picture emerges with Iran–with an increasing focus on writing over the last five years. South Korea has enjoyed a focus on writing from 2014–2022.

Outside the Top 5 countries, interesting patterns emerge. For example, for contexts such as the UK and Australia, their focus on writing can be said to be historical, with studies taking place from 1995–2005 in the former; and 1996–2011 for the latter. In other contexts, we see the opposite, with their studies all appearing either in the last ten (e.g., Turkey) or five years (e.g., Indonesia, Thailand, Egypt, Singapore, and Pakistan). However, it is interesting to note that in these geographical locations, there is still a substantial gap in presence in Q1 journals when compared to those countries with established track records of publishing writing research.

Of course, there are many possible reasons for lack of presence in these journals. This might be because of a lack of focus on the skill under examination here: writing; or it might be because much of the scholarship is published outside the Q1 journals; however, it is also possible that a lack of presence relates to a lack of research literacy and a lack of experience in reporting their experiences of CALL research and their empirical results. For these reasons, an analysis of how studies are conceptualized and reported is of obvious benefit to these geographical contexts. Such an analysis hopes to raise awareness of the diversity of practice which exists but also to offer commentary on practice which is particularly 'successful' in the sense of aligning with Levy (1997) and Hubbard's (2008) views on the importance of theory in empirical CALL research.

4.2 An Overview of Theory Category Frequencies

Figure 3 highlights that the majority of studies were atheoretical in nature, followed by being based on 'theory borrowing'. One overlooked point about the typology from Hubbard and Levy (2016) is that studies which fit into individual categories do so on varying levels of strength. When reviewing the 226 studies, I found that some studies were clear representatives of a particular category while others only contained passing claims of being aligned with a particular theoretical orientation. This was especially true for the category of theory borrowing. In the analysis which follows, I especially highlight studies which move along a loose a continuum within the theory borrowing category. In doing so, I remind readers that these studies highlight the breadth and depth of theory use or non-use in the CALL literature and present CALL teacher-researchers with a number of conceptual ways of presenting empirical research work.

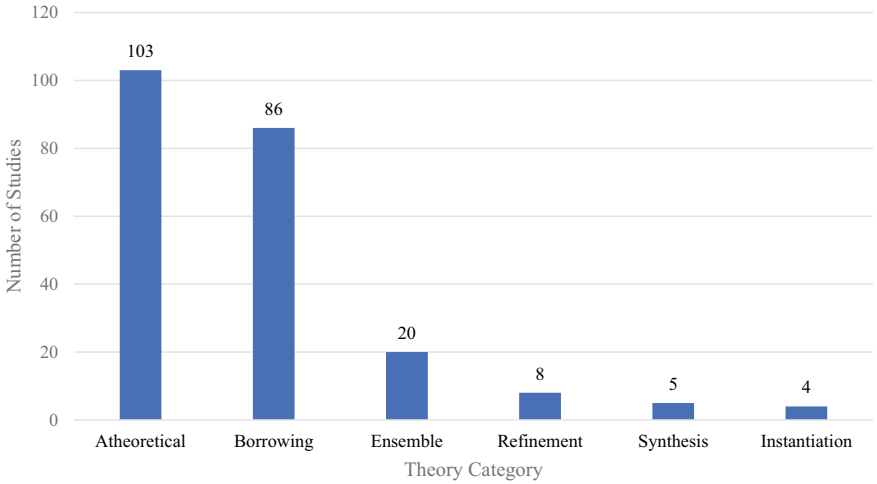

Fig. 3 Study breakdown by typology category (N = 226)

4.3 A Critical Look at Researcher Practices with Each Theory Type

This section presents the analysis of several published papers as case studies. It illuminates interactions between theory, practice and research that are given attention by scholars. It also explores the choices scholars make when narrating their research, its framing and decision-making.

4.3.1 Atheoretical

In contrast to other categories in Hubbard and Levy's (2016) typology, the framing of atheoretical studies is more straightforward and linear in nature. We can often observe that the study originates from a gap in teaching/practice and a literature gap is then presented from a review of past studies. These past studies are often grouped into strands or themes to build up the need for the study being narrated. This kind of structure was clearly visible in Wilken's (2018) study on automated writing evaluation (AWE) in the USA and also the AWE study by Li et al. (2019) in China. In Wilken (2018), the background sections present a broad overview of AWE research and then narrow to the study's focus: L1 glossed feedback. Similarly, Li et al. (2019) begins by placing AWE in the wider CALL field but no theory is explicitly mentioned—the authors simply target gaining an understanding of how learners use AWE. The literature review section is split into strands: (1) technological affordance, (2) learner perceptions of AWE, and (3) CALL technology adoption, amongst other sub-strands.

Outside the AWE area, a similar take is adopted by Blázquez-Carretero and Woore (2021), who begin their study by pointing out that L2 spelling is a much neglected, yet important area of L2 writing pedagogy. They go onto to set up their work by discussing various inter-connected themes. A similar pattern emerges in Mahfouz's (2010) study on how email exchange may help Jordanian EFL learners. Much like the other studies above, Mahfouz (2010)'s introduction leads with an overview of the benefits of email exchange. However, unlike the other studies reviewed in this section, Mahfouz (2010, p. 394) explicitly labels a background section as 'Theoretical Framework *and* Literature Review' (italics mine). Readers of the study may expect this section to begin with an anchoring theory and an explanation of how that theory permeates later reviewed studies and shapes the grounding for their own work. However, surprisingly, Mahfouz (2010) makes no explicit reference to theories, and follows the pattern found in other studies by simply presenting 'blocks', strands or themes found in previous studies. Readers of this study may therefore question the need for the reference to a theoretical framework. Indeed, inexperienced CALL teacher-researchers may wonder what the function of a theoretical framework seems to be if it is in actual fact, absent from the study.

The type of approach we see here with these studies follows a linear pattern in that the strands discussed blend a central pedagogic need with an overview of what past research has found without clearly anchoring the work in any distinct theory/theories. This kind of study conceptualization is visualized in Fig. 4.

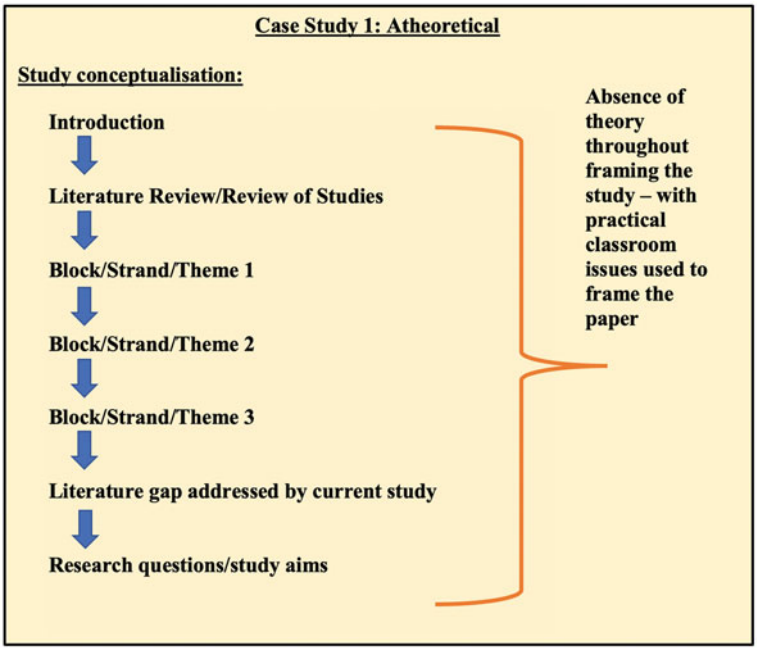

Fig. 4 Atheoretical study structure

4.3.2 Theory Borrowing

As mentioned in Sect. 4.2, I found theory borrowing to be the most fluid category in terms of studies showing strong or weak alignment with the notion of borrowing. However, I also found an interesting amalgamation of atheoretical and theory borrowing which did not simply represent either category in Hubbard and Levy's (2016) typology particularly reliably.

Case Study 2: Theory Borrowing as a Transformational Tool

Lirola and Cuevas (2008) represent a way of study conceptualization which clearly falls into being atheoretical in one phase of the research but later clearly borrows genre theory to enhance how they meet their study's aim of improving students' L2 writing. Their study begins, like many clear-cut atheoretical studies, by stating that they employed a CALL intervention to improve L1 Spanish students' university essays written in English—addressing a real-life tangible classroom problem. This particular intervention was the computer program 'Markin' which annotated students' essays for numerous grammatical errors (e.g., verb tenses, prepositions, articles), and then students were expected to use this information to improve their essays. However, after this first phase, students' essays had not improved as much as the authors had hoped. It is interesting to note that the authors make reference to the fact that the use of CALL as a *practice* (italics mine) often implies that the teacher adopts a more hands-off style and students are encouraged to become autonomous. The authors then revisit why improvements were not as expected and decide to anchor their approach in genre theory. Put simply, phase 2 of their study involved the teacher explicitly being offered, through genre theory, the opportunity to highlight linguistic aspects of texts and how these aspects relate to the purpose and expected conventions of particular text types. Lirola and Cuevas (2008, p. 75) explicitly state that their genre-theory approach had the aim "to teach students how written language draws on the resources of grammar, we helped them to understand (I) how the grammar of written language works, (2) how grammatical features cluster in particular text types, and (3) how grammatical knowledge relates to the skills of reading and writing", in line with De Sylva Joyce and Burns (1999, p. 118).

As shown in Fig. 5, the authors offer a transparent look at how a study's conceptualization, final write-up and impact are all deeply rooted in the shifting sands of when, where and how a particular theory may be borrowed as an anchor which boosts achieving the study's ultimate end goal of improving writing. This transparency is markedly different from studies which start off with no theory or follow a particular theory-laden path from the start of the study. On two other levels, Lirola and Cuevas (2008) also represent a good model of researcher reflection and practitioner awareness because they point out both the practical failings of simply adopting a CALL intervention to weak effect in phase 1 and highlight how they reflected on this and

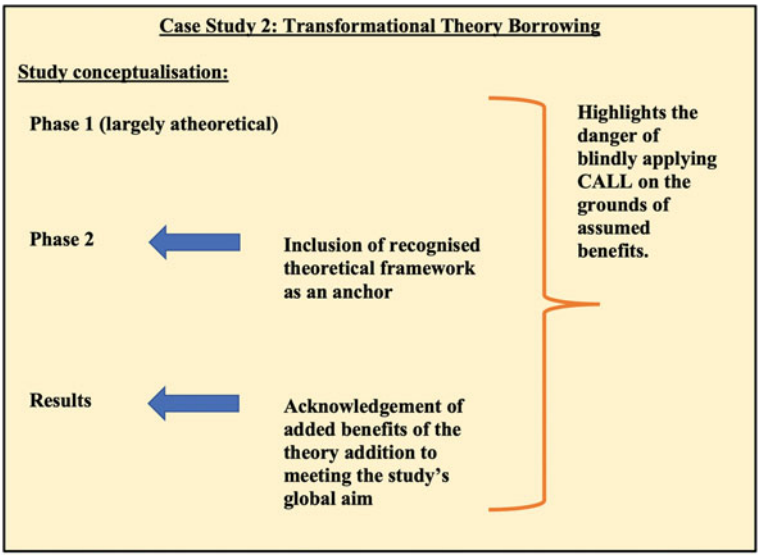

Fig. 5 Theory borrowing as a transformational tool

'added' value to their approach by borrowing genre theory to strengthen their work in phase 2 of the study.

Case Study 3: Strong Theory Borrowing

Ebadi and Rahimi (2019) adopt an explicit focus which embeds theory throughout their study. Their study explored how dynamic assessment (DA) could be used to support learners' academic writing. The strong focus on the theory is present in the abstract and introduction, before being elaborated on in further background sections. In the abstract, the role of theory as a central pillar of the study is clear, as Ebadi and Rahimi (2019, p. 527) state: "Drawing on Vygotskian sociocultural theory of mind and social constructivism, and adopting a sequential exploratory mixed-methods approach, this study explored the impact of online dynamic assessment on EFL learners' academic writing skills through one-on-one individual and online synchronous DA sessions over Google Docs". It is also clear that theory plays a central role in the study as a theoretical discussion of dynamic assessment begins the introduction. Ebadi and Rahimi (2019, pp. 527–528) again reiterate the role of SCT: "Theoretically grounded in the Vygotskian sociocultural theory (SCT) especially on his notion of zone of proximal development (ZPD), dynamic assessment (DA) offers a monistic view of assessment and instruction and focuses on developing abilities through interventions (standardized mediation) and interaction (flexible mediation)".

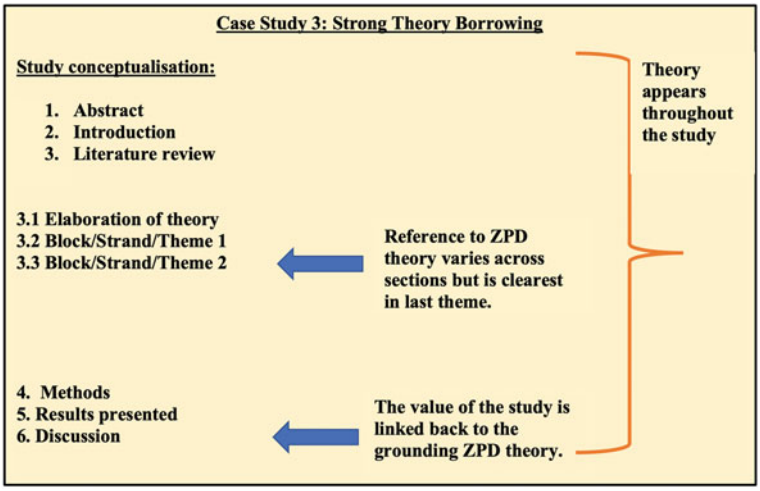

Fig. 6 Strong theory borrowing structure

Ebadi and Rahimi (2019, p. 528) also explicitly link their use of Google Docs to Vygotsky's SCT: "The online context of Google Docs, which includes participation and sharing, is affiliated with social constructivism which in turn is closely related to Vygotsky's SCT". The literature review section is another section which begins with an elaboration of SCT and is later divided into themes, which lead off of that theoretical elaboration. After this, the aim and research questions of the study are presented.

In the methods section, choices around data collection and the running of the Google Docs activity are also linked to SCT. Ebadi and Rahimi (p. 534) highlight that they based the time limits for the writing tasks on learners' ZPD. The influence of ZPD is also mentioned in the procedures description where Ebadi and Rahimi (2019, p. 534) detail how they ran the Google Docs set up and how participants interacted with the researcher/mediator.

The final mention of ZPD is in the discussion of the results section of the study. Ebadi and Rahimi (2019, p. 548) clarify how DA supports teachers/mediators in their classroom work because different learners have different ZPDs and therefore need different levels of support. The DA model allows mediators the opportunity to determine each learner's ZPD and then offer support to help learners achieve a particular level of academic writing. Figure 6 highlights the overall structural pattern of this study where there is clear evidence of strong theory borrowing throughout the study's sections.

Case Study 4: Weak Theory Borrowing

To illustrate the opposite end of the spectrum of theory borrowing, there were far more studies which sporadically 'borrowed' a theory at the early stages of the study presentation. By this, I mean in the background sections of the study. It should also be noted that these kinds of studies did so in a linear manner: theory is borrowed to somewhat set up the study and it does not feature prominently elsewhere in the paper. In this manner, the theory takes on a specific anchor to frame the study but is not a central feature throughout the study presentation as a publication. This is markedly different from the other study presentations explained earlier in Sect. 4.3.

Choi (2016) is one such example of this kind of borrowing. In Choi (2016), an ICALL system was developed to investigate the extent it could be used to feasibly teach grammar to Korean secondary and elementary students. The paper begins by outlining the rationale for the study, where the introduction almost acts as a mini literature review which illuminates the niche that the study aims to fill.

Choi's (2016) next section is labelled as the theoretical framework. It begins with a 'sources of error' section which sets forth the importance of identifying the source of learners' errors and to enabling students to notice their own errors and correct them independently. There is then a separate section on error classification which emphasizes the importance of working out a 'theoretically sound' taxonomy of grammatical errors. There is then a section on automatic error analysis, and a section on types of corrective feedback. At the end of these themes and very loose reference to theories, there is no clear statement of how these themes, their findings or theories are clearly related to the study. The methods section begins by setting out the context/participants then moves on to the procedures of the study. In this sense, there are later sections on the types of grammatical errors and details about the ICALL system itself (Choi, 2016) but the influence of the theoretical framework on this design and implementation at a practical level is distant and only implied. For example, there is a conceptual jump between the mention of error taxonomies in the theoretical framework to understanding what kind of taxonomy influenced the ICALL system (see Fig. 7).

4.3.3 Case Study 5: Theory Ensemble

Dzekoe's (2017) descriptive case study on how ESL students used computer-based multimodal composing activities to facilitate self-revision and learn English through academic writing in the USA is a clear example of theory ensemble.

Starting with the abstract, Dzekoe (2017, p. 73) makes it clear that three theories informed the study: "The research was framed within an integrated theoretical framework of multimodality, the noticing hypothesis and the multi-dimensional model of revision". The introduction gives an overview of the study and its broad findings, and then in the literature review, Dzekoe elaborates on the theories outlined in the abstract.

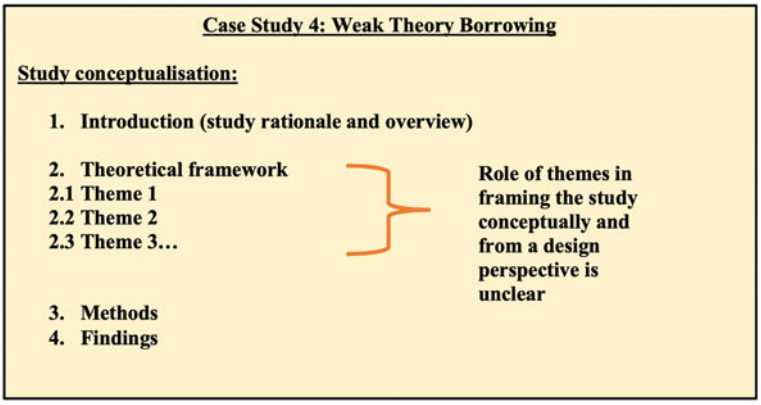

Fig. 7 Weak theory borrowing

Dzekoe explicitly divides the literature review section into four themes which elaborate on the theories which inform the study: 'Multimodality: Language as a Semiotic Mode', 'Multimodal Composing as Procedural Support', 'Noticing in L2 Writing', and 'Multi-Dimensional Model of Revision'. First, the theory of multimodality is introduced, and it is explained how this theory highlights 'how language and other modes interact and sustain each other in communication' (following the views of Shipka, 2005). There is then a clear statement in the next section, 'Multimodal Composing as Procedural Support' which clarifies what perspectives from multimodality are adopted in the study. Dzekoe's (2017, p. 74) statement reads: "This study adopts two perspectives from multimodality: writing as design (Hyland, 2009; Kern, 2000), and intersemiotic complementarity…". These perspectives are explained and then the next theory, the noticing hypothesis (Schmidt, 1990), is introduced and a rationale for using it in the study is also provided. The last theoretical perspective introduced and used is a multi-dimensional model of revision, following the work of Stevenson et al. (2006). The study then moves on to the methodology, results and discussion. It is worth mentioning here that readers might be surprised by the absence of a clear statement from Dzekoe about how the theories *work together* in the study; that is to say, there is a clear rationale for each theory but not a clear global rationale for their use together in the background sections of the study.

However, such a statement *does* appear in the conclusion, and it is reinforced by the structure and breakdown of the conclusion section itself. Dzekoe (2017, p. 86) states:

> In addition, the use of an integrated framework, which combines multimodality, noticing and the multidimensional model of revision, provides precedence for the field of L2 research regarding how these three theories might work together in helping resolve the challenges L2 writers have with self-revision. This study also contributes to these theories by showing how the noticing hypothesis can be applied not only to spoken language and syntactic aspects of language, but also to the meta-linguistic and macro-level elements of writing such as organisation of ideas.

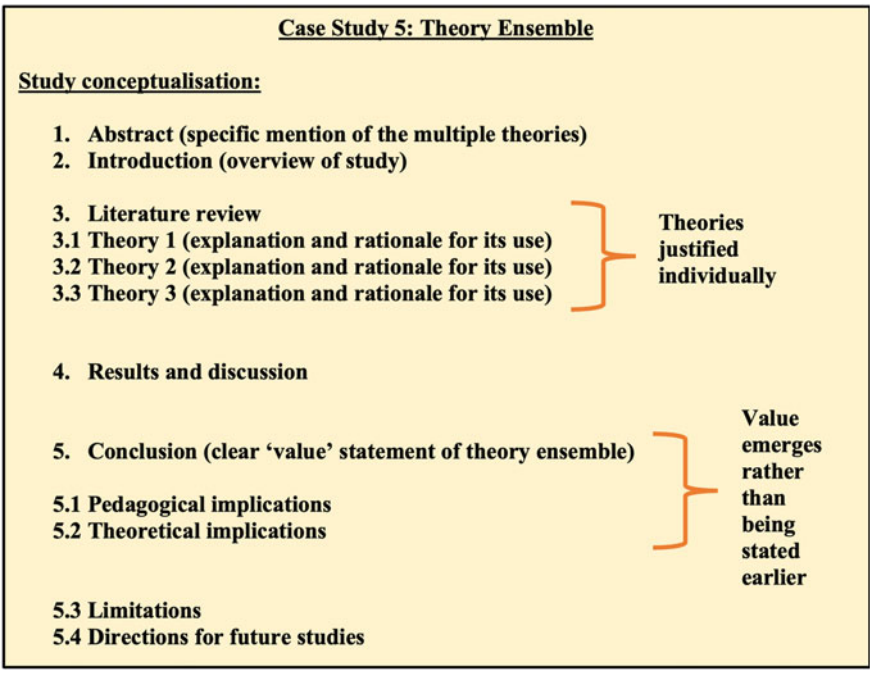

Fig. 8 Theory ensemble

The conclusion of the paper is then divided into headings named 'Pedagogical implications', 'Theoretical implications', 'Limitations', and 'Directions for future studies'. It seems important to encourage readers here to consider if the true value of such an ensemble emerges post-study or is communicated clearly enough pre-study as a framing tool. Dzekoe's (2017) concluding remarks seem to indicate that the former is the strongest intention. However, in contrast to the questionable role of theory in the study design in case study 4, there is a much clearer communication of how the theories play a role in the study design and its actual implementation in Dzekoe (2017) (see Fig. 8).

4.3.4 Case Study 6: Theory Refinement

Nelson's (2006) study, which attempts to apply Kress's (2003) ideas of synaesthesia, transformation, and transduction to analysing L2 undergraduate writers' multimedia text creation processes, is an example of how theory refinement emerges from such a starting aim. The overall conceptual shape of the study is presented in Fig. 9.

Nelson (2006, p. 56) begins by directly stating how Kress's (2003) building thoughts on multimodal theory are used in his study: "As a point of departure, I take Gunther Kress's (2003) assertion that a theory of multimodal meaning-making must

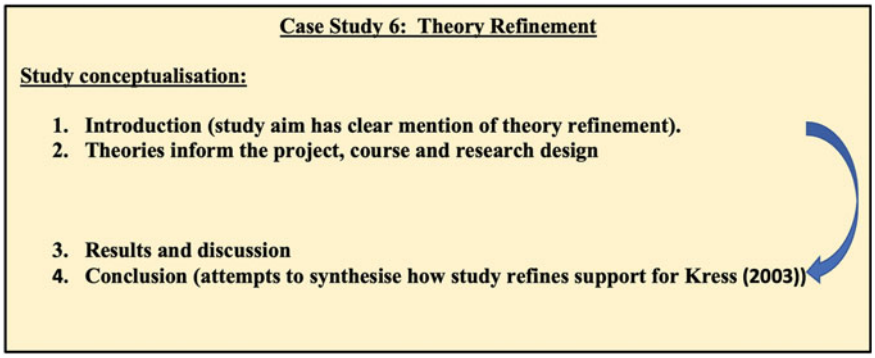

Fig. 9 Theory refinement

account for the complementary processes of *transformation* and transduction, which he explains as the purposive reshaping of semiotic resources *within* and *across* modes respectively". Nelson (2006, p. 57) reinforces his use of Kress's (2003) theoretical position: "Drawing substantially upon the important conceptual work of Kress, as well as others, the main aim of this paper is to illuminate the nature and workings of synaesthesia within one particular, increasingly popular species of multimodal communication, digital storytelling". This use is further strengthened when Nelson (2006, p. 57) clearly states the study's aims: " I aim (a) to demonstrate practical evidence of the synaesthetic functions of transformation and transduction at work in the multimodal text creation process, (b) to specifically show how the synaesthetic functions of transformation and transduction can actually serve to both *facilitate* and *hinder* authorial voice, understood as the purposive expressions of personal meaning, in consequential ways, and (c) to point out some possible implications of synaesthesia and multimodal communication for L2 authors in particular".

The paper then splits into different themes but with no clear indication (only an implied reading between the lines) that these themes act as a kind of literature review. The themes ('Authorship and Technology', 'Multimodality and Synaesthesia') and their key tenets are later used in the project design section that follows, as well as the course design. Nelson (2006, p. 61) then has a section named 'Research Design' where he explains that the study aligned with the theoretical tradition of "design experiments" where both Nelson and his students engaged in technology-oriented practices for purposes of accomplishing real-world goals (i.e. improvement of writing and communication skills, artistic creation) as well as coming to a better understanding of how communication works.

After presenting and discussing the results, Nelson (2006, p. 71) has a section named 'Possible implications for L2 writers'; however, it is only in the conclusion that Nelson returns to support for Kress's (2003) original theory which holds that technology allows authors to produce texts, to alter them, to write and write back are supported by the results of the present study, however, his earlier aim of explicit

theory support/refinement is not actually explicitly revisited in the conclusion in great detail.

4.3.5 Case Study 7: Theory Instantiation

The clearest example of theory instantiation is perhaps Gu et al. (2020) who draw on problem-based learning (PBL) to inform different parts of their study. They draw on PBL to analyze the learning gains and also the integration of technology when designing and using a constructivist learning environment (CLE). The two strands of analysis are separated in the study and then brought together at the end to provide a clear explanation of how the two deepen understandings of how PBL benefitted the writing research classroom in their Chinese EFL context. The overall conceptual shape of the study is shown in Fig. 10.

The study is a qualitative case study which aims to investigate the use of a technology-enhanced CLE for developing undergraduate English Majors research abilities at a Chinese university. The study begins by placing the integration of technology into a wider geographical context by outlining technology integration in China. The introduction of the paper then introduces the role/value of using constructivism and problem-based learning (PBL) to bridge theory and practice: "Supported by constructivism (Dewey, 1938; Piaget, 1972; Vygotsky, 1978), problem-based learning serves as a good instructional model to bridge theory to practice" (Gu et al., 2020, p. 539). Gu et al., (2020, p. 539) then explain how PBL originated in medical education and how it has had extensive application to other fields: and how it emphasizes key research skills, including critical thinking, autonomy, interaction, personal and social relevance and how it helps students to conduct research, integrate theory and practice, and apply knowledge and skills to develop solutions to problems. The introduction then has two 'blocks' of text which review past research on how PBL

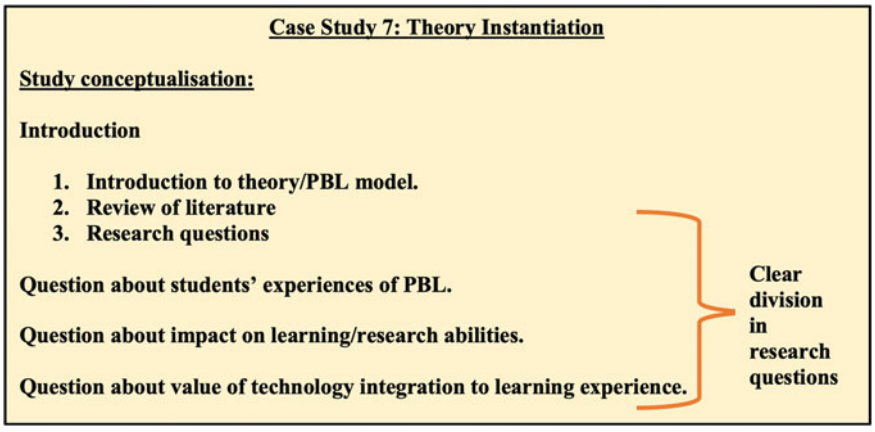

Fig. 10 Theory instantiation

can be used to design a CLE *and* also improve learners' research abilities. The review creates the rationale for Gu et al.'s (2020) study.

The paper then contains a section on the learning context and then another section on the CLE. It then formally moves to present the study's research questions. The study's research questions indicate that PBL is studied on two levels: the level of research abilities (of which language/writing is a part of) and the level of technology integration (including the practicalities of this). The study is, therefore, a clear representative of theory instantiation. This separation is also evident in the results section, where each research question is dealt with using separate headings and sub-headings. As shown in Fig. 10, the study conceptualization is a good illustration of how two separate strands of analysis are informative independently but also when brought together to provide a comprehensive understanding of how a particular system aids learners.

4.3.6 Case Study 8: Theory Synthesis

Fan and Chen (2021) manage to clearly communicate how different theories and frameworks come together to inform the eventual framework they designed to help students write argumentative essays. The study aimed to improve sixth-graders' argumentative writing abilities by using argument maps. Fan and Chen (2021) also compare different approaches to (digital) mapping to see if one approach brings about increased writing improvement when compared to the others.

Fan and Chen (2021) set out the aims of their study and ground it in argumentative writing development. Their literature review section is clear in how the different frameworks come together to inform their study. As Fig. 11 shows, the study divides the literature review into approaches to argumentation and mapping, with readers able to clearly align these approaches to the approach Fan and Chen (2021) adopt when later reading the 'system design' section. The authors also make it clear how the key frameworks presented in the literature review are used to create a bespoke framework for their teaching context. They achieve this by producing a series of diagrams which illustrate how the theoretical ideas in the literature are transformed into practical activities in the study.

5 Discussion

The studies reviewed in this chapter represent a wide array of approaches taken to research conceptualization, design and communication by CALL teacher-researchers from multiple contexts. This array of approaches helps us understand the choices CALL teacher-researchers are faced with when battling to improve how they engage with the three pillars of theory, research and practice and how that engagement is presented in the form of a journal publication.

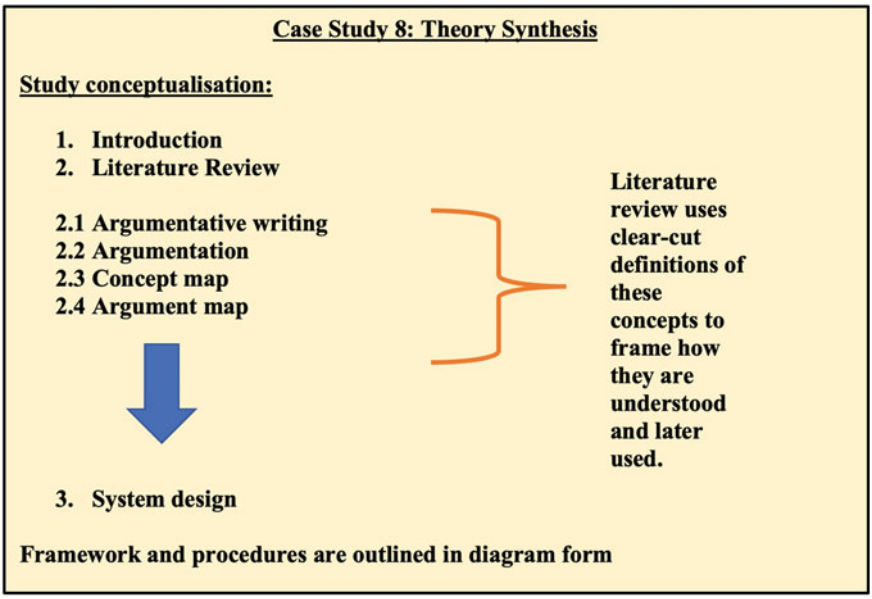

Fig. 11 Theory synthesis

The chapter has highlighted the frequent occurrence of atheoretical studies which take their starting point as a classroom problem and base their work around this problem as well as an understanding of the research on this problem. This type of approach has long been discouraged by prominent CALL scholars with Levy (1997) encouraging research to be theory-driven but it must be done with caution. Levy (1997) warns that not all borrowed theories are easily borrowed and transferred to different CALL teaching contexts with some theories specific to particular contexts. It seems timely here to remind readers of the comments from Cohen et al. (2011) that I drew on in Sect. 2. To Cohen et al. (2011), theory represents a gathering up of 'bits' of findings on a particular topic and so it seems cautious to remember that these 'bits' will not always fit across contexts.

However, it also seems pertinent to place this advice within the wider language teaching and learning arena and around comments which are now being made regarding the distance between practitioners and researchers in TESOL (of which CALL appears to draw significantly on). For example, Rose (2019) is amongst a group of scholars who are encouraging research to be more understandable and accessible to teachers who consume and produce research as part of their own professional development. I would therefore like to highlight that for many teachers who consume/produce CALL research, they do so with an eye on practical application. This practical application takes priority over potentially being weighed down with lengthy theoretical discussions.

The analysis of the case study papers in this chapter has raised a number of possible approaches yet should have also raised questions with readers about the value of

these possibilities. In the penultimate sections that follow, I present several guiding questions that CALL teacher-researchers can use to help conceptualize, design, and write up their studies in a coherent manner, making clear the role of theory/theories in their work. The list of questions during each stage of the research is not intended to be exhaustive but is instead intended to provide a starting springboard for CALL teacher-researchers to critique their own research ideas and the written presentation of research that they see in publications.

5.1 Critical Questions to Ask Before Designing and Conducting a Study

- What is the aim of my research?
  - What role does theory play in my aim?
  - Is it a supporting role which helps explain the need for the study? Is it a supporting role in the study's research design? Or does it play both of these roles? If yes, how are those roles going to be articulated in my study?

5.2 Critical Questions to Ask During the Writing up of a Study for Publication

- If I imagine my article as a puzzle and solution, what parts of the puzzle do I need to include in my article and is theory one of those parts?
  - If theory is one of those parts, where does it fit in the article? Does the theory part 'fit' easily into the puzzle or does it feel forced into the puzzle?
  - Is theory a movable or modifiable piece of the puzzle? Can it feature in more than one section of the article? If yes, how will I make the appearance of theory in different sections clear?

5.3 Critical Questions to Ask/Invite After the Writing up of a Study for Publication

- Can readers follow the puzzle and the solution I present by seeing clear connections between the pieces and the whole puzzle? In other words, can readers see the value of the pieces individually and appreciate their role in the whole puzzle?

6 Conclusion

This chapter has provided an overview of theory use in L2 CALL writing studies. In doing so, the chapter has highlighted several ways CALL teacher-researchers have used theories to shape their published work and highlighted areas of this practice which are successful/less successful in communicating their work to readers. It is hoped that CALL teacher-researchers in 'under-represented' contexts will find value in such an overview and use the overview to develop their own questioning of research conceptualization and eventual write-up/publication.

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Chapter 30
Online Community of Practice on Facebook: A Case Study of EFL Teachers in Vietnam

Phuong Le Hoang Ngo and Chau Ngoc Bao Nguyen

Abstract The book chapter is developed based on the framework of Communities of Practice, which is identified with the domain, practice, and community properties (Wenger in Communities of practice: learning, meaning, and identity. Cambridge University Press, 1998). It looks at how Vietnamese EFL teachers employ Facebook to create their online communities of practice for professional development (PD). In so doing, it focuses on the Facebook group Teach and Tech, which has been active since 2015 with nearly 120 thousand members nationwide. The authors performed a thematic analysis of the posts' content and interactions, including comments, shares, and reactions. It was found that the participants of Teach and Tech are highly motivated to engage in their online PD platform. In addition to hosting apparent PD practices such as exchanging ideas, sharing knowledge, seeking help, and offering solutions, the Facebook community was also found to be a therapeutic safe space where members could convey and validate their social and professional emotions and experiences. The number of follow-up interactions for certain types of the post also indicate that teachers are particularly eager to provide assistance and showcase their technological expertise. The chapter underlines the necessity for administrators and teacher educators to consider social media spaces as potential platforms for official PD activities.

Keywords Online Communities of Practice · Professional development (PD) · Facebook · Vietnamese English as a Foreign Language (EFL) teachers

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1 Introduction

Computer-assisted language learning (CALL), or integrating technology into language teaching and learning, has remarkably been emphasized by the Vietnamese government as one strategic response to the rapid development brought by globalization and internationalization (MOET, 2008; National Foreign Language Project, 2019). During the last two decades, a number of governmental policies have been introduced to make way for CALL implementation in English as a Foreign Language (EFL) classrooms. For example, Directive 55/2008/CT-BGDĐT was issued by the Ministry of Education and Training, stating the need to apply technology in education in general from 2008 to 2012. The academic year 2008–2009 was also chosen as "the year of technology implementation" in Vietnam. Similarly, from 2008 up to now, the National Foreign Language Project (NFLP) has launched various programs to push the use of technology in English classrooms, remarkably stressing the roles of CALL. Under such impacts, it is widely reported in the media that schools at all levels in Vietnam have requested teachers to speed up their CALL application. This leads to a need to support teachers' professional development (PD) in the domains of both technology and pedagogy (Nelimarkka et al., 2021).

Accordingly, formal training programs, workshops, or seminars have been organized throughout the nation. These top-down PD activities are viewed as the norms in Vietnam and "a backbone for the success of educational language reform" (Nguyen et al., 2019, p. 80). However, previous studies in the context have reported several problems with such formal PD projects. First, according to Nguyen and Mai (2018), they tend to occur in preselected places, follow structured content, and require EFL teachers to make personal arrangements to participate. Therefore, they are ineffective in terms of time, funds, and human resources. Besides, many teachers feel obliged, other than voluntary, to participate in these activities. Consequently, these participants may consider in-service training as "an additional demand on their time, a financial loss, a cause of physical exhaustion, and thus a painful experience" (Le, 2019, p. 72). In addition, in terms of content, the training programs may be heavily packed and theory-based (Le & Yeo, 2016), lack applicability (Nguyen et al., 2019), or not address the real teaching contexts of participants (Nguyen, 2019).

While top-down in-service training activities may continue to serve as the crucial components of PD for Vietnamese EFL teachers (Le, 2019), a bottom-up PD approach, in which teachers are active agents in making technological and pedagogical changes in their classrooms, has been reported in the literature. Such grassroots initiatives can be seen in the forms of critical friend groups (Phan & Nguyen, 2021; Vo & Nguyen, 2010) or institutional communities via group chats on Zalo, a Vietnamese instant messaging app (Tran, 2019). Especially, Facebook has been chosen by many EFL teachers as their PD virtual space to educate themselves about what they need for their teaching contexts.

Against this backdrop, the current book chapter is going to look at a Facebook group—a Vietnamese teacher-generated platform for professional learning. The study is hoped to contribute to the field of CALL and teacher education for two

reasons. First, Vietnam is still an under-represented context in the existing literature. While the number of CALL studies in Vietnam has increased markedly, they have not truly reflected the popularity and impacts of CALL in the country. Secondly, the use of Facebook for informal PD activities is still under-researched in Vietnam. Therefore, by addressing the use of Facebook for informal PD activities, it offers research-based information for policymakers in terms of developing appropriate policies that can support their EFL teachers in improving technological and pedagogical competences.

2 Voices Already Heard

2.1 Online Communities of Practices for Teachers

Constructed upon the social or situated learning theory (Lave & Wenger, 1991), Communities of Practice (CoP) are defined as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger-Trayner & Wenger-Trayner, 2015, p. 5). A CoP may come in various forms: small or large, local or global, face-to-face or online, and it is constituted by the combination of three dimensions: domain, practice, and community. The element "domain" refers to the shared interest, competence, or commitment that can distinguish members of a CoP from other people. Meanwhile, "practice" denotes the shared repertoire of resources, such as experiences, stories, or tools that people develop along with their CoP membership. During the sharing process, members experience joint activities, discussions, problem-solving opportunities, information sharing, and relationship building. Via such interactions, they build relationships and create their "community" (Wenger-Trayner & Wenger-Trayner, 2015).

Against this backdrop, a teacher CoP, applied to the PD activities for teachers, is seen as "a group of teachers who are socially interdependent, who participate together in discussion and decision making, and share and build knowledge with a group identity, shared domain goals and interactional repertoire" (Brouwer et al., 2012, p. 320). There are different ways to classify teacher communities, one of which is suggested by Vangrieken et al. (2017): (1) formal teacher communities, (2) member-oriented teachers, and (3) formative communities. No matter how different these communities may be, they all reflect the same phenomenon of teachers getting together and engaging in social interactions for the sake of their teaching quality, including pedagogical understandings, content-specific knowledge, and new technologies (Lantz-Andersson et al., 2018).

Over the last few decades, technological advances, accompanied by social, cultural, and other factors, have made online teacher communities more and more ubiquitous. Many of these are informally developed by teachers to develop their professional competences. These communities often take place on social network sites (SNS), particularly on Twitter and Facebook (Lantz-Andersson et al., 2018;

Macià & García, 2016). In other words, SNS have turned into avenues for teacher-initiated PD activities (Lantz-Andersson et al., 2018; Macià & García, 2016), as they can "facilitate PD that is more participatory, grassroots and supportive of teachers' roles as professionals and intellectuals" (Carpenter & Krutka, 2015. p.708). They are believed to create a more "fluid and responsive form" of teachers' learning compared to traditional and formally organized PD events (Prestridge, 2019, p.2). Previous studies (e.g., Davis, 2015; Kelly & Antonio, 2016; Rensfeldt et al., 2018) have supported that such informally developed teacher communities on SNS function as a source of information, a place for curating and/or filtering new ideas, and a form of emotional and professional support (Lantz-Andersson et al., 2018). This type of online teacher community also highlights teacher agency in responding to educational changes (Tran, 2019) and underlines the teachers' individual needs and desires related to their teaching practices.

2.2 Facebook Froups as Online CoP for Teachers

Among different SNS, the use of Facebook Groups as online CoP for teachers in different contexts has generated a number of research interests. Ranieri et al. (2012) explored the professional use of Facebook among five groups of Italian teachers via an online questionnaire. Their findings suggest that participation in these groups may have a positive impact on teachers' PD and hence, policy-makers should encourage and support the use of Facebook as well as SNS for professional learning. Similarly, from interviews with four administrators and 22 members of a Facebook CoP for Trinidadian teachers, Bissessar (2014) found that this group was considered to develop teachers professionally by providing information on six aspects, namely curriculum, teaching methodologies, instructional technology, general teacher concerns, ethical concerns, and topical issues globally and locally. This informally developed CoP also promoted personal development through mentoring, social support and collaboration, celebrations, shared humor, and prayer. Likewise, Kelly and Antonio (2016) suggested that participation in Facebook CoP benefits teachers in three ways: connecting with other teachers, socializing, and seeking and/ or providing practical advice about teaching and teaching practices. Positive impacts of Facebook groups on teachers' professional learning are also found in other educational settings, such as Algeria (Laiche & Ghaouar, 2021), Belgium (Muls et al., 2019), Finland (Nelimarrka et al., 2021), Indonesia (Patahuddin & Logan, 2019), Kenya (Bett & Makewa, 2020), Sweden (Lundin et al., 2017; Rensfeldt et al., 2018) or Turkey (Yildirim, 2019). Especially, CoPs on Facebook are believed to yield significant contributions to teachers' learning in resource-scarce environments (Bett & Makewa, 2020; Le et al., 2021; Mai et al., 2020).

The existing literature also highlights certain matters to consider about teachers' Facebook CoP. For example, Nelimarkka et al. (2021) found that not many participants of their observed Facebook group in Finland, with about 20,000 members,

participated actively and made visible contributions to the maintenance and development of this group. Making Facebook groups a truly active, beneficial community for all members, therefore, is challenging. Additionally, Rensfeldt et al. (2018) pointed out that their investigated Facebook CoP was an example of "work-extending technology" since in many cases, teachers' participation in this community occurred outside working hours. In other words, the flexible mode of access of Facebook groups may result in the likelihood of 'never-ending' engagement" and overwork for teachers (Lantz-Andersson et al., 2018, p. 312). Furthermore, by joining Facebook CoP, teachers were "inevitably engaged in the unpaid virtual labour" (Rensfeldt et al., 2018, p. 243).

In Vietnam, while Facebook is the leading SNS (Nguyen, 2021), the employment of Facebook for online teachers' communities is still under-researched, with only a few studies to be found in the existing literature (Mai et al., 2020). Against this backdrop, the current study aims to investigate how Vietnamese EFL teachers employ Facebook for informal PD activities, particularly during the time of the COVID-19 outbreak and the unexpected switch to online teaching and learning. Based on the theoretical lens of CoP developed by Wenger (1998), this book chapter is going to focus on a Facebook group, namely Teach and Tech (pseudonym), which has been active since 2015 with more than 119 thousand members nationwide. By looking at its posts' content and interaction, the study addresses the following research questions: "What are the characteristics of the Facebook community of practices for EFL Vietnamese teachers in terms of domain, practice, and community?".

3 The Study

3.1 Teach and Tech Facebook Group

The selected Facebook group, Teach and Tech, was formed in 2015 with the goal of promoting educators' creative and effective use of technology in the classroom to enhance the quality of teaching, learning, and management in education. The community is self-described as a place where teachers can share experiences in the effective use of technology, connect, exchange, cooperate, develop professional capabilities, and promote innovation for the country's educational system. Unlike the majority of online communities in previous literature which were functioning for less than a year (Blitz, 2013), Teach and Tech has been active for six years (to date) and thus deemed to be in good standing (Kelly & Antonio, 2016). By the time this study was conducted, there were 119,111 members in the group, which is regarded as massive (Boyd & Ellison, 2007). Thus, it is classified as an extreme and critical case for investigation (Yin, 2009). The community's moderators are a group of 11 administrators, the majority of whom are local high school teachers.

3.2 Data Collection: Recording Posts' Content and Interaction

Data was collected over three months in 2021, between early August and mid-October. During this time window, the significant social effects of the largest and most severe Covid-19 outbreak in Vietnam led to a nationwide halt in face-to-face instruction in all educational institutions. For educators and students of many provinces across the country, this was the first time they made a foreseeable long-term transition to online platforms of instruction. Moreover, as most schools in Vietnam commence the new academic year in early September, this period was believed to prompt a surge in interest in technology-assisted teaching and learning, providing rich and thick data (Selwyn, 2012). To limit the possible loss of data due to the ever-changing nature of social media content (Kelly & Antonio, 2016), the posts' cache links were saved and screenshots of the posts were taken. A total of 1479 posts were collected, with an average of 19.5 posts per day.

3.3 Data Analysis: Analyzing Posts' Content and Interaction

Based on the guidelines set by Braun and Clarke (2006) and Saldaña (2013), a thematic analysis of the posts' content and interactions was conducted. After familiarization with the data set and highlighting the interesting data that emerged, a coding frame was devised. The codebook was both deductively and inductively developed based on the data content and theoretical reference to the Technological Pedagogical and Content Knowledge (TPACK) framework (Mishra & Koehler, 2006) and the Continuing Professional Development (CPD) Framework for teachers by the British Council (2015). The TPACK framework outlines the knowledge of the subject content and pedagogy in language instruction, as well as the capacity to navigate and incorporate available technological resources for teaching and learning (Mishra & Koehler, 2006). The CPD framework for teachers (British Council, 2015) enumerates 12 practices for professional development and describes their respective elements. As members of the Teacher's Community are rooted in a common interest in developing their professional capacity in technology-assisted learning and teaching, these two frameworks offer the theoretical groundwork for examining and classifying teachers' interactions.

After the researchers had coded the data, an independent coder examined the codebook and 20% of the data set. The inter-coder agreement was determined to be 87%, which was deemed reliable (Miles et al., 2014). Based on the salient patterns of meanings raised from the coded data, eight themes were identified: Lesson Planning, Classroom Management, Assessment, Technical Issues, PD Opportunities, Managing Resources, Sharing Emotions, and Others. Based on the purpose of posting, three functions were identified: Initiating Conversation, Troubleshooting, and Seeking Help. It should be clarified that Troubleshooting refers to situations

in which teachers sought technical assistance with technologies they had selected, whereas Seeking Help relates to pedagogical aid in adopting appropriate technology for instruction.

4 Lessons Learned

4.1 Themes of Posts on Teach and Tech

Most posts fall under one of the themes but it is not uncommon to see posts that are pertinent to two or more themes. These can be posts that seek support in several areas or ones that both initiate discussion and solicit advice. A summary of different themes on Teach and Tech is presented in Table 1.

As can be seen from Table 1, an overwhelming percentage of posts on Teach and Tech fall into the theme of Technology Tools. That Technology Tools garners the most attention among the eight themes, accounting for 932 posts (63%), is predictable given the name of this Facebook CoP. Posts in this category range from questions about a specific application, such as Microsoft PowerPoint, to information requests on more general topics. Meanwhile, pedagogical themes of Classroom Management, Lesson Planning, and Assessment are much lower, with each comprising over one-tenth of the total amount of posts. Slightly fewer are posts related to Sharing Emotions, making up 7.2%. This demonstrates that teachers' communities on Facebook do not only provide professional support to their members, but are also an emotional shelter to those who suffer from stress and confusion or experience joy and gratification in their teaching. Sharing Emotions posts also often receive more interactions than those about PD Opportunities and Managing Resources, which are themes that have the lowest number of posts at 4.1% and 2.7%, respectively. 9.3% of posts are classified into the Others category. These include posts with commercial purposes, administrative posts, and so on.

Table 1 Themes discussed on Teach and Tech

Theme	Working definition	%
Lesson planning	Posts that focus on selecting effective teaching approaches to guide student thinking and learning Sample: *Can you give me some recommendations on some highly interactive online teaching software in online teaching and learning?* Post #787	11.6
Classroom management	Posts that focus on assisting teachers manage the online classroom Sample: *This is how I give rewards to my students. Hope it will be useful for you!* Post #69	13.0
Assessment	Posts that focus on designing and adapting tasks for measuring and monitoring learners' progress Sample: *Can I ask you all if there is any tool to create listening tests, that is, any platforms that we can use to insert listening files?* Post #811	11.4
Managing resources	Posts that focus on selecting, adapting, and developing materials and resources with appropriate pedagogical strategies Sample: *Free photos, animations, illustrations to support learning design for teachers: Storyset.* Post #126	2.7
PD opportunities	Posts that are announcements of opportunities for PD Sample: *I would like to invite all English teachers to register for the convention!* Post #206	4.1
Sharing emotions	Posts that share personal emotions and feelings towards using technology and or teaching Sample: *Dear fellow teachers, when things go back to normal and students come back to school, do you think we would forget about online teaching applications?* Post #528	7.2
Technology tools	Posts that address issues with specific technological tools Sample: *May I ask when I present on PowerPoint with the audio file, I can't hear the sound. I only see the image. How can I fix it?* Post #183	63.0
Others	Posts about policies or for commercial purposes Sample: *My school is looking to upgrade the teacher account to the A3 package! Is there another teacher in the group who knows the unit to help me upgrade, please?* Post #1103	9.3

Table 2 Purposes of posting on Teach and Tech

Purposes	Working definition	%
Initiating conversation	Posts that initiate conversation or share expertise Sample: *Introducing teaching tool: Wakelet. What is Wakelet? Wakelet is a free platform that allows teachers to manage and organize content for saving and sharing* Post #977	63.7
Trouble-shooting	Posts that seek technical assistance on a particular technological tool Sample: *When I present on PowerPoint with the audio file, I can't hear the sound. I only see the image. How can I fix it? Thank you, everyone* Post #673	15.8
Seeking help	Posts that seek pedagogical advice on teaching and learning with technology Sample: *Can you give me some recommendations on some highly interactive online teaching software in online teaching and learning?* Post #453	42.8

4.2 Purposes of Posting on Teach and Tech

Teach and Tech participants can post on their Facebook groups for various purposes. They want to share a tutorial video they just made about a technological tool, or they are confused about a certain technological function and hence call for help. Some are puzzled by the switch from traditional to virtual classrooms and seek support from this online community. These different reasons, as mentioned in 3.3, are categorized into three main purposes: Initiating Conversation, Troubleshooting, and Seeking Help. However, it should be noted that some posts have multi-functions and are coded under more than one label. A summary of these functions is provided in Table 2.

4.3 Members' Interaction on Teach and Tech

To explore the interaction among Teach and Tech members, the number of reactions, comments, and shares was calculated (Table 3). While both positive and negative reactions were taken into consideration, none of the latter was found in the data set. Accordingly, what is meant by "reactions" in the findings are those positive icons such as Like and Heart. Those attracting a high number of reactions are often found under the themes of Technology Tools and Pedagogy, including Lesson Planning, Classroom Management, and Assessment.

Table 3 Summary of Posts and Post Interactions (N = 1479)

	Mean	Minimum	Maximum
Comment	17.2	0	183
Share	50.6	0	745
Reaction	81.0	0	1500

In Table 4, a detailed calculation of interactions across different themes and purposes is presented. It should be noted that posts in which authors initiate conversations to share their expertise tend to receive the highest reactions and shares. The average number of post reactions and shares under these themes is often above 100, while the average figure for comments is relatively lower. In addition, it is observed that the comments in these kinds of posts are mainly those thanking the author for sharing, tagging colleagues to share with them, and sporadic requests for clarification on using the tool. If such questions arise in the comments, it is usually the author of the post who answers. In other words, not much interaction related to knowledge construction can be found in the comments for these types of posts, as illustrated below.

Example 1

Member	Discourse
Author 1	*LEARNINGAPPS.ORG–massive interactive game creation website but extremely friendly for teachers and students… [YouTube link to tutorial included]* Post #398 No. of reactions: 591; No. of comments: 37; No. of shares: 737
Commenter 1.1	*Excellent, thank you!*
Commenter 1.2	*Many thanks, teacher*
Commenter 1.3	*This is great. Thanks*
Commenter 1.4	*Can I use this directly on the website? It's great!*
Author 1	*@Commenter 1.4, yes! This is a normal online game like Quizizz. It's not an app*

Compared to posts troubleshooting and initiating conversation, posts seeking help receive a higher average number of comments. They also trigger more discussion, sometimes heated debate, among their commentators. By requesting help in the online community, teachers attain tangible returns in the form of valuable information and answers or suggestions to their specific questions (Kelly & Antonio, 2016). Often, teachers request information with questions of a more general nature, as in Example 2.

Table 4 Average interaction rates across themes and purposes (N = 1479)

Themes	P	%	R	C	S
Technolog tools	IC	22.6	128.3	14.8	137.5
	SH	6.5	62.0	35.2	32.7
	TS	33.9	12.4	12.4	2.41
Classroom management	IC	5.8	118.4	10.7	89.7
	SH	2.1	48.2	25.2	22.6
	TS	5.1	21.4	14.5	5.8
Lesson planning	IC	9.2	198.8	21	188.7
	SH	1.7	51.6	27	25.6
	TS	0.7	12.5	2.5	2
Assessment	IC	6.9	130.2	16.4	120.3
	SH	2.1	28.0	27.0	9.8
	TS	2.4	23.3	16.6	2.4
Sharing emotions	IC	7.2	214.3	29.3	16.7
	SH	0	0	0	0
	TS	0	0	0	0
Managing resources	IC	2.4	71.1	7	70.6
	SH	0.3	2	4	0
	TS	0	0	0	0
PD opportunities	IC	4.1	102	35.8	27.2
	SH	0	0	0	0
	TS	0	0	0	0
Others	IC	5.5	73.3	32.8	22.3
	SH	3.1	26.3	23.2	5.5
	TS	0.7	12	6.5	0

Note P = Purposes, R = Reactions, C = Comments, S = Shares, IC = Initiating conversation, SH = Seeking, TS = Trouble-shooting

Example 2

Member	Discourse
Author 2	*Could you please suggest ways to make a video lecture (not e-learning) more lively? I am using it for my actual teaching, not for a teaching contest* Post #1209 No. of reactions: 20; No. of comments: 118; No. of shares: 116

Because these types of posts are open-ended, they allow for different forms of participation from other members. Some give suggestions on technology content applications, for instance, a recommendation on using animated videos from Commenter 2.1 or a specific app from Commenter 2.2 in reply to the previous post.

Example 3

Member	Discourse
Commenter 2.1	*You should try to use animation applications. I observe that students like animated videos*
Commenter 2.2	*How about ClassIn? This app has many supporting tools, and you can even video screen-recording. You can record it and send it to your students*

Others contribute by sharing their ready-made or available resources. It is interesting to also see other members, Commenters 2.3, 2.4, and 2.5) "piggy-backing" on the author's post for further informational support.

Example 4

Member	Discourse
Commenter 2.3	*You can spice up your PowerPoint to make it more attractive. I'll send you some slides I designed*
Commenter 2.4	*@Commenter 2.3, could you send me, please?*
Commenter 2.5	*@Commenter 2.3, please give me some slides with a dark background*

Additionally, some members take the opportunity, when appropriate, to reflect on their teaching practices, a crucial element of professional development. For example, to answer the question of the author above, Commenter 6 and Commenter 7 do not suggest any technological tools to make video lectures but instead ask the author to think about lesson contents. This leads to a discussion between them and the post author.

Example 5

Member	Discourse
Commenter 2.6	*To answer that question, in my opinion, we should ask ourselves what is the CONTENT? How will you teach it? You have to answer that first or else attractive and lively videos won't solve anything*
Commenter 2.7	*@Commenter 2.6, I also agree with you. Things like videos, effects,* etc. *are just the technical part. The most important is still the content of the lesson and how we facilitate the instructional activities*
Author 2	*@Comment 2.6, yes, I understand the content is the most important part. However, I am not asking about the content, but about supporting elements to make the lesson more exciting*
Commenter 2.7	*@Author, from the lesson's content, we determine the pedagogy. From the pedagogy, we can pinpoint the type of activity*

It can be seen that in posts seeking help, the post author and the commenters interact and co-construct the knowledge together for the benefit of their learning. Here, the roles of knowledge givers and knowledge seekers are given to everyone participating in the post threads, and little dominance or power is exerted.

Another remarkable finding concerns the active engagement of Teach and Tech moderators and members. Among 1479 posts in the data set, only a small proportion is from administrators (5.4%). Their posts are to initiate conversations, such as delivering an announcement to Teach and Tech members or circulating information about a PD opportunity. However, while the popularity of such posts can be seen through shares, likes, and especially comments, they do not create a space to promote collaborative practices and knowledge co-construction among members. Most comments are those like "*Wonderful*", "*Thank you*", or "*Oh, I love this.*" On the other hand, it cannot be denied that the number of members who actively post, react, or comment is still considerably low compared to that of lurkers, or silent readers. However, Teach and Tech is not an exceptional CoP of such lurking participation (Lantz-Andersson et al., 2018; Le et al., 2021; Mai et al., 2020).

5 Discussion

This study was set out to answer the research question, "What are the characteristics of the Facebook community of practices for EFL Vietnamese teachers in terms of domain, practice, and community?".

Teach and Tech proves to create a more "fluid and responsive form" of teachers' PD (Prestridge, 2019, p.2) by facilitating teachers to "expand[ing] their professional support by embracing social media affordances" (Mai et al., 2020, p.153). The findings from Teach and Tech are in line with previous studies about the roles of Facebook or other SNSs in informally, bottom-up PD activities (i.e., Bett & Makewa, 2020; Bissessar, 2014; Kelly & Antonio, 2016; Lantz-Andersson et al., 2018; Rensfeldt et al., 2018). Teach and Tech is a teacher-driven virtual platform where members show voluntary commitment to enriching their knowledge and skills in specific technological tools as well as integrating technology into lesson plans, assessments, or classroom management. On top of the existing demand to improve teachers' TPACK in Vietnam (Nguyen, 2019), this interest in educational technologies reflects the new requirements of the switch to online learning and the professional isolation during the Covid-19 era. The number of posts in Technological Tools shows that while a teacher's successful technology integration is the combination of technical and pedagogical skills (Ananiadou & Claro, 2009), it is often the technical element that takes the spotlight in PD activities (Gruba & Nguyen, 2019; Nelimarkka et al., 2021). Meanwhile, posts that span the pedagogical and content domains also trigger more chances for reflection on teaching practices, a crucial element of professional development. The members can take on the role of supporters of reflection (Calderhead & Robson, 1991) through their comments. By providing suggestions, advice, insight, and commentary (Stegman, 2007), these members can facilitate an opportunity for the author to reflect on their teaching practice and transform their muddled thoughts into a coherent understanding (Schön, 1992). Besides, Teach and Tech's members

share and find information related to PD opportunities or teaching and learning resources. Additionally, Teach and Tech does not only provide a professional forum for teachers to learn and develop but also functions as a source of emotional support that teachers need (Davis, 2015), particularly in the time of Covid-19 with possible challenges of emotional exhaustion (Soncini et al., 2021).

Teach and Tech member participation reflects the three commonly seen levels: core members, active members, and peripheral members (Wenger et al., 2002). The *core members*, such as group moderators and subject specialists, are knowledgeable in the field of educational technology. They provide professional assistance for other members and introduce new elements that shape the community structure. However, unlike what some previous studies might have suggested (i.e., Mai et al., 2020), Teach and Tech core members do not dominate the CoP communication. Instead, its *active users* play a significant role in the co-construction of knowledge and hence, maintenance and development of the community. They initiate post threads to share some tips they have implemented or discuss developments in educational technologies. The authors of these posts can be considered modelers of practice for their fellow members (Calderhead & Robson, 1991; Kelly & Antonio, 2016). They offer a glimpse into the instructional practices in their classrooms and provide their peers with an opportunity to observe and learn. Such posts are considered important to the community as they help shape the community's structure along with providing support for other members (Bostancioglu, 2018). The authors consequently receive "intangible returns" in the form of enjoyment, learning, interaction with peers, and a sense of altruism in giving back and advancing the community (McClure et al., 2000). Active members also seek help, voice up their emotional concerns, or circulate PD opportunities. In so doing, they attain tangible returns in the form of valuable information and answers or suggestions to their specific questions (Kelly & Antonio, 2016). What should be noted from the findings of Teach and Tech is the likelihood of dialogue and discussion created by active members. Evidence of reciprocal exchange of their own knowledge can be found, especially in posts seeking help. This is different from Rensfeldt et al. (2018)'s concern about the dominant communication patterns in their studied online Facebook group with "little or no reciprocal exchange" and "a reduced expertise" among its members (p. 246). Undeniably, still, the bulk of members in Teach and Tech are considered "peripheral," functioning in the background, viewing posts, and replying or sharing on rare occasions. These members do not actively participate in the community due to their limited experience or expertise (Lave & Wenger, 1991). Similar findings have been reported in previous studies (Mai et al., 2020; Nelimarkka et al., 2021). However, as Le et al. (2021) point out, Vietnamese teachers tend to prefer a lurking presence and less visible interaction, as their self-presentation within SNSs is closely linked with their social identity and cultural mediation.

6 Conclusion

In summary, the current study addresses the ongoing interest in teachers' rising engagement in SNSs, particularly Facebook, for their professional and emotional concerns. It underlines the importance of Teach and Tech as an online CoP for Vietnamese EFL teachers. In addition to hosting apparent PD practices such as exchanging ideas, sharing knowledge, seeking help, and offering solutions, the Facebook community was also found to be a therapeutic safe space where members could convey and validate their social and professional emotions and experiences. The numbers of follow-up interactions for certain types of posts also indicate that teachers are particularly eager to provide assistance and showcase their technological expertise.

The findings' generalization is one significant limitation of this study. Unlike most other online communities, Teach and Tech's massive number of members and long-standing nature is unique. As a result, while this study adds to the existing body of knowledge on online CoP and EFL teachers' professional development, the findings might not apply to other CoPs or teaching contexts. Future case studies of online CoPs of differing features can offer a fuller understanding of the domain, practice, and community functioning within different types of CoPs. On another note, the current study focuses on the content of posts on the CoP online platform. Thus, future studies could also benefit from investigating instructors' perceptions, attitudes, and beliefs on their membership in online CoPs through surveys and interviews. The impacts of such participation on their classroom practice should also be investigated in further studies.

The chapter underlines the necessity for administrators and teacher educators to consider social media spaces as potential platforms for official PD activities. In addition to Ministry-funded PD courses, which are intensive in nature, have limited exposure, and may not always address real and dynamic teaching needs, the construction of online communities of practice like Facebook groups, with appropriate design and administration from recognized stakeholders, will be more beneficial on a large scale.

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