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Jarek Krajka*,*   *tewtjarek@unic.ac.cy*

Chris Alexander, tewtchris@unic.ac.cy

Robert Oliwa*,*   tewtrob@unic.ac.cy

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**SPECIAL ISSUE: *CALL TEACHER EDUCATION
AND PROFESSIONAL DEVELOPMENT***
Guest editor: Dara Tafazoli

CALL TEACHER EDUCATION AND PROFESSIONAL DEVELOPMENT: A RETROSPECTIVE SYNTHESIS OF THE TWO DECADES OF *TEACHING ENGLISH WITH TECHNOLOGY*

by **Dara Tafazoli**

The University of Newcastle, Australia

Dara.Tafazoli @ newcastle.edu.au

Abstract

Since 2001, *Teaching English with Technology* (TEwT) has published hundreds of research articles to improve the quality of applying technology in language education and research. This collection of articles has covered many aspects of Computer-Assisted Language Learning (CALL); however, due to the importance of CALL teacher education and professional development, a research synthesis of the two decades of TEwT's articles holds the potential to screen the field at large over that time period. By examining the published articles on CALL teacher education and professional development, data analysis revealed that most of them focused on 'teachers' perceptions, attitudes, and experiences,' 'CALL practicum,' 'teachers' knowledge, literacies, and skills' and 'CALL affordances and hindrances'. This study might help as an extant inventory of CALL research interests over the first 20 years of the Journal's existence.

Keywords: Retrospective synthesis; Computer-Assisted Language Learning (CALL); CALL teacher education (CALL TE); CALL professional development (CALL PD)

1. Introduction

The journal of *Teaching English with Technology (TEwT)* was established in 2001 as a forum for language teachers to share their ideas and experiences with other colleagues worldwide. The aim of that professional community was not only to publish theoretical and academic articles but also to share practical lesson plans and language teachers' practical needs. Jarosław Krajka, the founding editor-in-chief, was aware of the differences between the infrastructures and other influencing factors in the successful implication of Computer-Assisted Language Learning (CALL), but he believed that "what is common to us all is, on the one hand, the same objective – to teach the same language, English, and on the other hand the same teaching medium – the Internet and computers" (Krajka, 2001, p. 1). Thus, the Journal's first issue started with an

article, an internet lesson plan, a website review, and a software review, and this pattern has continued for two decades.

Two decades of sustainability in a specific area in education show us the significance and development of this guiding light in the fields of both English and teaching with technology. Twenty years is a suitable period to accomplish a big-picture perspective of a narrowed-down area (Stapleton & Shao, 2017). Therefore, in this research synthesis, I take this opportunity to reflect on the two decades of *TEwT* journal focusing on CALL teacher education and professional development (henceforth CALL TEPD).

The common types of research synthesis in CALL investigate a particular aspect of teaching, learning, technology, theory, or research in many journals: a qualitative research synthesis on task-based language teaching and CALL (Chong & Reinders, 2020), a meta-analysis on the learning effect of CALL in empirical studies (Sharifi et al., 2018), a meta-analysis of the impacts of 3D virtual worlds on language learning (Wang et al., 2020), a systematic and meta-analysis on mobile-assisted EFL/ESL vocabulary learning (Lin & Lin, 2019), an integrative review and synthesis on blended language learning (Hughes et al., 2019), a systematic review of empirical studies on computer-mediated collaborative writing (Li, 2018), a scoping review digital game-based technology on English language learning (Xu et al., 2020), a scientometric review of research trends in CALL (Lim & Aryadoust, 2021), a qualitative meta-analysis on the role of telecollaboration in language and intercultural learning (Çiftçi & Savaş, 2018), a review of mobile-assisted reading development from the Activity Theory perspective (Lin et al., 2020), a methodological review of qualitative research syntheses in CALL (Chong & Reinders, 2021), to name but a few key publications.

In contrast to these broader approaches to reviewing the literature in a field, some researchers have conducted research synthesis on a particular journal. For example, the only data source of Stapleton and Shao's (2018) study was the *Language Teaching Research (LTR)* journal, through which the researchers observed the research topic and trends over twenty years. Also, Ellis (2006), in an editorial (Vol. 10, Issue 4), addressed "corrective feedback," "instructional manipulation of learners' attention to form," and "the effects of instruction on L2 pragmatic development" (p. 357) only within the *LTR* journal. Chaudron (2007) reviewed the topical and methodological trends in language classroom research in *The Modern Language Journal (MLJ)* from 1916 to 2000. In another study, Byrnes (2002) investigated the role of linguistics and psychology in language education through a chronological overview in *MLJ*. The results of the abovementioned studies imply that research synthesis of published articles within a particular journal over a specific period can provide broader perspectives to

researchers about the topic under investigation, the fluctuations over time, and "how dynamics external to the field have had an influence" (Stapleton & Shao, 2018, p. 352).

The majority of CALL literature reviews have focused on the evolution of teaching methodologies. This focus is due to the immense integration of technology in both formal and informal educational settings in various contexts worldwide. Despite the growing institutional interest in CALL, researchers globally highlighted key prohibitive factors in the successful implementation of CALL, including individual teacher factors, contextual factors, and CALL teacher education (Hong, 2010).

The concentration of CALL TEPD programs should not only focus on the use of technology in its generic sense (Desimone & Garet, 2015; Gray et al., 2010), but also on the critical role of professional development programs have played in a) lessening teachers' affective factors (e.g., negative beliefs) (Dixon et al., 2014), b) changing their teaching philosophies (Hur et al., 2016), c) encouraging them to use their creativities, d) enabling them in CALL-based lesson planning, evaluation, and assessment, e) informing them about the inseparable interface between technology, pedagogy, and content, f) empowering them in redesigning materials for their purposes, among others (Tafazoli, 2021a).

The role of teachers in the successful integration of CALL is of paramount importance. Scholars around the world have focused broadly on the integration of technology into language teaching from different perspectives, including teacher education and teachers' professional development (Son, 2018; Torsani, 2016), challenges and affordances of the implementation of CALL in teachers' views (Liu & Chao, 2018), teachers' readiness and acceptance of using technology (Van Gorp et al., 2019). So far, only a few researchers have conducted a research synthesis on CALL TEPD. Examples include a critical review of emerging patterns around online language teacher education and its implication and efficacy between 2000 and 2016 in English language teaching by Shin and Kang (2018). Also, Nami (2021) conducted an extensive synthesis on EFL/ESL language teachers' CALL literacy in three CALL journals. Finally, Tafazoli's (2021) integrative review on the new literacies of language teachers in the published papers between 2010-2021 focused specifically on teachers' professional development. Thus, due to the inadequate research synthesis on CALL TEPD, I take this opportunity to investigate the position of such a critical CALL component in the two decades of the *TEwT* journal.

2. The study

The present study concentrates on one journal, *TEwT*, aiming to synthesize the published articles over twenty-one years to detect influential factors in CALL TEPD research. To meet the end, I followed Cooper's (1998) research synthesis steps: 1) the problem formulation, 2) data collection, 3) data evaluation, 4) data analysis and interpretation, and 5) the presentation of the results.

2.1. Data collection and evaluation

A common approach in the systematic literature reviews highlighted above is to search only for keywords and their combinations. In this paper, I was concerned about not missing any published articles. Therefore, I read all the 21 volumes, 82 issues, and 563 published documents to be assured of the included articles. In the first phase of identification, I specified the inclusion and exclusion criteria to be eligible for this study.

(1) I excluded all the editor's messages, internet lesson plans, reviews (i.e., website, software, and book reviews), a word from a techie, conference and seminar reports, IT English, on the web, guidelines, call for papers, and commentaries.

(2) The full-length article with an abstract should be accessible in the archive of the journal.

(3) There were no research design exceptions (i.e., review, qualitative, quantitative, or mixed methods).

Out of 563 published documents, 302 articles met the identification criteria. In the screening stage, I read the abstracts of all 302 articles to filter out the irrelevant ones. The irrelevant articles were those which do not cover the CALL TEPD. Thus, I identified only 20 articles out of 302. In the last phase of eligibility, I read the complete text of the remaining articles (N=20) to be included in the review for the coding procedure (Figure 1).
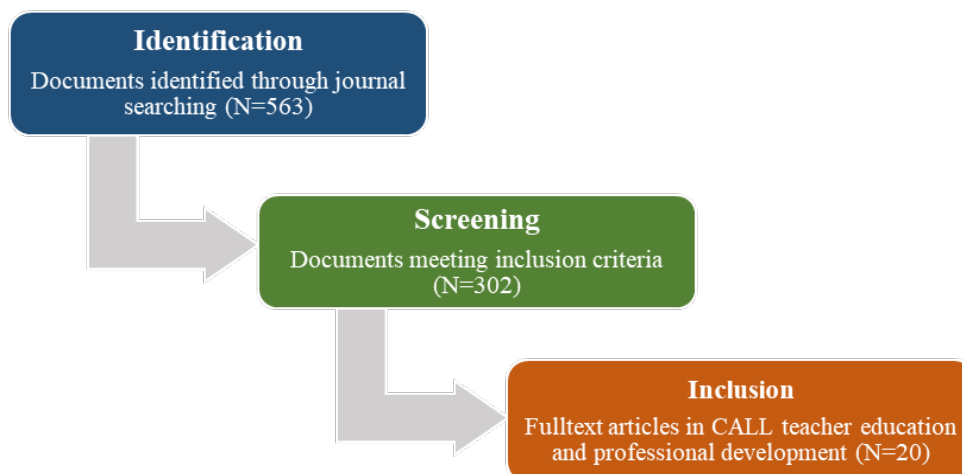
Figure 1. The stages of data evaluation

The eligible articles for the final inclusion in the review are illustrated in Table 1.

Table 1. Eligible and included articles focusing on CALL teacher education and professional development

Author(s)	Year	Title
Simpson, M. N.	2012	Esl@Facebook: A teacher's diary on using Facebook
Dashtestani, R.	2014	EFL teachers' knowledge of the use and development of computer-assisted language learning (CALL) materials
Karkour, I.	2014	A blended learning model for teaching reading in English as a foreign language
Xiaobin, L., Wei, Z., Huiwen, Z., & Lijun, J.	2014	Chinese EFL teachers' application of e-educology of foreign languages: An investigation based on TPACK framework
Shahrokni, S. A., & Sadeqjoola, L.	2015	Iranian EFL teachers' perception, familiarity and use of web 2.0 tools in TEFL
Silviyanti, T. M., & Yusuf, Y. Q.	2015	EFL teachers' perceptions on using ICT in their teaching: To use or to reject?
Boersma, E., & Getu, T.	2016	Ethiopian EFL teachers' perceptions and utilization of mediational potentials of the internet in ELT
Razak, R. A., Kaur, D., Halili, S. H., & Ramlan, Z.	2016	Flipped ESL teacher professional development: Embracing change to remain relevant
Kruk, M.	2017	Prospective teachers' experiences in using second life for learning and teaching English
Cote, T., & Milliner, B.	2018	A survey of EFL teachers' digital literacy: A report from a Japanese university
Muslem, A., Yusuf, Y. Q., & Juliana, R.	2018	Perceptions and barriers to ICT use among English teachers in Indonesia
Prasojo, L. D., Mukminin, A., Habibi, A., Marzulina, L., Sirozi, M., & Harto, K.	2018	Learning to teach in a digital age: ICT integration and EFL student teachers' teaching
Dashtestani, R.	2020	Online English for academic purposes instruction in the context of Iran: Exploring the instructor element
Hidalgo, F. J. P., Parra, M. E. G., & Abril, C. A. H.	2020	Digital and media competences: Key competences for EFL teachers
Love, M.	2020	How EFL teacher trainees in a TESOL graduate program integrate tools and platforms into teaching EAP
Fernández-Carballo, M. V.	2021	Prospective primary school EFL teachers' beliefs about "flipping"
Mulyono, H., Ismayama, D., Liestyana, A. R., & Komara, C.	2021	EFL teachers' perceptions of Indonesian blended learning course across gender and teaching levels
Thumvichit, A.	2021	English language teaching in times of crisis: Teacher agency in response to the pandemic-forced online education
Meihami, H.	2021	A narrative inquiry into Iranian EFL teacher educators' voice about challenges of CALL teacher education
Quintanilla Espinoza, A., & Kloss Medina, S.	2021	Understanding in-service teachers' learning experience while developing an electronic portfolio

2.2. Data analysis

In order to systematically conduct the research synthesis, I utilized the modified version of Tafazoli's (2021b) categorization template. Tafazoli (2021b) included literacy and the definition of literacy as the main elements. However, in this paper, the terms are well-known and already defined; hence, the final template consists of (1) Aim of the study, (2) Research questions, (3) Keywords, (4) Technology, (5) Data collection, (6) Research design, (7) Target language, (8) Context of the study (participants, country), (9) Theoretical assumptions, and (10) Research focus. In addition, I included two new categories of (11) Publication year and (12) Authors' affiliations to find out about the progress and trend of CALL TEPD over the last two decades.

Then, to analyze the collected data, I employed content analysis due to the nature of the study and its flexibility (Cavanagh, 1997). According to Krippendorff, content analysis is "an unobtrusive technique that allows researchers to analyze relatively unstructured data in view of the meanings, symbolic qualities and expressive contents they have and of the communicative roles they play in the lives of the data's sources" (as cited in Merriam & Tisdell, 2015, p. 179). I started with reading and rereading the eligible published articles individually to establish the initial codes. After that, I asked two colleagues (a Ph.D. and an M.A. holder in English Language Teaching) to recheck the initial codes. After reaching the consensus on the initial codes in the second phase, several themes have been developed and classified based on their similarities.

3. Results

This section gives the results that were found from the selected published articles focusing on CALL TEPD.

3.1. Demographics of the studies

The continuous growth in the number of published articles concentrating on CALL TEPD is evident in Figure 2. To have a better insight into the positive or negative progress of the research focus on CALL TEPD, I divided the two decades into four 5-research periods and included the last year (i.e., 2021). The descriptive analysis revealed that no article had dealt with CALL TEPD in the first ten years. The first article was published in 2012 and peaked at nine in the five years from 2016 to 2020. The results revealed that the number of published articles in the year 2021 was five (25%), which emphasized the significance of CALL TEPD that grasped the CALL researchers' attention. Therefore, I expect more studies will be conducted after 2021.
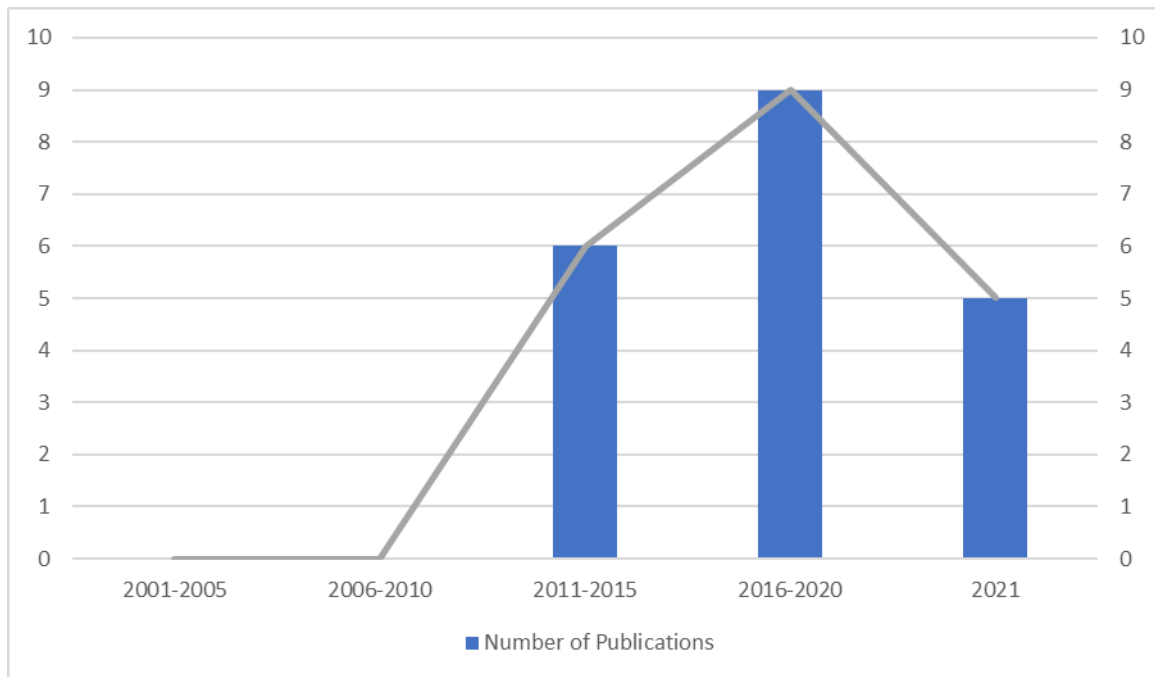
Figure 2. Number of publications

To better interpret the focus of CALL researchers, Figure 3 shows the distribution of the published articles across the globe. In the analysis of the 20 included articles, most of the studies were performed in Asia (N=13). Iran and Indonesia, with four publications, are the main contexts where were the focus of CALL researchers in the journal. CALL researchers had also investigated other contexts of Chile, China, Ethiopia, Japan, Malaysia, Poland, and South Korea, with only one published article each. It should be noted that I excluded three articles by Egyptian (Karkour, 2014), Malaysian (Razak et al., 2016), and Spanish (Hidalgo et al., 2020) researchers that were review articles; because these review articles had no role in the current context of this study. In Figure 3, Love's (2020) study is not presented as the participants of this study were from various contexts of South Africa, the UK, the US, Australia, China, Canada, Ireland, and Uzbekistan.
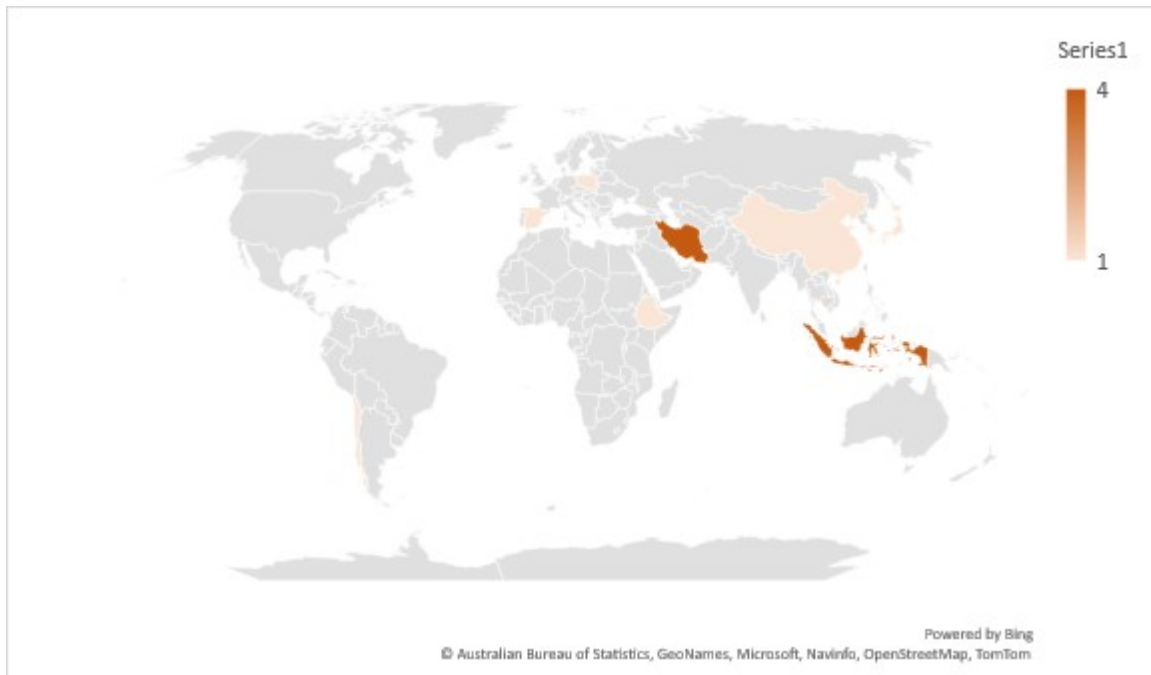
Figure 3. Context-based distribution of published articles

3.2. Research methodologies

A diversity of research methodologies was applied in the included articles. The articles fall within four main categories: a) qualitative, b) quantitative, c) mixed-methods, and d) review, position, and discussion. Most of the included articles are empirical studies (using all kinds of quantitative, qualitative, or mixed methods) (N=17), and only three articles focused on a review, position, or discussion article.

As illustrated in Figure 4, half of the studies were conducted using a mixed-methods research design (N= 10) which combines both quantitative and qualitative approaches. Four studies were qualitative (using participatory action research, narrative inquiry, and longitudinal and practitioner research approach), three were quantitative (using surveys), and three of them were review and position articles. Questionnaires (including open- and closed-ended questions) and/or semi-structured interviews were the most recurrent instruments. Less frequent instruments for data collection were journal writing, video-based observation, focus group discussion, narratives, non-participants observations, and student-generated teaching suggestions (SGTSs) that were mostly used in qualitative research. In general, large-scale studies are prevalent, usually following a mixed-methods design (N= 7), but also it was possible to identify qualitative (i.e., Prasojo et al., 2018) and quantitative studies (e.g., Mulyono et al., 2021).
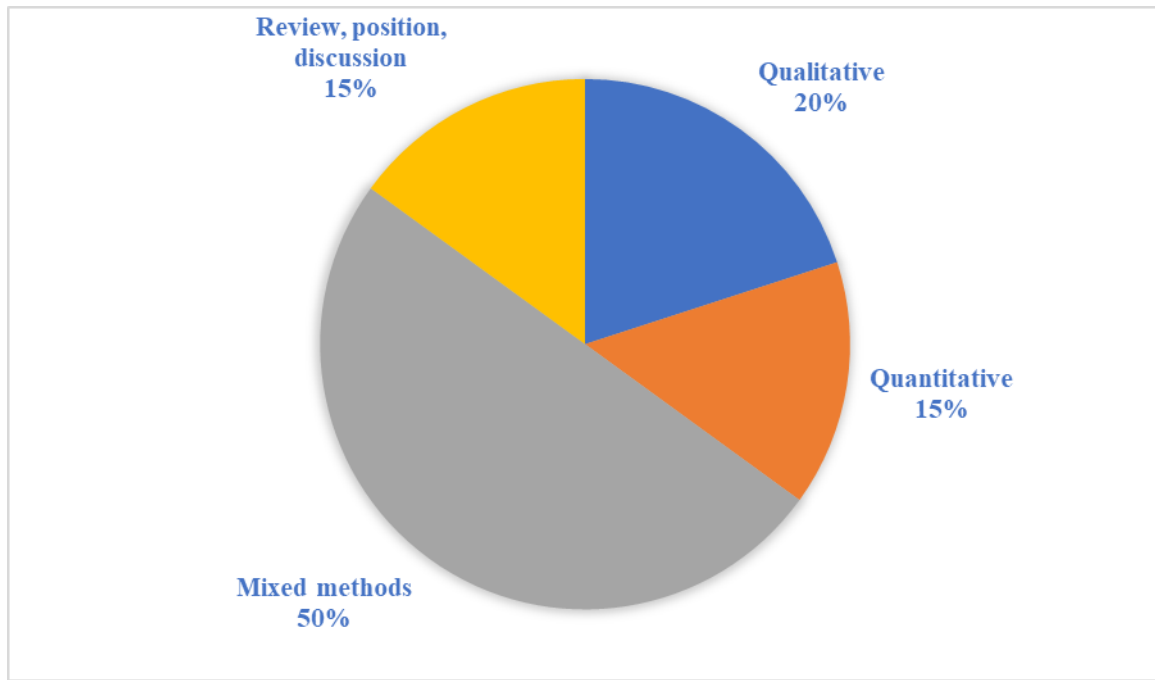
Figure 4. Research methodologies

3.3. Focus of the studies

In-service teachers were the most recurrent participants (73.05% of the samples). Data analysis showed that 38.45% of them were higher education teachers, including EFL teachers (30.76%) and English for Academic/Specific Purposes (EAP/ESP) teachers (7.69%). Language teachers in primary and secondary education were 23.07% of the sample, and language institute teachers were 11.53%. Pre-service EFL teachers were 15.38% of the samples, and the remaining 11.53% of the sample were higher education teacher educators and EFL teacher trainers (Table 2).

Table 2. Research focus

Focus			Freq.	%
In-service teachers	Higher education	EAP/ESP	2	7.69%
		EFL	8	30.76%
	Primary and secondary education	EFL	6	23.07%
	Language institutes	EFL	3	11.53%
Pre-service teachers			4	15.38%
Others	University teacher educators		2	7.69%
	EFL teacher trainers		1	3.84%

3.4. Themes emerging from the research synthesis

Concerning the research focus, most of the studies focused on participants' perceptions, attitudes, and experiences most of which were related to practicum and the CALL tools and programs. Moreover, teachers' knowledge, literacies, and skills were highly acknowledged by

the researchers. CALL affordances and hindrances were also among the most frequent topics under investigation.

A topic that has been the attention of authors over several years has been *teachers' perceptions, attitudes, and experiences* with CALL. In general, the results of the reviewed articles showed that English language teachers have positive perceptions about CALL materials (Dashtestani, 2014), applying e-educology (Xiaobin et al., 2014), Web 2.0 technologies (Shahrokni & Sadegjoola, 2015), mediational potentials of the internet (Boersma & Getu, 2016), ICTs (Muslem et al., 2018; Silviyanti & Yusuf, 2015), online instruction (Dashtestani, 2020), flipped classroom (Fernández-Carballo, 2021), and blended learning Mulyono et al. (2021). Also, the positive perception is not limited to a specific group of English teachers, and it includes a broad range of EFL university teachers (Boersma & Getu, 2016; Dashtestani, 2014; Silviyanti & Yusuf, 2015), EAP/ESP university teachers (Dashtestani, 2020), primary and middle school teachers (Dashtestani, 2014; Fernández-Carballo, 2021; Muslem et al., 2018; Shahrokni & Sadegjoola, 2015; Xiaobin et al., 2014), language institute teachers (Dashtestani, 2014), university teacher educator (Dashtestani, 2014), and teacher trainers (Dashtestani, 2014).

Along with the included articles, a substantial body of research highlighted the significance of attitude by acknowledging that the positive attitude or perception is assumed as one of the main driving factors in the actual use of CALL by teachers (Albrini, 2006; Kessler, 2007; Liu et al., 2017; Raygan & Moradkhani, 2020). However, having positive attitudes per se does not guarantee teachers' readiness to use CALL, and teachers should be competent in implementing CALL. CALL TEPD is a way that teachers can train and upskill themselves. Thus, the *required knowledge, skills, and literacies for teachers* has been another trend in CALL across the years in the *TEwT*.

Considering the research focus's shift from the necessity of using CALL to "how, when, and for what purpose" (Nami, 2021, p. 578), only three studies concentrated on teachers' digital literacies (Cote & Milliner, 2018), digital and media competences (Hidalgo et al., 2020), and agency (Thumvichit, 2021). Among them, Cote and Milliner (2018) investigated 42 university teachers' digital literacies in Japan using Son et al.'s (2011) questionnaire. The descriptive data analysis revealed that teachers are confident in using digital technologies. Also, Hidalgo et al.'s (2020) review showed that digital and media competencies are two vital key elements for lifelong training.

The scarcity of studies on teachers' required knowledge and competencies emphasizes the need for more research on reaching a consensus on what are the technological and

pedagogical necessities for teachers. Because using various technologies is not the sole goal, but the successful implication in conveying the content through appropriate pedagogy should be the ultimate goal which Mishra and Koehler (2006) call Technological Pedagogical Content Knowledge (TPACK). In other words, "there should be appropriate and up-to-date training courses for teachers with two aims: 1) to improve their digital or any related new literacies, and 2) to teach teachers how to transfer their new literacies into the real teaching situations" (Tafazoli, 2021, p. 604). Thus, along with the positive attitudes and perceptions, teachers are required to develop their literacies, skills, and competencies to be able to be competent teachers (Fathi & Ebadi, 2020), and apply the competencies in their real teaching practices.

CALL practicum has been the attention of research over several years and is based on the various CALL tools and approaches, such as Facebook (Simpson, 2012), Second Life (Kruk, 2017), e-portfolio (Espinoza & Medina, 2021), blended learning (Karkour, 2014), and flipped learning (Razak et al., 2016). Simpson (2012) applied qualitative action research to find out the potential of Facebook for teaching English language to Korean students. Her journal writing focused on student-student and student-teacher interactions, lesson planning, and teaching. Simpson, a language teacher at a university in South Korea, wrote her reflections for an hour on the weekend. Although the teacher-researcher did not explain the data analysis, she reported interesting findings. The researcher highlighted some issues in using Facebook as a teaching tool: a) Lesson planning is difficult due to its system upgrading and refreshing on a regular basis, b) Grading is overwhelming, c) Giving feedback to all students is time-consuming and sometimes overlooked, and d) (Self)training is required to be a confident user.

Kruk (2017) explored the experiences of pre-service teachers in using Second Life to find out its potential use in English language teaching. The researcher used questionnaires to collect data from 15 female pre-service teachers in Poland. The participants believed that the utilization of Second Life might be favorable in learning communication, vocabulary and phrases, and writing through chat functions. Also, they found the virtual world as a stress-free speaking environment. In contrast, they mentioned some drawbacks such as wrong and inaccurate use of English (e.g., rude and improper words). In another study, Prasojo et al. (2018) conducted a qualitative case study to understand the perceptions of 60 pre-service teachers about ICT integration in teaching practices. Observing the recorded videos showed that only 12 participants used technology (i.e., laptops, projectors, smartphones) in their teaching.

Through a longitudinal and practitioner research approach, Love (2020) measured how pre- and in-service EAP teachers in a TESOL graduate program employ technology in their

courses. He used student-generated teaching suggestions (SGTSs) for data collection. The participants suggested using a) locally popular technologies such as imo, QQ, Telegram, and WeChat, b) YouTube for the authentic target language, c) patch notes for teaching skimming/scanning, d) podcasts, e) media ethnography of online communities and video games, f) search engines for teaching (critical) EAP, g) online websites and communities for teaching EAP in a post-truth world, among others.

In a cross-sectional survey research design, Espinoza and Medina (2021) investigated the primary and secondary EFL teachers' learning experiences while developing an e-portfolio in Chile. The applied survey contains 15 Likert scales, five checkboxes, and three open-ended questions. Data analysis revealed that teachers felt that e-portfolio is an effective CALL tool. Also, they mentioned that an e-portfolio is an authentic, process-oriented, and reflective assessment tool. Teachers also preferred using e-portfolio to document or collect their learning experiences and self-reflect on their teaching and learning. For the advantages of developing the e-portfolio, data analysis revealed teachers could learn about technology, and use it as a useful tool for assessment. Also, teachers find e-portfolio portable, easy to access, and updated. In contrast, they said that developing an e-portfolio is time-consuming, teachers lack technological skills, and the server space is limited.

Finally, most of the included articles investigated the *affordances and hindrances of CALL* through the lens of pre- and in-service teachers and/or teacher educators/trainers. For example, in a qualitative study, Dashtestani (2014) analyzed the benefits and challenges of CALL materials development from the viewpoints of Iranian EFL university teachers (N=51), high school teachers (N=39), language institute teachers (N=118), university teacher educators (N=15), and teacher trainers (N=32). The participants counted the benefits of CALL materials such as authenticity, interactivity, accessibility, facilitating, and attractiveness, among others. Also, they stated that CALL materials increase teachers' and students' impetus and confidence to have more effective teaching. The participants mentioned that although developing CALL materials is not an undemanding activity, developing CALL materials by teachers is important in EFL teachers' professional development. However, the participants encountered some challenges, including lack of expertise, required skills, time, training, funding, and technological facilities. Also, they complained about cultural resistance to using CALL materials and a lack of obligation to integrate CALL materials into the syllabus.

CALL tools and programs had many advantages for teachers. Data analysis established that CALL tools and programs a) increase in teachers' motivation (Dashtestani, 2014), confidence (Dashtestani, 2014), teaching efficiency (Prasojo et al., 2018; Xiaobin et al, 2014)

and performance (Silviyanti & Yusuf, 2015), b) make teaching funny (Xiaobin et al., 2014), easy (Dashtestani, 2020; Silviyanti & Yusuf, 2015; Xiaobin et al., 2014), interesting (Muslem et al., 2018), attractive (Prasojo et al., 2018), learner-centered (Dashtestani, 2020; Fernández-Carballo, 2021), and motivational (Mulyono et al., 2021), c) present knowledge in various forms (Prasojo et al., 2018; Xiaobin et al., 2014), d) improve students' autonomy (Dashtestani, 2020; Fernández-Carballo, 2021), responsibility (Dashtestani, 2020) and learning (Kruk, 2017; Prasojo et al., 2018; Silviyanti & Yusuf, 2015), e) provide a stress-free environment (Kruk, 2017), f) obtain information easily and swiftly (Muslem et al., 2018; Prasojo et al., 2018) through electronic resources (Dashtestani, 2020), g) give more authentic and cutting-edge information (Dashtestani, 2020; Prasojo et al., 2018), h) provide opportunities for international academic communities (Dashtestani, 2020), i) foster teachers' digital literacy (Dashtestani, 2020), and j) available based on the needs (Fernández-Carballo, 2021; Mulyono et al., 2021).

Despite its advantages, many teachers complained about the challenges of using CALL tools and programs: a) teachers' lack of expertise, required skills, knowledge, and competences, experience (Boersma & Getu, 2016; Cote & Milliner, 2018; Dashtestani, 2014, 2020; Espinoza & Medina, 2021; Muslem et al., 2018; Silviyanti & Yusuf, 2015; Xiaobin et al., 2014) b) teachers' heavy burdens (Boersma & Getu, 2016; Cote & Milliner, 2018; Dashtestani, 2014; Espinoza & Medina, 2021; Fernández-Carballo, 2021; Xiaobin et al., 2014), c) insufficient funding (Dashtestani, 2014; Muslem et al., 2018; Xiaobin et al., 2014), d) lack of technological facilities (e.g., software, hardware, internet) (Cote & Milliner, 2018; Dashtestani, 2014, 2020; Kruk, 2017; Muslem et al., 2018; Prasojo et al., 2018; Shahrokni & Sadeqjoola, 2015; Xiaobin et al., 2014), e) cultural resistance (Dashtestani, 2014; Prasojo et al., 2018), f) lack of obligation to integrate CALL in syllabus and curriculum (Cote & Milliner, 2018; Dashtestani, 2014, 2020), g) low teaching effect (Xiaobin et al., 2014), h) teacher's backward notion (Xiaobin et al., 2014), i) managers' and leaders' weak determination (Silviyanti & Yusuf, 2015; Xiaobin et al., 2014) and reluctance to invest in new technologies (Shahrokni & Sadeqjoola, 2015), j) lack of teacher training programs (Dashtestani, 2014, 2020; Mulyono et al., 2021; Muslem et al., 2018; Shahrokni & Sadeqjoola, 2015; Silviyanti & Yusuf, 2015; Xiaobin et al., 2014), k) students' lack of computer literacy (Shahrokni & Sadeqjoola, 2015) and internet skills (Boersma & Getu, 2016; Dashtestani, 2020), l) costs and expenses (Silviyanti & Yusuf, 2015), m) inflexible teaching methods (Cote & Milliner, 2018), n) lack of instant feedback (Fernández-Carballo, 2021), o) students' responsibility for their own work and pointed out that it is easier for them to get frustrated (Fernández-Carballo, 2021), r) difficulty in motivating students (Mulyono et al., 2021), and p) technical issues (e.g., blackouts, internet connections)

(Boersma & Getu, 2016; Cote & Milliner, 2018; Fernández-Carballo, 2021; Mulyono et al., 2021; Muslem et al., 2018; Prasojo et al., 2018; Shahrokni & Sadeqjoola, 2015; Silviyanti & Yusuf, 2015).

Finally, focusing on CALL teacher educators, Meihami (2021) enumerated some challenges, including insufficient time and infrastructures, insufficient standards, lack of established methodology, teachers' inertia ("EFL teacher educators' belief that they did not need to change their current EFL teacher education to a CALL-oriented one") (p. 103), lack of EFL teachers' motivation to take part in CALL TEPD, lack of qualified CALL educators, and ignoring CALL by EFL teacher educators.

As illustrated in Figure 5, it can be concluded that a successful CALL TEPD should be based on the context by considering influential contextual factors on teachers' success. Also, it should be based on the needs nested in the context, which might differ from context to context. Moreover, according to the study's findings, three components of CALL literacy, CALL practicum, and affective factors should be the focus of CALL TEPD courses.
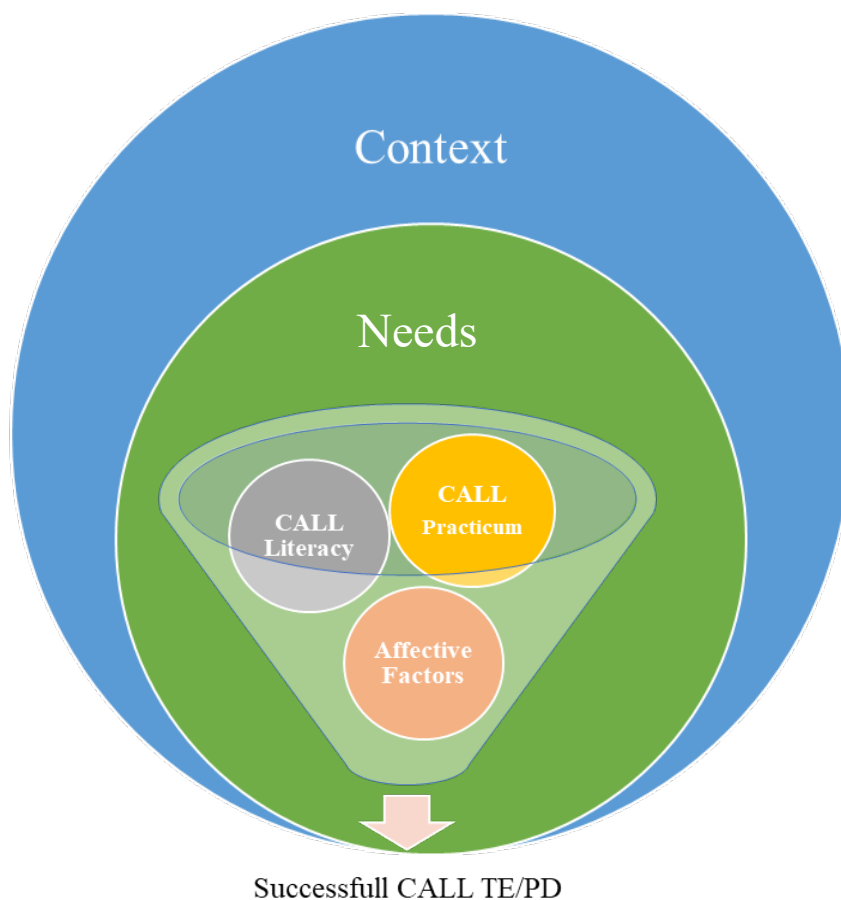
Figure 5. Influential factors in successful CALL teacher education and professional development

5. Concluding remarks

In this review, I have synthesized the scholarship on CALL teacher education and professional development in the *Teaching English with Technology* journal from 2001 to the end of 2021. As I read the articles, I observed an unprecedented growth of CALL TEPD articles, especially in the last decade, which shows the significance of this topic. I believe the unexpected and unpredicted situation of language education amid the COVID-19 led to the use of technology at its maximum level. We should expect even more articles on CALL TEPD in the next decade. The findings showed that language teachers should develop their CALL literacy apart from contextual challenges (e.g., lack of infrastructure). Teachers should develop their CALL literacies by participating in professional development courses which a) lessen their affective factors (e.g., negative beliefs) and cultural resistance, b) increase their motivation, confidence, teaching efficiency and performance, c) help them to make their teaching interesting, easy, attractive, learner-centered, and motivational, d) enable them to improve students' autonomy, responsibility, and learning, e) empower them to use CALL tools and materials, f) change their teaching philosophies, d) inform them about the inseparable interface between technology, pedagogy, and content, and e) empower them in redesigning materials for their purposes.

Reaching the CALL TEPD courses with such criteria would be impossible without establishing the appropriate frameworks, standards, and methodologies to train qualified CALL educators and teachers. In this vein, EFL authorities and decision-makers should provide more funding and technological facilities. Also, they should make some necessary changes in the syllabuses and curriculums to integrate more CALL materials and push the managers and leaders to invest in new CALL tools and materials. In other words, the attitude toward CALL should be changed from an add-on component to a normalized part of language education. I also believe that CALL researchers and teacher-researchers should keep on exploring the applicable tools and materials, appropriate delivery methods, teachers' and students' needs, and challenges to reach the CALL normalization in our field.

References

References marked with an asterisk (*) indicate studies included in this review.

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education, 47*(4), 373-398. https://doi.org/10.1016/j.compedu.2004.10.013

*Boersma, E., & Getu, T. (2016). Ethiopian EFL teachers' perceptions and utilization of mediational potentials of the internet in ELT. *Teaching English with Technology, 16*(1), 26-40.

Byrnes, H. (2000). Shaping the discourse of a practice: The role of linguistics and psychology in language teaching and learning. *The Modern Language Journal, 84*(4), 472-494. https://doi.org/10.1111/0026-7902.00083

Cavanagh, S. (1997). Content analysis: Concepts, methods and applications. *Nurse Researcher, 4*(3), 5-13. https://doi.org/10.7748/nr1997.04.4.3.5.c5869

Chaudron, C. (2001). Progress in language classroom research: Evidence from The Modern Language Journal, 1916-2000. *The Modern Language Journal, 85*(1), 57-76. https://doi.org/10.1111/0026-7902.00097

Chong, S. W., & Reinders, H. (2020). Technology-mediated task-based language teaching: A qualitative research synthesis. *Language Learning & Technology, 24*(3), 70-86. http://hdl.handle.net/10125/44739

Chong, S. W., & Reinders, H. (2021). A methodological review of qualitative research syntheses in CALL: The state-of-the-art. *System, 103*. https://doi.org/10.1016/j.system.2021.102646

Çiftçi, E., & Savaş, P. (2018). The role of telecollaboration in language and intercultural learning: A synthesis of studies published between 2010 and 2015. *ReCALL, 30*(3), 278-298. https://doi.org/10.1017/S0958344017000313

*Cote, T., & Milliner, B. (2018). A survey of EFL teachers' digital literacy: A report from a Japanese university. *Teaching English with Technology, 18*(4), 71-89.

*Dashtestani, R. (2014). EFL teachers' knowledge of the use and development of computer-assisted language learning (CALL) materials. *Teaching English with Technology, 14*(2), 3-27.

*Dashtestani, R. (2020). Online English for academic purposes instruction in the context of Iran: Exploring the instructor element. *Teaching English with Technology, 20*(5), 23-37.

Desimone, L. M., & Garet, M. (2015). Best practices in teachers' professional development in the United States. *Psychology, Society, & Education, 7*(3), 252-263. http://dx.doi.org/10.25115/psye.v7i3.515

Dixon, F. A., Yssel, N., McConnell, J. M., & Hardin, T. (2014). Differentiated instruction, professional development, and teacher efficacy. *Journal for the Education of the Gifted, 37*(2), 111-127. https://doi.org/10.1177%2F0162353214529042

Ellis, R. (2006). Editorial. *Language Teaching Research, 10*(4), 239-243. https://doi.org/10.1191%2F1362168806lr202ed

*Espinoza, A. Q., & Medina, S. K. (2021). Understanding in-service teachers' learning experience while developing an electronic portfolio. *Teaching English with Technology, 21*(4), 19-34.

Fathi, J., & Ebadi, S. (2020). Exploring EFL pre-service teachers' adoption of technology in a CALL program: Obstacles, motivators, and maintenance. *Education and Information Technologies, 25*, 3897-3917. https://doi.org10.1007/s10639-020-10146-y

Fernández-Carballo, M. V. (2021). Prospective primary school EFL teachers' beliefs about "flipping". *Teaching English with Technology, 21*(1), 48-59.

Gray, L., Thomas, N., & Lewis, L. (2010). *Teachers' use of educational technology in U.S. public schools: 2009 (NCES 2010-040)*. National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

*Hidalgo, F. J. P., Gomez-Parra, M. E., & Huertas-Abril, C. A. H. (2020). Digital and media competences: Key competences for EFL teachers. *Teaching English with Technology, 20*(1), 43-59.

Hong, K. H. (2010). CALL teacher education as an impetus for L2 teachers in integrating technology. *ReCALL, 22*(1), 53-69. https://doi.org/10.1017/S095834400999019X

Hughes, N., Lo, L., & Xu, S. (2019). Blended Chinese language learning design: An integrative review and synthesis of the literature. *The Language Learning Journal, 47*(3), 313-331. https://doi.org/10.1080/09571736.2017.1280526

Hur, J. W., Shannon, D., & Wolf, S. (2016). An investigation of relationships between internal and external factors affecting technology integration in classrooms. *Journal of Digital Learning in Teacher Education, 32*(3), 105-114. https://doi.org/10.1080/21532974.2016.1169959

*Karkour, I. (2014). A blended learning model for teaching reading in English as a foreign language. *Teaching English with Technology, 14*(4), 17-31.

Kessler, G. (2007). Formal and informal CALL preparation and teacher attitude toward technology. *Computer Assisted Language Learning, 20*(2), 173-188. https://doi.org/10.1080/09588220701331394

*Kruk, M. (2017). Prospective teachers' experiences in using second life for learning and teaching English. *Teaching English with Technology, 17*(1), 73-88.

Li, M. (2018). Computer-mediated collaborative writing in L2 contexts: An analysis of empirical research. *Computer Assisted Language Learning, 31*(8), 882-904. https://doi.org/10.1080/09588221.2018.1465981

Lim, M. H., & Aryadoust, V. (2021). A scientometric review of research trends in computer-assisted language learning (1977-2020). *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2021.1892768

Lin, C-C., Lin, V., Liu, G-Z., Kou, X., Kulikova, A., & Lin, W. (2020). Mobile-assisted reading development: A review from the Activity Theory perspective. *Computer Assisted Language Learning, 33*(8), 833-864. https://doi.org/10.1080/09588221.2019.1594919

Lin, J-J., & Lin, H. (2019). Mobile-assisted ESL/EFL vocabulary learning: A systematic review and meta-analysis. *Computer Assisted Language Learning, 32*(8), 878-919. https://doi.org/10.1080/09588221.2018.1541359

Liu, H., Lin, C., & Zhang, D. (2017). Pedagogical beliefs and attitudes toward information and communication technology: A survey of teachers of English as a foreign language in China. *Computer Assisted Language Learning, 30*(8), 745-765. https://doi.org/10.1080/09588221.2017.1347572

Liu, Q., & Chao, C. (2018). CALL from an ecological perspective: How a teacher perceives affordance and fosters learner agency in a technology-mediated language classroom. *ReCALL, 30*(1), 68-87. http://dx.doi.org/10.1017/S0958344017000222

*Love, M. (2020). How EFL teacher trainees in a TESOL graduate program integrate tools and platforms into teaching EAP. *Teaching English with Technology, 20*(5), 38-64.

*Meihami, H. (2021). A narrative inquiry into Iranian EFL teacher educators' voice about challenges of CALL teacher education. *Teaching English with Technology, 21*(2), 92-111.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054.

*Mulyono, H., Ismayama, D., Liestyana, A. R., & Komara, C. (2021). EFL teachers' perceptions of Indonesian blended learning course across gender and teaching levels. *Teaching English with Technology, 21*(1), 60-74.

*Muslem, A., Yusuf, Y. Q., & Juliana, R. (2018). Perceptions and barriers to ICT use among English teachers in Indonesia. *Teaching English with Technology, 18*(1), 3-23.

Nami, F. (2021). How computer-assisted language learning literacy is conceptualized in research: A general overview. *Aula Abierta, 50*(2), 577-584. https://doi.org/10.17811/rifie.50.2.2021.577-584

*Prasojo, L. D., Mukminin, A., Habibi, A., Marzulina, L., Sirozi, M., & Harto, K. (2018). Learning to teach in a digital age: ICT integration and EFL student teachers' teaching. *Teaching English with Technology, 18*(3), 18-23.

Raygan, A., & Moradkhani, S. (2020). Factors influencing technology integration in an EFL context: Investigating EFL teachers' attitudes, TPACK level, and educational climate. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2020.1839106

*Razak, R. A., Kaur, D., Halili, S. H., & Ramlan, Z. (2016). Flipped ESL teacher professional development: Embracing change to remain relevant. *Teaching English with Technology, 16*(3), 85-102.

*Shahrokni, S. A., & Sadeqjoola, L. (2015). Iranian EFL teachers' perception, familiarity and use of web 2.0 tools in TEFL. *Teaching English with Technology, 15*(3), 31-46.

Sharifi, M., Rostami AbuSaeedi, A. A., Jafarigohar, M., & Zandi, B. (2018). Retrospect and prospect of computer assisted English language learning: A meta-analysis of the empirical literature. *Computer Assisted Language Learning, 31*(4), 413-436. https://doi.org/10.1080/09588221.2017.1412325

Shin, D., & Kang, H.-S. (2018). Online language teacher education: Practices and possibilities. *RELC Journal, 49*(3), 369-380. https://doi.org/10.1177/0033688217716535

*Silviyanti, T. M., & Yusuf, Y. Q. (2015). EFL teachers' perceptions on using ICT in their teaching: To use or to reject? *Teaching English with Technology, 15*(4), 29-43.

*Simpson, M. N. (2012). ESL@Facebook: A teacher's diary on using Facebook. *Teaching English with Technology*, 12(3), 36-48.

Son, J.-B. (2018). *Teacher development in technology-enhanced language teaching*. Palgrave Macmillan.

Son, J.-B., Robb, T., & Charismiadji, I. (2011). Computer literacy and competency: A survey of Indonesian teachers of English as a foreign language. *CALL-EJ, 12*(1), 26-42.

Stapleton, P., & Shao, Q. (2018). Research in language teaching over two decades: A retrospective of the first 20 volumes of Language Teaching Research. *Language Teaching Research, 22*(3), 350-369. https://doi.org/10.1177/1362168816688929

Tafazoli, D. (2021a). CALL teachers' professional development amid the COVID-19 outbreak: A qualitative study. *CALL-EJ, 22*(2), 4-13.

Tafazoli, D. (2021b). Language teachers' professional development and new literacies: An integrative review. *Aula Abierta, 50*(2), 603-614. https://doi.org/10.17811/rifie.50.2.2021.603-614

*Thumvichit, A. (2021). English language teaching in times of crisis: Teacher agency in response to the pandemic-forced online education. *Teaching English with Technology, 21*(2), 14-37.

Torsani, S. (2016). *CALL teacher education: Language teachers and technology integration*. Sense.

Van Gorp, K., Giupponi, L., Heidrich Uebel, E., Dursun, A., & Swinehart, N. (2019). Defining teachers' readiness for online language teaching: Toward a unified framework. In F. Meunier, J. Van de Vuver, L. Bradley, & S. Thousëny (Eds.), *CALL and complexity – short papers from EUROCALL 2019* (pp. 373-378). Research-publishing.net.

Wang, C.-P., Lan, Y-J., Tseng, W-T., Lin, Y-T. R., & Gupta, K. C-L. (2020). On the effects of 3D virtual worlds in language learning – a meta-analysis. *Computer Assisted Language Learning, 33*(8), 891-915. https://doi.org/10.1080/09588221.2019.1598444

*Xiaobin, L., Wei, Z., Huiwen, Z., & Lijun, J. (2014). Chinese EFL teachers' application of e-educology of foreign languages: An investigation based on TPACK framework. *Teaching English with Technology, 14*(1), 47-75.

Xu, Z., Chen, Z., Eutsler, L., Geng, Z., Kogut, A. (2020). A scoping review of digital game-based technology on English language learning. *Educational Technology Research and Development, 68*, 877-904. https://doi.org/10.1007/s11423-019-09702-2

IMPACT OF CALL PROFESSIONAL DEVELOPMENT FOR EFL MATERIALS ON TEACHER AGENCY AND TECHNOLOGICAL PEDAGOGICAL CONTENT KNOWLEDGE (TPACK) IN INDONESIAN ISLAMIC SCHOOLS

by **Dana Kristiawan**

Universitas 17 Agustus 1945 Banyuwangi, Indonesia

The University of Newcastle, Australia

dana.kristiawan @ uon.edu.au

Carol Carter

Curtin University, Australia

carol.carter @ curtin.edu.au

and **Michelle Picard**

Flinders University, Australia

Michelle.Picard @ flinders.edu.au

Abstract

The Indonesian English Foreign Language (EFL) curriculum emphasizes using technology to enrich learning and teaching processes and encourages teachers to supplement the curriculum with context-relevant materials. However, little attention is given to the voices of teachers in implementing Computer Assisted Language Learning (CALL) for teaching English, especially how to elaborate technology, pedagogy, and content in Islamic schools where context and teacher agency remain underexplored. To fill this gap, we conducted professional development workshops to support teachers in Islamic school settings in their development of technological and pedagogical content knowledge. Twenty-one Islamic English teachers were involved in developing materials that supplemented the textbook used in Indonesian Islamic schools and at the same time introduced online and digital technologies into the EFL classroom. Drawing on Participatory Action Research (PAR), the data collected consisted of pre-and post-reflective journals, focus group discussion, field notes, participants assignment artefacts, and were analysed by thematic analysis. Our findings identified that the teachers enhanced their agency as material developers to utilize technology and pedagogy in EFL language teaching. Meanwhile, in terms of their content knowledge integration in TPACK in action, teachers integrated their cultural and religious background into materials, and this increased their confidence. This study also reports on challenges developing and sustaining TPACK.

1. Introduction

In the Indonesian secondary school context, it is mandatory for teachers to follow the requirements of the most recent curriculum documentation. The 2013 curriculum document identifies the core competencies that students are expected to develop as well as the fact that teachers should design learning experiences appropriate to students' sociocultural backgrounds and abilities to facilitate this learning. The 2013 curriculum also notes that teachers are expected to use technology to enrich their teaching (Widodo, 2016a; Imamyartha et al., 2022). The core curriculum requirements are the same for all subjects, including English.

Although the national curriculum provides detailed curriculum guidelines and recommends textbooks, teachers have difficulty in implementing these guidelines in practice. Widodo and Allamnakhrah (2020), in their study, found that Indonesian EFL teachers needed to enhance their material development skills to integrate technology and locally relevant content into their teaching. However, developing materials that integrate the technology, pedagogy and local context is challenging for English foreign language teachers in Indonesia due to a focus on standardized tests and examinations, leading to slavish adherence to the printed textbook and face-to-face grammar teaching (Widodo et al., 2016; Ardi & Rianita, 2022). Teachers are therefore torn between the expectation that their students will perform well in standardized tests and the Indonesian government's emphasis in the curriculum on the greater engagement of students in meaning-making and digital and online interactivity.

When implementing technology based EFL teaching in the Islamic school setting, teachers face two significant challenges. Firstly, they face the challenge of teaching English in a culturally relevant way since, as noted by Elyas and Picard (2010), there is often resistance to the culture/s of the target language from the students and sometimes even the teachers themselves. Therefore, as noted by Mahboob (2009), any EFL teaching intervention needs to accommodate both traditional Islamic approaches and relevant Western practices. Mahboob (2009) also stated that English could be used as a vehicle for sharing Islamic experiences, culture, and ideologies, thus reconciling students and teachers' Islamic identities with that of the target language.

Hanafi et al. (2021) argue that another challenge in the Islamic school setting is that these schools are usually situated in regional areas with minimal access to online and digital technologies. They further highlight that there is a deep-seated mistrust of online teaching and learning. Therefore, teachers need to be empowered to participate actively in technology-based

teaching as they lack structural and pedagogical support to move from their current textbook focused teaching to applying educational school-based technologies.

Based on the challenges mentioned above, professional development is needed to support Indonesian EFL teachers to integrate locally grounded CALL materials in Indonesian Islamic schools. Tafazoli (2021) argues that professional development is a useful vehicle for transforming teachers' beliefs and motivating them to implement technology in the language learning classroom. In this participative action research study, we designed professional development workshops for Islamic English teachers to elaborate technology, pedagogy and content knowledge and create locally grounded material for teaching English. The first author facilitated the workshops and collaborated with the teachers to develop sample materials. This paper aims to provide an exemplar of CALL professional development appropriate to Indonesian Islamic Schools and other similar contexts.

2. Literature review

2.1. Teacher agency and professional development in CALL

As described above, Indonesian EFL teachers are required to develop locally grounded and innovative material to engage students in meaningful learning and therefore need to serve as 'agents of change' (Widodo, 2016a). However, as noted in the Introduction, a teacher's ability to act is often constrained by cultural and structural factors such as the standardized test and exam regime which focuses on testing grammar-based tasks directly from the textbook. Therefore, the concept of agency is one that is relevant for exploration in this study. The definition of agency is varied based on the context and perspective (Priestley et al., 2012; Tao & Gao, 2021). This study follows the concept of agency identified by Mercer (2011) that defines agency as a person's capacity for autonomous, self-regulated behaviour to manage capably in all learning contexts and to transform the individual's own life. This study also views agency as a temporal and situated achievement that is ecologically determined. In this study, we hold that language teacher agency involves the interplay between personal and contextual resources and constraints (Tao & Gao, 2021). These definitions suggest that English teachers utilize agency in their participation in professional development as well as their movement from reflection to creativity and action in language teaching. Priestley et al. (2015) explained that to develop agency, an individual needs 'quality' engagement within a context. Kitade (2015) argues that EFL teacher agency is particularly socio-culturally constructed and interdependent with a particular social context.

Crucial factors that influence the building of a teacher's agency are the teachers' beliefs and knowledge of curriculum and pedagogy (Tao & Gao, 2017). Participatory action research that includes professional development workshops provides the opportunity to develop knowledge of the curriculum and pedagogy as well as facilitate quality engagement where participants are involved in active negotiation and collaboration (Baily et al., 2017). Several studies in the Indonesian context have confirmed the importance of professional development in developing teachers' agency as 'agents of change' in technology-based language learning (e.g., Ansyari, 2015; Tafazoli et al., 2018; Widodo & Allamnakhrah, 2020).

Despite the positive impact of professional development on teacher agency, Indonesian EFL teachers often struggle to implement technology and other innovations in their classroom practices due to a combination of a lack of resources and a lack of knowledge on how to use technologies (Lamb & Arisandy, 2020; Mulyono, Ismayama, Liestyana, & Komara, 2021). Professional development workshops can address knowledge gaps in technology integration, as highlighted by Tafazoli (2021). Such PD would guide English teachers to tailor their materials to their own contexts and constraints and develop material that accommodates online spaces, peer to peer interactivity, creative project-based learning, and multimedia collaboration (Hanson-Smith, 2018).

Ansyari (2015) pointed out that the following PD considerations are important when integrating technology in teaching in the EFL context: 1) participants' active involvement in the program, 2) providing participants with authentic learning experiences, 3) collaboration among participants, 4) providing guidance and support to participants when needed, 5) having curriculum coherency with the programme, 6) reflecting on what has been done, 6) giving feedback on participants' work, 7) providing intensive training, and 8) having sufficient time for participants to learn and practice. In this study, we aimed to develop workshops that accommodated all these principles as well as actively engage the participants in the participatory action research activities.

However, professional development does not necessarily address structural issues such as a lack of resources (Tafazoli & Meihami, 2022). Therefore, we collected the participants' reflections before the workshop to ascertain their experiences of integrating CALL activities and elaboration of technology, pedagogy and content for developing locally relevant materials as well as any challenges they had experienced in the past. This data assisted us in developing a workshop which would support teacher agency in integrating CALL as the outcome of the interplay between individual, contextual resources, and constraints (Tao & Gao, 2021). The Technological Pedagogical and Content Knowledge framework draws together all these

elements and hence is used to discuss the data in this study as described in this following section.

2.2. TPACK in action for developing material in CALL professional development

As mentioned earlier, teachers face challenges to elaborate technology, pedagogy and content knowledge to engage students in language learning. In this study, we employed the TPACK in action framework developed by Chai et al. (2013). TPACK in action by Chai et al. (2013) is an evolving fundamental framework of TPACK adapted from the original framework by Koehler and Mishra (2009) that integrates Technological Knowledge (TK), Pedagogical Knowledge (PK) and Content Knowledge (CK). These three aspects also interact with each other creating Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK) and Pedagogical Content Knowledge (PCK).

TPACK in action by Chai et al. added the dimensions of intrapersonal, interpersonal, cultural/institutional, and technological/physical (see Figure 1). The rationale for implementation of the framework is that we want to investigate the intrapersonal that related with the belief of the participants, how they work collaboratively (interpersonal), how cultural/institutional dimension on content knowledge the physical or technological support for the participants develop EFL material that integrating TPACK for Islamic school setting.

As content knowledge is a crucial aspect of TPACK, we wanted to explore how the participants, as the local actors, utilized agency to find solutions to identify and meet local needs in the Islamic school setting to enhance the teaching and learning of EFL (Liddicoat & Taylor-Leech, 2014).

Various studies in the Indonesian context have emphasized the incorporation of local culture and technology in English language teaching and shown that these elements have a positive impact on student learning. For example, Widodo's (2016b) study on engaging young learners of English in genre-based digital storytelling (DST) proved that digital stories accommodate students' voices and provide opportunities to democratize the way they create a local content story using multimodalities in language learning. Another study by Widodo et al. (2016) investigated how poetry writing uploaded onto a digital platform could assist students to write creatively. The study concluded that digital poetry could be a catalyst for expressive and meaningful language learning to express the students' cultural context. Finally, a recent study about a flipped classroom in an Indonesian EFL context by Husnawadi (2021) found that a local content topic such as describing students' responses to a national examination successfully boosted the student's motivation in completing writing tasks as part of situated

learning. These studies show that integrating local content and technology use led to enhanced pedagogy resulting in meaningful engagement for students and the enhancement of their English skills and technology competency. However, these studies do not address how best to support teachers to develop such activities and materials that elaborate technological, pedagogical, and content knowledge challenges as described above.

Therefore, this study aimed to address this gap in the literature by addressing the process of supporting professional development for technology, pedagogy and locally relevant content activities as highlighted in the following research questions:

1) What are the perceptions of the Islamic English teachers of using CALL before participating in professional development workshops?
2) What are the Indonesian Islamic School teacher's perceptions of the affordances barriers and of using CALL after the professional development workshops?

3. Research methodology

3.1. Research design

To address the research questions mentioned above, we employed a participative action research approach as highlighted by Kemmis and McTaggart (2000). This approach accommodates participants' voices but at the same time attempts to enhance understanding, concepts, ability, or skills (Kemmis et al., 2014). In this study, the first author (Dana) and the participants actively engaged in the negotiation of planning, taking action, observation, and reflection required to integrate TPACK activities in EFL material development. Participatory action research attempts to facilitate researchers sharing power with the participants to create meaningful learning experiences by motivating their active participation in decision-making (Avgitidou, 2020). Dana facilitated the participants' engagement with the sample activities and tasks. Dana also negotiated with the participants to encourage the participants to integrate CALL in the EFL material development.

The PD project was situated in a group of State Islamic Senior High Schools located in East Java in Indonesia under the management of the Ministry of Religion and Affairs (MORA). In conducting this study, Dana negotiated with the school stakeholders, including the Principal and Head of the Curriculum Department of the largest host school, to ask permission to conduct CALL PD workshops with the English teachers. The role of negotiation was crucial in the study to build rapport, and enable networking (Vuban & Eta, 2019). The study also aimed to ensure

the observance of ethical considerations to guarantee autonomy, justice, and beneficence for the participants (Lewis & Graham, 2007).

3.2. The participants and research procedures

The 21 participants (4 male and 17 female) were selected by a purposive sample of 16 Islamic schools: six from the host of State Islamic Senior High School and 15 individuals representing other schools. All the EFL teachers from the 16 schools were invited to attend the workshop and all agreed to join. Fifteen of the schools were Islamic high schools from rural areas. The participants were asked to join the study voluntarily, and they could withdraw at any time. The participants all completed a participant consent form, and all participated in the workshops. Just over half of the participants (11) were young teachers, around 25-30 years old, and the rest were senior teachers aged 40 to 50 years old. All the participants had at least three years of experience teaching EFL in the Islamic High School context. Most of the participants were from the host School (State Islamic Senior High School) which was located in an urban area and were aware of the use of CALL in EFL teaching including the use of video, LCD, and the Internet. The remaining teachers were from rural schools with little to no experience of CALL.

Before the workshop, the participants were asked to complete an online reflective journal to share their experiences on the implementation of teaching English in Islamic contexts. After that, the participants engaged in the CALL material development workshops. Workshop 1 was divided into two shorter workshops (Part A & Part B) on consecutive days of the 11th and 12th of January 2020. Workshop 2 was held a month after, on the 9th of February 2020. In the first workshop (Part A & Part B), the teachers took on the role of students and participated in activities using sample material and activities developed by the researchers, including flipped classroom activities, digital poetry, and digital storytelling. Then they gave feedback on the relevance of the material and activities to their local Islamic school context. In the second workshop, the participants were supported to create their own sample materials and were encouraged to use these materials in their own EFL classrooms. Lastly, almost a year after the final workshop, the participants wrote a reflective journal on their perceptions of implementing the material design method that incorporated TPACK for teaching EFL in Islamic school settings.

3.3. Data collection and analysis

Since the data collected was elicited within a naturalistic environment before, during, and after PD workshops, a broadly qualitative approach was taken to data collection and analysis. To

capture the needs and experiences of the participants prior to the workshop, we utilized reflective journal entries. We also employed reflective journal entries to describe the experiences of the participants after the workshop and the implementation of CALL and the TPACK framework in their classrooms. The reflective journals allowed the participants to express their thoughts and feelings as a part of the learning experience (Dunlap, 2006). The study also employed focus group discussion (FGD) during the workshops exploring the participants' responses and perspectives of the workshop. In the FGD, Dana wrote brief field notes to capture the flow of the discussion. To ensure the participants could behave as naturally as possible, Dana did not use audio or video recording. Dana also followed up with participants after the workshop to ensure that he had accurately reflected their perspectives in his field notes (Phillippi & Lauderdale, 2018). Finally, the last data source was the artefacts the participants developed as part of the workshop process, including their digital storytelling, digital poetry, and online discussions.

All the data from reflective journals, FGD, and assignment artefacts were transcribed and analysed using Braun and Clarke's (2006) thematic analysis. The steps of thematic analysis are 1) becoming familiar with the data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining themes, and 6) writing up (Braun & Clarke, 2006). The explanation and comprehensive example of how the data was analysed can be seen in the steps outlined below:

Step 1: Become familiar with the data
At the beginning of the qualitative data analysis, Dana translated the focus group discussion and reflective journal data produced in Bahasa Indonesian into English. All the authors read and re-read the data to become familiar with it.

Step 2: Generate initial code
After we were familiar with the data, we reduced the data to highlight the excerpts that have potential correlation or relevance with the specific research question. We had initial ideas about codes when data familiarization was completed. For example, we considered highlighting the statements that the participants repeatedly addressed about the issue of 'agentic actions'. Then we separated and grouped the set of excerpts for coding.

Step 3: Search for themes

After we highlighted and grouped the data according to patterns that related to the research questions that indicated answer to the research questions, we labelled the data with a theme. For example, for those excerpts showing the agentic action of participants, we assigned the theme of 'learning agency'. A theme is characterized by its significance (Braun & Clarke, 2006). In that example, we gave the theme of 'learning agency' in answer to the second research question on the impact of the workshop on the participants. Below is an example of coding and searching for themes.

Table 1. Table of the example coding and search for a theme

Theme: Learning agency
Codes:
"This is the first time I implemented LMS with Edmodo, I will implement in my classroom." (Participant 1, FGD, fieldnote, 11 January 2020)
"For me, I learned something new teaching media of poetry using a digital platform." (Participant 2, FGD, fieldnote, 12 January 2020)
"After practicing DST, I got additional knowledge about teaching model through digital platforms through telling story that are mediated by pictures." (Participant 3, FGD, fieldnote, 12 January 2020)
"It is very interesting, I got other new teaching media that can increase creativity and enthusiasm in the teaching and learning process". (Participant 4, FGD, fieldnote, 12 January 2020)

Step 4. Review theme

In this step, we reviewed the themes and identified whether the codes supported the theme. We also checked whether that theme was representative of the codes. We re-read the data set again and elicited the key features that were relevant to the research questions.

Step 5. Define themes

In this step, what is important to notice is the refinement of the themes and identifying the essence of what the theme is about to address the research question (Maguire & Delahunt 2017). For example, when defining the themes above about learning agency, the participants' agentic choices showed how the participants took agency within the professional development session by adapting what they had learnt and taking a *new* approach towards material development.

Step 6: Write-up

In the last step, we unpacked the themes and connected them to the research questions. Then we discussed each phenomenon with the related literature.

3.4. Workshop development and activities

Based on the pre-workshop reflective journals written by participants, we developed a professional development workshop that would support teachers in developing CALL activities, integrated TPACK and would be relevant to the Islamic school context. We created sample materials based on the challenges in implementing TPACK activities in material design identified by participants in the first reflection that focussed on needs analysis. The most challenging aspect of implementing CALL from the participants' perspectives was to creatively design and elaborate activities that demonstrated all aspects of TPACK and engaged students in active participation and meaning making in English (Tafazoli et al., 2019).

To address this issue, we designed the workshop with the following activities: flipped classroom, digital poetry, and digital storytelling. Dana demonstrated Technological Pedagogical Knowledge (TPK), Technological Content Knowledge (TCK) and Pedagogical Content Knowledge (PCK) in the role of the teacher as well as explaining the rationale for our selection of pedagogies, technologies, and content while the participants took on the roles of students. The sample materials topics were aligned with the Indonesian senior secondary English language curriculum that addressed character education values including friendship, living in peace, and harmony.

In the workshop, to begin with, Dana started sharing CALL activities by teaching the participants processes and practices of using a flipped classroom. A flipped classroom is a mode of learning instruction that organizes and connects students' in-class activities and out-of-class study in an integrated technology approach (Hung, 2015). In the workshop, participants were also guided to be familiar with the Edmodo App as a platform for the online learning approach. Dana shared a video on Edmodo on the topic of 'friendship' along with a discussion forum which the learners could access before the class or at any time to illustrate the nature of the flipped classroom approach. The teachers in the role of students watched the video prior to the class and answered some questions. The goal of the material/activity in class was to learn to analyse and summarize news items drawing on the pre-work the students had done. The video can be accessed at: https://www.youtube.com/watch?v=EQWsoPH2dLg. The participants could explore the film and answer questions to understand the background and refine their understanding of the story. The rationale for doing the activity was that participants could practice autonomous learning instead of face-to-face interaction. This activity would be an

experience to facilitate the students as a role model for the students to keep learning English outside the classroom practices. Dana also encouraged the participants to engage with the activity in the online discussion. A screenshot of the discussion forum on the online platform is provided in Figure 1 below.
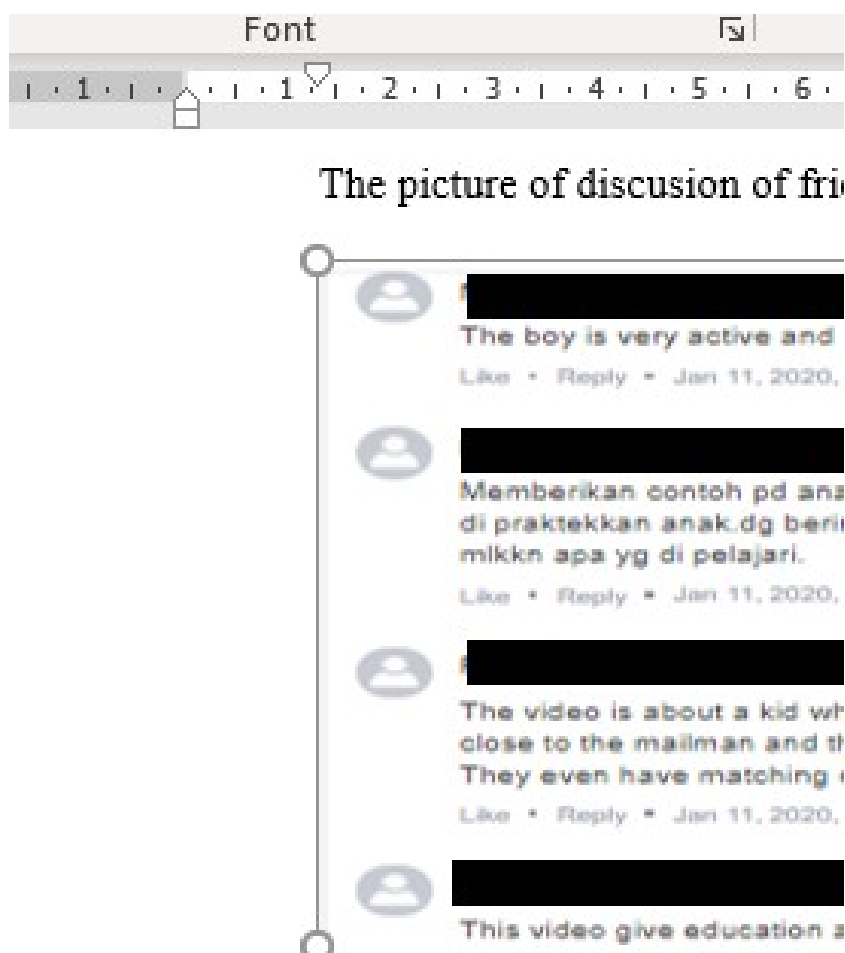
Figure 1. Screenshot of online discussion

During the flipped classroom class time activity, the participants were guided to summarize and find the moral in the news item building on the guided questions. The workshop focused on introducing the participants to an online discussion activity. The workshop activity modelled the characteristics of a flipped classroom where the students could access the online material and discussion, then engage with or clarify the concept or topics in the classroom with the guidance of the teacher.

The second activity was creating digital poetry. Dana presented how participants could engage in creating Haiku digital poetry. Haiku poetry is Japanese poetry, usually a short form of a poem with a 5-7-5 syllable pattern (Blasko & Merski, 1998). In this workshop, Dana

combined Haiku poetry with a digital format. The rationale to write the Haiku poetry on a digital platform was to use a multimodal approach and enhance the participants' creativity in using technology by Canva Apps. Through the Canva Apps, the participants could design their Haiku poetry with pictures and colourful templates. The product could be uploaded into Edmodo as learned in the previous activity.

The last workshop was trialing digital storytelling (DST) for teaching English. The participants worked collaboratively in groups to create a DST product about living in peace and harmony. DST can be defined as a storytelling activity that combines multimedia such as text, still/moving images, sound, and film (Robin, 2008). The reason for integrating this activity is that, based on the empirical findings, numerous scholars claim that DST assists the student in explaining the complex concepts and content through narrative and metaphor (Oskoz & Elola, 2016; Sadik, 2008; Taylor et al., 2018). Furthermore, DST is an effective meaning-making activity to express identities and practice the target language while creating a product in a multimodal text (Vinogradova et al., 2011). Dana demonstrated a sample DST on the topic of inner peace using his own photo collection. He encouraged the participants to create a DST based on their own photos to promote inner, interpersonal, intergroup intercultural/international, and ecological peace. The result of the dynamic engagement of the workshop is explained and sample of the artefact of the activities is provided in the findings and discussion sections below.

4. Findings

4.1. Perceptions prior to the professional development CALL workshops

The pre-reflective journal data suggested that most participants had little or no experience of using CALL and elaborated TPACK in the Islamic school context to teach English, although the staff from the urban school were aware that CALL activities were encouraged in the curriculum. Only three participants mentioned using technology or multimedia at all in their classes as reflected in the extracts below:

> I divided the students into groups and ask them to collect caption material from various sources, such browse from *Google*. Then asked them to discuss and present the material with their respective groups, what exactly is the caption, its purpose, and types. (Participant 2# Journal entry 1, 10 January 2020)

I use videos in teaching analytical expositions because students find it difficult if they have to write directly or do not even know what to write, by presenting several videos related to the motion to be written, videos can be a stimulus for a writing framework that can then be developed. (Participant 3# Journal entry 1, 10 January 2020)

I usually ask student to see the *pictures* and *sometime photos* from their cell phone... in order that they can explain what the content is. (Participant 16#Journal entry1, January 2020)

These participants' reflections showed that although they might have used CALL in the past, they had not necessarily followed up activities with engagement in class to make meaning in an EFL context. Technology was used only as a prompt for students to undertake in class activities and they appeared to lack CALL literacy or TPACK, especially technological pedagogical knowledge (Hanafi et al., 2021).

Even among participants who had used CALL before, the reflective journals focussed almost entirely on concerns related to face-to-face teaching. In their reflective journal entry, Participant 16, summarized what most of the participants highlighted as their greatest need: "Extra time for [face-to-face] English lessons" (Participant 16, Journal entry 1. 10 January 2020).

Almost all reflected the perspective that face-to-face teaching was the only possible option to support learning. This is in contrast with the literature that emphasizes the positive impacts of online platforms for language learners and particularly highlights the ability to engage in self-paced autonomous learning. For example, Moradimokhles and Hwang (2020) argue that online learning offers flexibility, fosters student-to-student interaction, facilitates the students' learning process, and helps create an effective learning climate. Overall, the pre reflective journals show that the participants had limited knowledge about the affordances of technology in language learning, limiting their integration of pedagogies fully utilizing technologies. This emphasis reinforces the teachers' dependency on the textbook and limits their exploration of content and pedagogies that are representative of their local culture and more engaging for their students.

4.2. Participants' perspective of TPACK affordances after CALL professional development workshops

Based on the participants' experience in engaging with the sample materials and doing tasks in the first workshop (Part A and B), they gave feedback and comments during the FGD. The

participants' data showed that the workshop gave the participants new experiences, knowledge, and resources enhancing their TPACK. The participants said that:

> This is the *first time* I implemented Edmodo, I will use it in my classroom. (Participant 1, FGD, fieldnote, 11 January 2020)

> For me, I learned *something new* teaching media of poetry using a digital platform. (Participant 2, FGD, fieldnote, 12 January 2020)

> After practicing DST, I got *additional knowledge* about teaching model through digital platforms through telling story that was mediated by pictures. (Participant 3, FGD, fieldnote, 12 January 2020)

> It is very interesting, I got other *new* teaching media that can increase creativity and enthusiasm in the teaching and learning process. DST is an excellent activity of practicing speaking, listening, writing, listening, and reading in digital platform. Students can record their speaking or writing of the story, they also be able to listen and read their story digitally as a reflective activity to enhance the English skill. (Participant 4, FGD, fieldnote, 12 January 2020)

> This workshop inspired me to implement *another tool*, I used to teach with brochures, realia, and newspapers. (Participant 5, FGD, fieldnote, 12 January 2020).

They appeared to be inspired by the first two-part workshop, believing that it would increase their creativity and they appeared to have increased enthusiasm for using the demonstrated CALL activities in their classroom.

The process of active learning as students assisted the participants to practically develop Pedagogical, Technological and Content knowledge. For example, by attempting the activities in the role of students, they found the new features on their laptop or cell phone for editing the story on the digital platform.

These experiences developed more than just technological content knowledge. As highlighted by Participant 3 and 4, the most important aspect of the technologies were their pedagogical affordances to engage students in active learning of the English language. The participants' enhanced belief in active learning pedagogies is further demonstrated in the following extracts:

> After I engaged in the DST activity, I believe that pictures can stimulate students to make sentences and train students to be *active in writing* to make it easier to speak in the collaborative project of DST. (Participant 6, FGD, fieldnote, 12 January 2020)

> After I engaged in the DST activity, *I am pretty sure* that pictures can *stimulate* students to make sentences and train students to *be active* in writing to make it easier to speak in the collaborative project of DST. (Participant 7, FGD, fieldnote, 12 January 2020)

> *I think,* the students can *actively engage* with the activities of creating story thorough DST. (Participant 8, FGD, fieldnote, 12 January 2020)

Therefore, CALL technologies have moved beyond being merely a stimulus as highlighted in the pre-workshop exerpts to being an active engaging pedagogy inside and outside of the face-to-face classroom. Most importantly, given the previous reliance on the textbook, several participants mentioned increased confidence in moving beyond the textbook both during the workshops and afterwards in their written reflections. As noted by Participant 13:

> ….especially, for me *who initially taught 75% of the time from the textbooks* and might make it boring for my students, but with the meeting yesterday it opened a mindset and fostered a new enthusiasm for innovation in the classroom. (Participant 13, reflective journal 2)

In the workshops, the participants also provided feedback on the activities and character education content from their cultural and religious perspectives. For example, they highlighted that one of the images provided to demonstrate peace between a couple with the male person's arm around a female, was too intimate for an Islamic setting. They also recommended linking each of the peace education themes and sets of activities with a *sura* (verse) from the *Holy Quran*. This ability to demonstrate agency and confidence in their content knowledge supported the participants in more confidently developing their own material and activities as well as their technological and pedagogical knowledge. For example, one of the groups of participants included *sholat* (ritual prayer) in their DST story on building inner peace. In teaching with digital poetry, the participants also used religious discourses to express their values as demonstrated in the material in Appendix A. They were therefore able to elaborate their pedagogical content knowledge on character education related to peace in a way that was relevant to the Islamic School context.

In the second workshop, the participants created their own material and were encouraged to continue to develop their own materials, some of which is provided in the Appendix A. At the end of 2020, they were asked to reflect on their implementation. The period of implementation coincided with the periodic shutdowns and fully online learning interspersed with face-to-face and some online learning due to the COVID-19 pandemic. They reported

continued use of technologies to encourage active learning and motivation as reflected in the reflections below:

> I used google classroom, so that students can access the sources through the internet, and this activity will motivate in learning English (Participant 9, Reflective journal entry 3, 15 December 2020)

> I asked students to create a collaborative role play project, the upload to Edmodo. Through this activity, students could engage in the online discussion (Participant 10, reflective journal entery 3, 18 December 2020)

> During the pandemic, I asked the students to create a drama digitally. I asked the students to edit and combine the part of the drama in a digital storytelling format (Participant 12, reflective journal 3, 10 January 2021).

Increasingly, the participants were using online learning to support face-to-face meeting. Before the workshop the participants focused on face-to-face interaction reporting repeatedly on a lack of face-to-face time. However, after the workshops, the value of the online interactions to support face-to-face meetings was increasingly evident with all the participants noting that they had used Edmodo to upload material and facilitate discussion with students. Despite this positive outcome, it is unclear whether participants would have continued to draw on the TPACK they had developed during the workshops, if it were not for the COVID-19 periodic shutdowns and the need to increasingly rely on online and CALL activities to supplement face-to-face teaching. As one of the participants noted on social media, "Lucky that we had the workshops so I can know and implement online learning during the pandemic" (Anonymous Participant).

4.3. Participants' perspectives of challenges and barriers during and after the workshop

The participants also reported on challenges during the workshop and sustainably implementing CALL pedagogies after the workshop. A major issue faced by participants when implementing CALL activities was the availability of a reliable Internet connection. Many of the participants could not connect to the school Wi-Fi during the workshop. To address this issue, Dana grouped the participants to share the smartphone/laptops and Internet Wi-Fi connection with participants of the host organisation who were able to connect and/or participants who were able to use their phones as a hotspot for others. This enabled the participants to complete the activities during the workshop. The participants also worked together with Dana to identify low-technology options for each of the activities.

Several participants during the FGD discussion and in their reflective journals after the workshops noted the challenges of access to the Internet in rural areas with intermittent signals and no connection in some areas. Another challenge that some teachers reflected was school policy. Some of the schools prohibited students from using any technology on school property and some lacked computer laboratories or Internet connection for CALL pedagogies.

Due to the limited time and technological challenges in the second workshop, one group of four participants did not manage to finish their set of activities. It became clear that participants who had no TPACK at the start of the workshops needed additional time and practice and structural issues including resourcing of some schools and changes of regulation were needed to make effective CALL sustainable at those institutions.

5. Discussion

As reflected in the TPACK-in-action framework (Chai et al., 2013), this study also demonstrated the impact of a combination of intrapersonal, interpersonal, cultural/institutional, and physical/pedagogical factors on participants' development of TPACK and EFL materials appropriate to an Islamic school setting. Even though the participants only participated in a short series of practical professional development workshops in CALL, the experience had a significant impact on the practice of the participants. In terms of intrapersonal factors, the participants interactions with the workshop facilitator, the sample materials, and others, resulted in a more positive response to technology-based pedagogies. The workshops also enhanced the teachers' belief in the pedagogical affordances of technologies to engage students during the lesson and help them enhance their English language proficiency independently. By practically engaging as students, then providing feedback as teachers and then developing their own materials, the participants were able to build their CALL confidence (Liu et al., 2017) and shift from a textbook orientation to more active CALL teaching activities.

As demonstrated by Ansyari (2015), in our study, the interpersonal element of Participative Action Research supported the participants in their EFL material skill development. For example, when exploring the features of digital tools, the participants supported each other with unfamiliar icons in the Inshot application. Our study corroborated the findings of Bustamante (2020), that by experiencing the pedagogy and discussing its theoretical underpinnings, the participants were able to better understand and integrate all aspects of TPACK. For example, by using online discussion tools in Edmodo, collecting and using

pictures in DST and writing their own Haiku poems, they experienced the pedagogy and then discussed its affordances and challenges and adapted it more effectively to their own context.

This process also allowed the participants to reflect on cultural/institutional factors and take agency in CALL development. The teachers were able to identify cultural, religious, and institutional challenges related to the textbook and provided material. Then, through the PAR process, they were able to draw on their Islamic culture and religion as a bridge for character education and language learning, thus increasing their confidence and agency (Munandar & Newton, 2021).

Our findings revealed barriers related to physical/technological factors in that some Islamic schools in this study had limited access of the Internet, digital tools and the school policy that restricted for students to use devices such as smartphones in the schools. The participants also reflected a need for more and ongoing professional development. These findings reflect those of Hanafi et al. (2021) who noted that Indonesian Islamic schools required a systematic approach to integrating technology in teaching that included sustained training programs and better technical facilities in the schools. Interestingly, the PAR project had an immediate effect on the host school principal who undertook to change the policy related to smartphones and devices allowing them to be used in monitored classroom activities.

In this study, the participants' agency was gradually enhanced through practice and awareness (Kitade, 2015), demonstrating, in line with the literature, that a temporal intervention such as professional development can have lasting impacts if the learning ecology takes into account the interplay between personal, contextual resources and constraints (Tao & Gao, 2021).

5. Conclusion

Although the participants in this study demonstrated increased TPACK during and immediately after the workshops, this study occurred within the specific context of the global COVID-19 pandemic and it remains unclear whether the longer term effects were due to the workshop or the need to move online due to COVID-19 restrictions or a combination thereof. Also, as the workshops only focussed on a few activities, the full scope of TPACK related to CALL requires further exploration However, this study demonstrated the efficacy of participative action research methodologies to build EFL teacher agency and TPACK in an Islamic School community immediately pre- and post-COVID-19. It is hoped that continuing professional development will further enhance CALL pedagogies in this context.

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References

Ardi, P., & Rianita, E. (2022). Leveraging gamification into EFL grammar class to boost student engagement. *Teaching English with Technology, 22*(2), 90-114.

Ansyari, M. F. (2015). Designing and evaluating a professional development programme for basic technology integration in English as a foreign language (EFL) classrooms. *Australasian Journal of Educational Technology*, *31*(6), 699-712. https://doi.org/10.14742/ajet.1675

Avgitidou, S. (2020). Facilitating teachers as action researchers and reflective practitioners: New issues and proposals. *Educational Action Research, 28*(2), 175-191. https://doi.org/10.1080/09650792.2019.1654900

Baily, S., Shahrokhi, F., & Carsillo, T. (2017). *Experiments in agency: A global partnership to transform teacher research*. Sense.

Blasko, D. G., & Merski, D. W. (1998). Haiku poetry and petaphorical thought: An invitation to interdisciplinary study. *Creativity Research Journal, 11*(1), 39-46. https://doi.org/10.1207/s15326934crj1101_5

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Bustamante, C. (2020). TPACK-based professional development on web 2.0 for Spanish teachers: A case study. *Computer Assisted Language Learning, 33*(4), 327-352. https://doi.org/10.1080/09588221.2018.1564333

Chai, C. S., Koh, J. H. L., & Tsai, C-C.. (2013). A review of technological pedagogical content knowledge. *Journal of Educational Technology & Society, 16*(2), 31-51.

Dunlap, J. C. (2006). Using guided reflective journaling activities to capture students' changing perceptions. *TechTrends, 50*, 20-26. https://doi.org/10.1007/s11528-006-7614-x

Elyas, T., & Picard, M. (2010). Saudi Arabian educational history: Impacts on English language teaching. *Education, Business and Society: Contemporary Middle Eastern Issues, 3*(2), 136-145. doi:10.1108/17537981011047961

Hanafi, Y., Taufiq, A., Saefi, M., Ikhsan, M. A., Diyana, T. N., Thoriquttyas, T., & Anam, F. K. (2021). The new identity of Indonesian Islamic boarding schools in the "new normal": The education leadership response to COVID-19. *Heliyon, 7*(3), 1-10. https://doi.org/10.1016/j.heliyon.2021.e06549

Hanson-Smith, E. (2018). CALL (Computer-Assisted Language Learning) materials development. In *The TESOL Encyclopedia of English language teaching* (pp. 1-7). Wiley. https://doi.org/10.1002/9781118784235.eelt0401

Hung, H. T. (2015). Flipping the classroom for English language learners to foster active learning. *Computer Assisted Language Learning*, *28*(1), 81-96. https://doi.org/10.1080/09588221.2014.967701

Husnawadi, H. (2021). Students' perceptions of flipped classroom-mediated task: Insights from an Indonesian post-earthquake EFL writing pedagogy. *Teaching English with Technology, 21*(1), 8-28,

Imamyartha, D., Wahjuningsih, E., A'yunin, A., Santihastuti, A., Fauzie, D. L. T. A., & Andika, E. C. H. (2022). EFL learners' engagement and learning motivation in team-based mobile language learning through WhatsApp. *Teaching English with Technology, 22*(1), 82-103.

Kemmis, S., & McTaggart, R. (2000). Participatory action research. In N. K. Denzin & Y. S. Lincoln, Y.S. (Eds.), *Handbook of qualitative research* (pp. 567-595). SAGE.

Kemmis, S., Mctaggart, R., & Nixon, R. (2014). *The action research planner: Doing critical participatory action research*. Springer.

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education, 9*(1), 60-70.

Kitade, K. (2015). Second language teacher development through CALL practice: The emergence of teachers' agency. *CALICO Journal*, *32*(3), 396-425. https://doi.org/10.1558/cj.v32i3.26637

Lamb, M., & Arisandy, F. E. (2020). The impact of online use of English on motivation to learn. *Computer Assisted Language Learning, 33*(1-2), 85-108. https://doi.org/10.1080/09588221.2018.1545670

Lewis, J., & Graham, J. (2007). Research participants' views on ethics in social research: Issues for research ethics committees. *Research Ethics*, *3*(3), 73-79. https://doi.org/10.1177/174701610700300303

Liddicoat, A. J., & Taylor-Leech, K. (2014). Micro language planning for multilingual education: Agency in local contexts. *Current Issues in Language Planning, 15*(3), 237-244. https://doi.org/10.1080/14664208.2014.915454

Mahboob, A. (2009). English as an Islamic language: A case study of Pakistani English. *World Englishes, 28*(2), 175-189.

Maguire, M., & Delahunt, B. (2017). Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *All Ireland Journal of Teaching and Learning in Higher Education, 8(3),* 3351-33514. http://ojs.aishe.org/index.php/aishe-j/article/view/3354

Mercer, S. (2011). Understanding learner agency as a complex dynamic system. *System, 39*(4), 427-436. https://doi.org/10.1016/j.system.2011.08.001

Moradimokhles, H., & Hwang, G.-J. (2020). The effect of online vs. blended learning in developing English language skills by nursing student: an experimental study. *Interactive Learning Environments*. https://doi.org/10.1080/10494820.2020.1739079

Mulyono, H., Ismayama, D., Liestyana, A. R., & Komara, C. (2021). EFL teachers'perceptions of Indonesian blended learning course across gender and teaching levels. *Teaching English with Technology, 21*(1), 60-74.

Munandar, M. I., & Newton, J. (2021). Indonesian EFL teachers' pedagogic beliefs and classroom practices regarding culture and interculturality. *Language and Intercultural Communication, 21*(2), 158-173. https://doi.org/10.1080/14708477.2020.1867155

Oskoz, A., & Elola, I. (2016). Digital stories: Bringing multimodal texts to the Spanish writing classroom. *ReCALL, 28*(3), 326-342. https://doi.org/10.1017/S0958344016000094

Phillippi, J., & Lauderdale, J. (2018). A guide to field notes for qualitative research: Context and conversation. *Qualitative Health Research, 28*(3), 381-388. https://doi.org/10.1177/1049732317697102

Priestley, M., Edwards, R., Priestley, A., & Miller, K. (2012). Teacher agency in curriculum making: Agents of change and spaces for manoeuvre. *Curriculum Inquiry, 42*(2), 191-214. https://doi.org/10.1111/j.1467-873X.2012.00588.x

Priestley, M., Biesta, G. J. J. & Robinson, S. (2015). Teacher agency: What is it and why does it matter?. In R. Kneyber & J. Evers (Eds.), *Flip the system: Changing education from the bottom up* (pp. 1-11). Routledge.

Robin, B. (2008). Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory into Practice, 47*(3), 220-228.

Sadik, A. (2008). Digital storytelling: A meaningful technology-integrated approach for engaged student learning. *Educational Technology Research and Development, 56, 487-506.* https://doi.org/10.1007/s11423-008-9091-8

Tafazoli, D., Gómez-Parra, M. E., & Huertas-Abril, C. A. (2018). A cross-cultural study on the attitudes of English language students towards computer-assisted language learning. *Teaching English with Technology, 18*(2), 34-68.

Tafazoli, D., Gómez-Parra, M. E., & Huertas-Abril, C. A. (2019). Attitude towards computer-assisted language learning: Do age, gender, and educational level matter? *Teaching English with Technology, 19*(3), 22-39.

Tafazoli, D. (2021). CALL teachers' professional development amid the COVID-19 outbreak: A qualitative study. *CALL-EJ*, 22(2), 4–13. http://callej.org/journal/22-2/Tafazoli2021.pdf

Tafazoli, D., & Meihami, H. (2022). Narrative inquiry for CALL teacher preparation programs amidst the COVID-19 pandemic: Language teachers' technological needs and suggestions. *Journal of Computers in Education*. https://doi.org/10.1007/s40692-022-00227-x

Tao, J., & Gao, X. (2017). Teacher agency and identity commitment in curricular reform. *Teaching and Teacher Education, 63*, 346-355. https://doi.org/10.1016/j.tate.2017.01.010

Tao, J., & Gao, X. (2021). *Language teacher agency*. Cambridge University Press.

Taylor, M., Marrone, M., Tayar, M., & Mueller, B. (2018). Digital storytelling and visual metaphor in lectures: a study of student engagement. *Accounting Education, 27*(6), 552-569. https://doi.org/10.1080/09639284.2017.1361848

Vinogradova, P., Linville, H. A., & Bickel, B. (2011). "Listen to my story and you will know me": Digital stories as student-centered collaborative projects. *TESOL Journal, 2*(2), 173-202. https://doi.org/10.5054/tj.2011.250380

Vuban, J. A., & Eta, E. A. (2019). Negotiating access to research sites and participants within an African context: The case of Cameroon. *Research Ethics, 15*(1), 1-23. https://doi.org/10.1177/1747016118798874

Widodo, H. P., & Allamnakhrah, A. (2020). The impact of a blended professional learning community on teacher educators' professional identity: Towards sustainable teacher professional development. *Journal of Education for Teaching, 46*(3), 408-410. https://doi.org/10.1080/02607476.2020.1761249

Widodo, H. P., Budi, A. B., & Wijayanti, F. (2016). Poetry writing 2.0: Learning to write creatively in a blended language learning environment. *Electronic Journal of Foreign Language Teaching, 13*(1), 30-48.

Widodo, H. P. (2016a). Language policy in practice: reframing the English language curriculum in the Indonesian secondary education sector. In R. Kirkpatrick (Ed.), *Engish language education policy in Asia* (pp. 127-151). Springer.

Widodo, H., P. (2016b). *Engaging young learners of English in a genre-based digital storytelling project.* Cambridge University Press.

Appendix A. Digital story telling artefacts

Visual	Narration
	Assalamualaikum warahmatullahi wabarokatuh. My name is xxxx. I am a teacher at Senior High School is xxx Madrassa xxxx. I love my job as an English teacher because Allah loves people who know and teach it to others. Therefore, I can share my English knowledge with them for their future. Furthermore, I can enhance the students' understanding of Islam by using English as the media, giving information about the importance of English related to its benefits to their daily lives.
	In xxxx Madrassa the teachers usually pray (sholat) with their students at the school mosque or schoolyard. It is done to practice them to be on time to do something like doing Sholat together, to make them always doing their obligation activities to Allah SWT to get inner peace by doing it together. So, it will create togetherness in life now and in the future.

HOW MASSIVE OPEN ONLINE COURSES CONSTITUTE DIGITAL LEARNING SPACES FOR EFL TEACHERS: A NETNOGRAPHIC CASE STUDY

by **Özgehan Uştuk**

Balıkesir University, Turkey

oustuk @ balikesir.edu.tr

Abstract

Massive open online courses (MOOCs) provide digital learning spaces for individualized professional development that may create opportunities in teacher education and support language teachers. Language teachers need continuous professional development to develop their digital literacies, and further research is essential to investigate new teacher-learning modes and spaces. This netnographic study reports two case learners' MOOC experiences based on the qualitative data collected from digital learner diaries, mentoring session recordings, course assignments and forums, and semi-structured interviews. These were analyzed thematically to explore the learner experiences and behaviours. The findings revealed that MOOCs provide professional development opportunities for language teachers when these courses promote self-regulation, assessment-for-learning, and reflective practice. On the other hand, MOOCs can involve learning challenges when the content, which is generally designed for a general audience, does not match the individual needs and teaching contexts. Accordingly, several implications were drawn for language teacher educators and MOOC designers.

Keywords: CALL teacher education; Massive Open Online Courses (MOOCs); online education; digital literacy

1. Introduction

The pandemic experience has shown that online teaching is very challenging for teachers in terms of their digital instructional skills (Mishra et al., 2020; Thumvichit, 2021), digital literacies (Tafazoli, 2021b), and their well-being (MacIntyre et al., 2020). As the pandemic required teachers to teach online with little or no preparation, many teachers participated in online courses/webinars (Tafazoli, 2021a) or engaged in transnational collaborations (Yi & Jang, 2020) because teachers did not feel well-prepared by their prior CALL teacher education or professional development.

CALL teacher education is not a novel field of research, and it resulted in the development of many concepts and pedagogies informing CALL teacher educators; however, teacher education programs (Tømte, 2018) and institutional practices of teacher professional

development (Tafazoli, 2021a) could not have kept up with the opportunities of technology-enhanced education and their resonances in language classrooms. This made it imperative for pre/in-service language teachers to seek further professional development activities to keep abreast.

This study explores the professional development experiences of two pre-service EFL teachers in Turkey through massive open online courses (MOOCs). This study conceptualizes MOOCs as digital learning spaces in which English as a foreign language (EFL) teachers can build up their professional skills, competencies, and digital literacies. Even though MOOCs have been found promising for complementing formal teacher education programs (Langseth & Haugsbakken, 2016; Tømte, 2018), further research is required to better understand learners' experiences and behaviors to maximize the potential of this innovative learning space on CALL teacher education.

2. Massive Open Online Courses: Individualized learning for CALL teachers

MOOCs are defined as a form of online continuous learning activities that typically address a diverse and large learner population (Rieber, 2017; Yeomans & Reich, 2017). They provide modules that help learners build up knowledge and skills in specific fields and topics. Online platforms such as Coursera, FutureLearn, or EdX host MOOCs whereas the content of MOOCs that are available on those platforms are often created by institutions such as universities, global associations, or companies. There are alternative platforms such as Canvas Network, which provides free online courses for educators that are sponsored by governmental or non-governmental organizations, and Udemy, on which freelance trainers can create and offer MOOCs.

MOOCs are innovative and flexible digital spaces that make knowledge accessible for people who do not have the means to participate in face-to-face education or training. In addition to their economic advantage, Jansen et al. (2020) concluded that MOOCs provide autonomy to learners along with the freedom to monitor their self-regulated and individualized learning and development. However, they also highlighted that MOOC learners experience difficulties in maintaining their learning on their own because MOOCs require developed learning strategies.

There are other problems reported in the prior research, such as the low completion rate (e.g. Langseth & Haugsbakken, 2016; Rieber, 2017; Shin & Kang, 2018). To illustrate, Rieber (2017) stated that most of the participants found the MOOC investigated in his study valuable; however, the dropout rate was high, and most of the participants did not complete the course

even though the initial enrollment number was high as well. Yeomans and Reich (2017) conceptualized this phenomenon as the intention-action gap; that is, learners show high interest but not sustained effort for learning. Similarly, Jansen et al. (2020) found that supporting learners' self-regulation significantly improved course completion. Second, assessment constituted another problem for MOOCs. Wei et al. (2021) conducted a systematic review on the learning outcomes of MOOCs and found that it was of critical importance for teacher educators and MOOC designers to develop assessment tools and methods that were relevant to learning outcomes. They called for exploratory studies that investigate MOOC learners' experiences to understand their cognitive, affective, and behavioral learning.

In the teacher education context, Langseth and Haugsbakken (2016) investigated a MOOC that was designed to introduce the concept of blended learning to educators. They found that learning through MOOCs helped pre-service teachers to reflect on their individualized professional learning and skills; however, they also reported low user adoption and course completion rates. These findings infer that problems such as low course completion and assessment can be overcome; however, the literature fails to provide case-based learner experiences that may help educators, MOOC designers, and online teacher education content creators to explore the root of these problems. Particularly in the Turkish context, a recent study by Yaşar and Polat (2021) investigated the use of MOOC-based flipped learning in an EFL teacher education program in Turkey; they suggested that integrating MOOC-based course design might be beneficial to educating teacher candidates as autonomous learners. They highlighted the potential of MOOCs in language teacher education, but they also called for more exploration of learner perceptions and experiences. However, the study did not directly refer to CALL teacher education through MOOCs.

That said, the digital learning experience of teacher-learners in MOOCs remains unearthed in the CALL teacher education context. Based on these gaps in the literature, the current study aims to explore the digital learning experiences of two pre-service EFL teachers in a MOOC on teaching English online.

3. CALL teacher education and pre-service EFL teacher education in Turkey

The *English Language Teaching* (ELT) undergraduate programs in Turkey, which is the research setting in this study, follow a national curriculum that was introduced by the Higher Education Council in 2017. In this curriculum, the teacher candidates are required to complete courses that add up to 240 credits in total. Courses that are equivalent merely to the 8.3% of the total credit mention general instructional technologies explicitly in the course descriptions,

whereas only 3.3% of the total credit (only two field-specific courses) are directly related to the knowledge-base of foreign language education according to the course descriptions. Table 1 presents the courses that explicitly mention instructional technologies in their descriptions.

Table 1. Courses titles, credits, and excerpts from their descriptions as in the National Guide of ELT Undergraduate Programs in Turkey

Course name	Credits / Total	Description excerpts
ICT Technologies	5/240	The concepts of and approaches to ICT technologies, computational thinking, problem-solving (…) the use of the internet in education.
Instructional Technologies	3/240	Information technologies in education; classification of instructional technologies and theoretical frameworks; new trends in learning approaches; (…) instructional technologies as teaching tools and materials and material design (…)
Open and Remote Learning	4/240	(…) technologies used in online education; managing open and remote education; classroom management in open and remote education (…)
*Material Design in ELT	4/240	Using field-specific instructional technologies; software types and purposes (…)
*Novel Approaches in ELT	4/240	(…) the use of technology in language classes (…)

* Courses specified as the ELT field-specific ones rather than general education ones

It is important to note that the national curriculum allows lecturers to design the course syllabi and advises lecturers to take the course descriptions given in the national curriculum into account. Lecturers of other courses *may* intend to develop pre-service teachers' digital literacies (*if* they choose to) and design their syllabi accordingly. However, it has been seen with the pandemic that CALL skills and digital literacy are vital for foreign language educators (Cote & Milliner, 2018; Tafazoli, 2021a), and such *if*s and *may*s can impact the quality of language education negatively. Crucially, it is argued that the existing language teacher education programs in Turkey may not suffice to prepare pre-service EFL teachers in terms of their digital literacies, and they may fail to educate teacher candidates as *CALL teachers*. This makes it common for pre-service EFL teachers to seek non-formal opportunities along with their formal studies in Turkey (e.g., Uştuk & De Costa, 2022). However, a system in which the formal and the non-formal can nurture and support each other may also be possible.

Accordingly, the MOOC learner experiences of two pre-service EFL teachers in Turkey were explored in this study. These learners intended to develop their digital literacies through a CALL-related MOOC. With this netnographic multiple case study, the following research questions were posed:

1. What motivates pre-service EFL teachers to participate in and continue MOOCs?
2. How do pre-service EFL teachers' MOOC experiences influence their professional development?
3. What affordances and disturbances can be experienced by pre-service EFL teachers during MOOCs?

3. The current study

3.1. The participants

Sevval

The first case participant, Sevval (all names are pseudonyms), was a senior student at a Turkish public university's ELT undergraduate program that participated in a teaching practicum during the 2020-2021 academic year for two semesters. She was assigned to an elementary school by the school district administration. Her mentor teacher taught second and third grades. She was required to teach a minimum of four hours in her mentor's class and compile a teaching portfolio that included the plans and materials of the lessons she taught, along with her reflections and observations. She observed her mentor for three-to-four hours per week for 12 weeks.

Sevval was a pre-service EFL teacher who was suspicious of the effectiveness of online teaching; however, her entire practicum process was moved to the online mode due to the COVID-19 lockdowns. She was concerned about her digital literacies and worried about her lack of online teaching experience. To complement her teaching portfolio, she was required to complete and report a professional development module of her choosing. She decided to participate in a MOOC on online language teaching that was available on a generic MOOC platform.

Ozan

Ozan was also a senior undergraduate student, and he went through the practicum process and completed the same practicum requirements as Sevval. However, he was appointed to a middle school, and his mentor teacher wanted Ozan to observe and teach all middle school grades in

Turkey from the 5th to 8th grades. Accordingly, he observed his mentor's classes for 12 weeks for three-to-four hours every week and taught four lessons. The lessons he taught were supervised by his mentor, just like Sevval.

Ozan had already been teaching EFL for several years at a private language school when he started the practicum to complete his formal undergraduate studies. So he was both an in-service and a pre-service teacher, and he was familiar with teaching online. He taught online for a brief period as *emergency remote teaching* when the pandemic first broke out in spring 2020. He had an understanding of what it required to teach online. However, he was also feeling insecure about his knowledge and skills in teaching EFL online. Based on his experience during emergency remote teaching, he wanted to increase his skills to teach online and decided to enrol in the same MOOC.

3.2. The MOOC

Both participants enrolled in the same MOOC of their choosing. According to the MOOC platform, the online language teaching MOOC included seven modules that were designed to last seven weeks. These modules included videos, supplementary readings, quizzes, peer-assessment activities, and forum discussion prompts. Upon meeting the completion criteria, the platform provided a certificate that was accredited by a US-based university that designed the content. The modules included topics such as the basics of online language teaching, theories and techniques to teach foreign/second languages online, online lesson planning and management, and providing corrective feedback on online teaching.

The MOOC was provided on a generic platform, which normally requires a subscription to enrol; however, the platform also offered financial aid to candidates who do not have the financial capacity to afford MOOCs on their expenses. Both Sevval and Ozan decided to apply for this aid and filled out a form that required applicants to explain how this particular MOOC can increase their professional capacity. Both participants applied for the aid and were awarded free enrolment for this particular MOOC.

3.3. Research design

The current study aimed to understand the experience of learners during a CALL teacher education MOOC. In tandem with this, data collection tools that may provide data throughout different phases of the MOOC process were utilized. Such artefacts were collected as the participants' digital diaries, facilitator-learner mentoring session recordings, participants'

assignments, and forum contributions. Also, semi-structured interviews were conducted with both participants upon the completion of the course and the practicum.

As a netnographic study that utilized ethnographic methods and procedures to research an online learning community in a digital space (Kessler et al., 2021; Kozinets, 2015), this study took place during two academic semesters (Fall and Spring) in the 2020-2021 academic year in an ELT undergraduate program in Turkey. Following the considerations proposed by Kessler and colleagues (2021), the classical ethnographic procedures were adopted according to the complexities of researching a digital space, such as obtaining consent, positioning oneself, and having access to and collecting the multimodal data as well as reporting findings ethically. On the other hand, the two participants' trajectories constituted two particularistic bounded contexts (Merriam & Tisdell, 2016), which allowed the researcher to address the research questions in a descriptive and heuristic way (Yazan, 2015). Within this methodological design, this *netnographic multiple case study* was designed and conducted as follows.

First, the researcher asked for consent. In individual online meetings, the scope and aim of this research was explained and the workload that their participation might create for them was clarified. After allowing them to ask for further explanation, it was communicated that participation in this study was not a requirement for them to complete their practicum. The professional development activity was introduced as an optional task for their teaching portfolio and they were informed that they would not fail if they did not present any proof of completion. It was made clear that they could withdraw from participating in this study anytime without any penalty or negative consequences for their formal studies. Both participants gave their full consent.

Later, the data collection started. The researcher asked participants to reflect on their experience throughout the MOOC every week and submit their reflections as voice recordings. These constituted participants' digital diaries. The digital diaries provided emic data that enabled the researcher to explore how the MOOC process unfolded for each participant from the beginning to the end. To add, both participants were encountered online twice and those mentorship sessions were recorded (once after the participants decided to enrol in a MOOC and once after the third week was completed). The participants were also asked to provide their assignments and forum contributions to observe the digital space and their interaction with the course content and other participants. This data allowed the researcher to have access to the digital learning space from an etic perspective. To complete this perspective, the researcher participated in the same MOOC as a learner and completed it to have an emic perspective on the digital learning space. Finally, a semi-structured interview was conducted with both

participants in which participants reflected on the MOOC process and their digital literacy as EFL teachers during the practicum.

Even though the MOOC platform suggested finishing all seven modules in seven weeks, it took eight weeks for both participants to complete the course; however, with the MOOC platforms introduction (one week), MOOC browsing, and application (two weeks), the waiting period for the financial aid application (two weeks) before the actual MOOC and the completion of reflective diaries and interviewing (two weeks) after the MOOC, the whole process took 15 weeks.

3.4. Researcher reflexivity and positionality

The researcher was Sevval and Ozan's academic supervisor in their teaching practicum. The official responsibility included managing communications among all practicum stakeholders and grading the teaching portfolios that included lesson plans, practicum observations, and reflections. As the supervisor, no particular MOOC was imposed; however, all the MOOC platforms mentioned in the introduction were introduced and technical assistance in creating an account, navigating through the platforms, and enrolment was provided.

As an EFL teacher and teacher educator, the researcher have participated in many MOOCs, regarding MOOCs as an accessible way to develop professionally. To promote this perspective, the pre-service teachers in the practicum groups were encouraged to participate in a MOOC on any topic; they knew that they did not have to complete a MOOC, particularly about language teaching.

In Sevval and Ozan's cases, they preferred enrolling in a MOOC on online language teaching. Their processes were facilitated by the researcher as a technical assistant helping out with the technical issues that the participants encountered (such as submitting application forms or assignments on the platform) and as a mentor, helping them reflect on their MOOC-related activities and learning experiences. Feedback was also offered when they asked for it. All in all, Sevval and Ozan were neither encouraged nor coerced to participate in this study, to choose a particular platform or MOOC, and complete it. Instead, the researcher positioned himself as a researcher-*as-digital-mentor/facilitator*.

3.5. Data analysis

The aim of this study was to explore and describe participants' perceptions, lived and perceived experiences, and what MOOCs mean for pre-service EFL teachers who intend to develop their CALL teacher knowledge and skills. Relatedly, thematic analysis was adopted to analyze

qualitative data. The thematic analysis enables researchers "to see and make sense of collective and shared meanings and experiences" (Braun & Clarke, 2012, p. 57). The flexibility of thematic analysis allowed to apply an inductive approach to code the qualitative data in this study. Accordingly, a bottom-up approach was utilized to code the data set to explore MOOC learners' experiences and to understand their meaning-making and decisions.

Having utilized MAXQDA (VERBI Software, 2019) to analyze the qualitative data, the six-phase approach to thematic analysis proposed by Braun and Clarke (2012) was followed; after familiarizing himself with the data that came from different sources, the researcher started generating the initial codes and grouped them into preliminary themes. Later, those themes were reviewed in relation to the scope and aim of the research. After creating the themes, they were reported in a way that made sense and answered research questions. During this process, no pre-defined coding scheme was used; the code system was generated tentatively and recursively throughout the entire process (Merriam & Tisdell, 2016), which was another advantage of inductive coding in thematic analysis.

4. Findings

Analyzing the qualitative data on MOOC learners' experiences helped explore and describe their perceptions, understandings, and positions. At the end of the thematic analysis, four overarching themes were reached. Crucially, these themes were (1) self-regulatory impact of the MOOC, (2) provision of an online learning experience, which demystified online teaching, (3) preparing the pre-service EFL teachers for a teaching career, and (4) limitations due to the massiveness and non-situatedness in MOOC designs.

4.1. Self-regulatory impact of MOOCs

It can be understood from the pre-service EFL teachers' experiences that digital learning through MOOCs can be associated with increased self-regulation. The MOOC experience helped the participant teachers build up self-regulation, self-directedness, and digital learning autonomy. Sevval commented in her diary on the clarity of the MOOC syllabus and stated that the syllabus design made it easy for her to keep herself motivated to learn.

> **Excerpt 1.**
> Sevval - This is my first MOOC. I really liked that the course suggests a working plan. This system helped me a lot especially this year because I was already very busy apart from this course. In fact, this working plan has made me feel included. At the beginning of every module, you see the objectives or the time it is expected to take as well as some deadlines that

motivated me to get organized… These features made me approach the course with a different mindset, I was more organized in a way.

As can be seen in Excerpt 1, the MOOC provided a clear syllabus, milestones, learning objectives, and plan for each module that supported Sevval in monitoring and regulating her learning experience. As a senior student, Sevval was too busy with concluding her studies, completing her practicum, and the national examination that is required for all teachers who intend to work in the public school system in Turkey upon completing their undergraduate studies. Sevval was so focused on this exam that she was worried about time management. Later, she elaborated on that in the interview.

Excerpt 2.

Sevval - I really liked the flexible schedule feature, I was able to learn whenever I want wherever I want. I did not feel tired of it. Actually, I enjoyed it a lot because I revised some of the content from my studies but with a particular focus on online learning. It was like reconsidering what I had already known but still felt like learning something new. That MOOC was trying to be economical time-wise, and I liked that because it respects my time as well.

Even though the course provided deadlines and a schedule, it also provided flexibility. That allowed Sevval to enjoy the content in a self-paced way and to synthesize her pedagogic knowledge into online teaching. On the other hand, Ozan was busy working part-time in a private language school in which he intended to work full time with extended administrative responsibilities after his graduation. That created additional tension for him; he felt that he had to spare more time teaching to prove himself to his superiors. Additionally, he needed to complete his practicum to conclude his studies. Thus, time was not so abundant for him either.

Excerpt 3.

Ozan - I was a bit intimidated at first because I was not so sure If I could have time for that course. Later, it did not turn out to be what I had been afraid of. It was like a package that was designed to make it easy for me. The website interface was very easy to navigate. I think it was even easier than face-to-face.

Similar to Sevval, Ozan also remarked that the design of the MOOC and the platform scaffolded him even though it was his first experience in a fully online teacher professional development course. In his diary, he elaborated on the aspects of this design that helped him self-regulate his learning during the MOOC experience.

Excerpt 4

Ozan - The videos, examples about the topics in the videos, supplementary readings about those examples… These were nice… It was also very nice to have some quizzes in the modules. There was a gradebook that summarized all your results. I could see my progress and mistakes and turn back to the content if I needed to. There were some success criteria, which

helped me understand if I need to turn back or not. Those criteria challenged me in a good way.
I needed to monitor myself, I needed to assess and see what I had learned.

In Excerpt 4, Ozan talks about the multimodal content in the MOOC and the *assessment for learning* opportunities that the MOOC provided. According to him, occasional quizzes supported him to monitor his learning by setting a set of success criteria and reflecting on his learning experience. He also mentioned how his contribution to the discussion forums provided a similar opportunity to engage in formative self-assessment. In the first mentoring meeting, it turned out that the application process afforded another reflection opportunity for Ozan at the very beginning while writing the application form for the financial aid. He remarked that this process helped him to focus on his actual needs and to decide which MOOC to apply and why.

In short, the findings demonstrated how self-regulation was sustained by certain features of the design of the MOOC, such as being able to follow the course content in clearly-designed coursework, the multimodal provision of content aiding their multiple literacies, self-paced learning style, the formative assessment that allowed self-monitoring, the process of application for the financial aid, and reflective breaks such as forums.

4.2. Providing online learning and digital literacy opportunities

When schools moved to virtual education as a result of the pandemic, teachers had little time to get prepared to be efficient CALL teachers with sufficient digital literacy. Most teachers, pre-service or in-service, did not have much understanding of teaching online because they had had little (if not no) online learning experience or CALL teacher education. That was the case for both of the participants in this study. Since they had no prior experience with online learning, they had the prejudice that online education is inefficient or intimidating.

Excerpt 5.

Ozan - When I first started searching for a suitable course, I visited one of the platforms. The whole experience was a bit intimidating: many options, many tabs, and it took many clicks to learn how to navigate… [The application form] asked why I needed to take this course and my expectations from this course. This was something that I was not used to. I wasn't even sure which course to choose. It was very exhausting at first to figure out how to decide and fill out this form.

Ozan's statement in Excerpt 5 showed that it was an unfamiliar learner experience for him, and it brought many uncertainties at first. The application process also helped Ozan to justify the whole professional activity in tandem with his professional needs and expectations. Excerpt 5 was from Ozan's digital diary. In the interview, Ozan elaborated on his experience further in the following excerpt:

Excerpt 6.

Ozan - *I watched videos, took quizzes, participated in forum discussions, provided feedback to my peers. This certainly showed me how it feels like to be an online learner. The interaction is not the same. In my online teaching, there is a simultaneous interaction but it does not mean that an asynchronous one is not an interaction. I experienced the value of that one as a learner, too.*

Ozan's experience throughout the MOOC showed that the process supported him to understand the practical dynamics of online learning. As his experience demystified how online *learning* works, he reconsidered his perspective of how online *teaching* works. Sevval, on the other hand, raised a very similar awareness by the end of her MOOC experience. In the mentoring meeting, she said she got more interested when her "skeptical views towards online education" (her own words) were addressed by the introductory module of the course. As an EFL teacher with zero prior online learning or teaching experience before the MOOC and her practicum, she remarked in the interview that she experienced tension.

Excerpt 7.

Sevval – *I was overwhelmed when I browsed the platforms but I was also a bit stressed because I was not so sure if I could handle those courses. This was new to me, and I was already very preoccupied that semester. I pushed myself not to see it as an extra workload and tried to see this as an opportunity for development. But it took some effort. Once it started, it just flew. It was fun. I wish all the courses at the university were like that.*

The learner experiences illustrated that the MOOC had a demystifying impact on the participant teachers, who had little or no prior experience of online learning and teaching. Coming from a background with limited CALL or online learning experience, they had doubts about how online teaching might be put into practice. The findings demonstrated that it is very important to provide online learning experiences to CALL teachers to grow an understanding of online education from the learner's perspective, and the focal MOOC in this study provided a convenient learning opportunity.

4.3. Preparing pre-service EFL teachers for the profession

One of the main objectives of teacher education programs is to prepare teachers to deal with the challenges of their everyday practices once they start working. However, it was argued earlier that the current ELT programs in Turkey provide little content regarding CALL teacher education. Findings demonstrated that both cases in this current study supported the earlier argument. The participant teachers felt unprepared for performing their profession after they would graduate in two distinctive ways, which also constituted the subthemes of this overarching theme.

First of all, the findings showed that the pre-service EFL teachers felt unprepared in terms of their digital literacies (Darvin, 2017; Tafazoli, 2021b) and technological pedagogical content knowledge (Nami et al., 2016; Tafazoli, 2021a). The analysis of the qualitative underlined their perceived unpreparedness in terms of online language teaching and how the MOOC was perceived as an opportunity in that regard. For instance, Ozan taught online for a brief period in the 2020 spring in the private language school where he worked. However, the practicum in his formal studies had not started then yet. In the interview, he explained how he felt inefficient as an online teacher.

Excerpt 8.

Ozan – At the beginning of the year, I saw that my friends in the practicum group were relaxed, or not stressed enough. I think I was the only one feeling stressed about teaching online in the practicum (…) because when the pandemic broke out, I experienced many difficulties. As for the practicum, there was an additional ambiguity because we did not know if we would continue online, face-to-face, or hybrid. I wished it had been face-to-face because I felt and I saw I was inefficient teaching online before [the practicum].

Ozan explained his feeling of insecurity (which can be understood as a perceived lack of *self-efficacy* (Güngör & Yaylı, 2012) due to his online teaching experiences before practicum. He remarked that we were challenged by the intermittent connection, leaving the actual whiteboard and colorful markers and using the virtual ones, having no or limited access to learners' eyes and gestures, which was vital for him to assess learning while teaching. The situation was quite similar for Sevval even though she had no prior online teaching experience; however, once the practicum required her to plan and teach lessons, she started having problems adapting her existing teaching skills to online teaching.

Excerpt 9.

Sevval - My biggest problem about teaching online was the issue of finding materials that would fit my teaching plan. It was almost always impossible to find open-access materials that met my needs so I had to develop materials mostly from scratch. That was the issue I suffered the most from my lack of computer skills. I found that very stressful because I did not want to adopt materials that I was not 100% content with.

Designing online materials or developing materials online was challenging for Sevval, as can be seen in Excerpt 9. She attributed this to her "lack of computer skills". It may show that her previous teacher education failed in preparing her for CALL, or in the pandemic context, teaching online.

Second, the CALL teacher education activity by the MOOC supported the participant teachers' affect positively. As can be seen in certain excerpts given thus far (e.g., Excerpts 3, 5, 7, and 8), the teachers highlighted the reality that surrounded them in their senior year. The

situation made them feel "intimidated", "exhausted", "stressed", and "tense" in different ways. Both participants remarked that they had not been prepared for their prospective teaching careers psychologically. At this point, the CALL teacher education that was provided by the MOOC concept turned out to be a supporting experience not only in terms of learners' teaching skills but also in terms of their emotions and well-being.

> **Excerpt 10.**
>
> Sevval – I don't feel that I am confident enough yet. I have always had doubts about it when I was a student, and now with the practicum, I saw this: teaching is not about learning theories too much. Of course, a good teacher should know these theories but [teaching] is mostly about practice. My university [studies] did not prepare me for that practice. I liked this MOOC thing. I will continue participating in MOOCs, which can give the gist of the theory, and the rest is up to me to project my new learning in my practice throughout my career.

Excerpt 10 showed that Sevval expected more from her teacher education program in terms of preparing her for learning about teaching practically. That mismatch between theory and practice created tension for her. That said, she perceived MOOCs as a continuing teacher education practice and intended to keep participating in MOOCs to fill the gap between theory and her practice, which disturbed her well-being. Likewise, Ozan remarked that he had to deal with various ambiguities and had no one around to find answers to his questions while teaching online, but he stated that "[the MOOC] was the first time when the answers were told before [he] asked for them". Positioning MOOCs as a career-long resource, the MOOC experience prepared both participant teachers in terms of perceived CALL teacher skills and well-being.

4.4. The other side of the coin: Massiveness and non-situatedness of MOOCs

The qualitative data provided participants with an insight into their learning experience during a MOOC on online language teaching. As presented above, the findings demonstrated several affordances that were provided by the MOOC experience. However, the participants also mentioned some limitations that made the CALL teacher education harder for them in the MOOC context. The most frequently repeated one was the mismatch between the teaching conditions that were showcased in the MOOC and the participant teachers' practicum contexts. This contextual mismatch constituted a problem of situatedness regarding the MOOC.

> **Excerpt 11.**
>
> Ozan - The module suggested using authentic materials to fill this gap. I think it is not so sustainable. This creates a big workload for the teacher to find authentic materials for everything every time. These materials also need to be appropriate to the class needs. Our online classes are much more crowded than the example classes in the videos.

In Excerpt 11, for instance, Ozan pointed out this mismatch. He stated that using authentic materials in his teaching context might constitute problems with practicality and implementation in crowded (online) classes, which is often the case in Ozan's everyday teaching. However, constant mentorship and reflection on the MOOC learning experience in light of the ongoing practicum supported Ozan in terms of making sense of the mismatch. He understood the course content contextually after reflecting on the practices that were suggested in the MOOC and his teaching needs.

> **Excerpt 12.**
>
> Ozan - There were some practices that I found hard to implement and a bit irrelevant in my country context, and also in the context of my practicum. But when I think about it, I believe [the MOOC] was still beneficial because I am now able to point out this irrelevancy.

Sevval pointed out the same issue in her diary. According to her, it was normal that the MOOC offered what can be called best practices and general solutions to general problems. She believed it was up to her agency to apply those in her contexts.

> **Excerpt 13.**
>
> Sevval - Some of the content was not fully relevant. I think this is normal because it cannot tell
> me anything I want or anything I need. In terms of online teaching in my practicum, it was not
> fully relevant. [the MOOC] developed me as an online teacher because it provided a basis. It
> gave me an understanding of how it is to teach online but it didn't develop me in terms of
> materials that I need.

At this juncture, it was critical for both participant teachers to reflect on the MOOC, which was a non-formal professional development activity, in light of their practicum experience, which was a part of their formal studies. In both cases, the effect of constant mentorship supported teachers to reflect on the course content and, more importantly, to engage in reflexive professional development (Uştuk & Çomoğlu, 2021). Sevval's and Ozan's reflexivity, which was constituted by the use of learner diaries and mentoring sessions, minimized the MOOC's limitation due to its non-situated design that appeals to a general audience.

5. Discussion

In this netnographic multiple case study, the experiences of two MOOC learners who intended to develop their online language teaching skills were investigated. The findings revealed that the MOOC learning process provided certain affordances in terms of the self-regulated online learning experience, digital literacies, and teacher well-being. It also appeared that the design of the MOOCs that targeted a general audience created problems with relevancy and situatedness.

Firstly, the experiences of the case participants demonstrated that learning on digital platforms in the MOOC contexts helps learners to monitor their learning trajectory and makes them self-directed learners. Self-directedness, as a self-regulation concept, refers to the increased amount of responsibility that the learner takes for her/his learning activities (Fisher & King, 2010). Lokita Purnamika Utami and Prestridge (2018) suggested that teachers' professional learning is more effective when it is self-directed online learning, which "opens up great opportunities for gaining new knowledge, keeping abreast of innovations and collaborating with like-minded colleagues from around the world" (p. 260). Our findings supported Lokita Purnamika Utami and Prestridge's argument that when the learners were allowed to make decisions and take responsibility for their learning trajectories, the results were positive. The MOOC provided the support system and the learning style (e.g., being self-paced, providing milestones, self-assessment) that facilitated learners to regulate their learning experiences. These findings are also in line with Jansen et al.'s study (2020), in which they claimed that when teacher educators facilitate the self-regulation of MOOC learners, their success rate increases. In addition to those results, our findings provided exploratory insight into how that relationship works.

Second, this study demonstrated that CALL teacher education could be more effective in country contexts where the teacher education practices have limited focus on technology-enriched pedagogies and teachers' digital literacies. Darvin (2016, 2017) underscores the importance of developing language learners' digital literacy skills for supporting their critical language practices such as language identities and ideologies. Similarly, Tafazoli (2021b) suggests in his review study that the concept of digital literacy stands out as an increasingly important one among the (new) literacies of teachers. The current study supported these studies because when the participant teachers gained digital knowledge about MOOCs and built up their skills to navigate through MOOC platforms, they also obtained the opportunity to develop their digital literacies both as online learners and teachers. Moreover, they perceived MOOC platforms as digital spaces to broker professional capital by obtaining credentials. Considering that MOOCs often provide content and credentials from prestigious global universities, the findings supported Tømte's (2018) earlier suggestions in that the participant teachers were motivated by such courses' global standing.

Third, the findings revealed that the current teacher education might fail in preparing EFL teachers for online teaching psychologically. Studies show that teaching languages as a foreign language speaker is already an affectively-challenging process (see Aydın & Uştuk, 2020; Gkonou et al., 2020; Mercer & Gregersen, 2020). In Sevval's case, this constituted a

"prejudice" (her coinage) because she had no prior experience in learning and teaching online, but she felt stressed due to her low digital literacy. The findings also revealed that the pandemic situation created many ambiguities for the teachers, which resulted in negative emotions such as stress and tension. Likewise, it was shown in prior research that the pandemic increased these negative emotions for language teachers (MacIntyre et al., 2020). The current study illustrated how the participant teachers found non-formal teacher education practices such as MOOCs as resources to cope with the ambiguities in their practicum and to get ready for their prospective teaching careers psychologically.

Finally, this study showed some limitations that might jeopardize CALL teacher education through MOOCs. "M" in the abbreviation "MOOC" stands for "massive". Understandably, these courses are designed for a broad audience. Tømte (2018) argues that this characteristic of MOOCs could be even advantageous in delivering in-service teacher education and reaching out to teachers all around the world. However, when the MOOC content addressed the default challenges of online teaching in this study, it created the problem of situatedness due to contextual mismatches. Situatedness was proposed as one of the key characteristics of effective CALL teacher professional learning in previous studies (e.g. Lokita Purnamika Utami & Prestridge, 2018; Nami et al., 2016).

Mentoring the MOOC learners throughout the process and supporting them to reflect on the course content in light of their teaching context proved effective in minimizing the problem of (non)situatedness. That finding is in alignment with Jansen et al. (2020), who found the self-regulatory impact of learner reflections in MOOCs, or with Langseth and Haugsbakken (2016), who stated the importance of mentoring to help pre-service teachers to reflect on the MOOC experience. Finally, Shin and Kang (2018) also underlined the imperativeness of comprehensive reflection in online teacher education programs.

6. Conclusion

This netnographic case study explored two teacher-learners' experiences during a MOOC on online language teaching. These learners were pre-service EFL teachers, and they enrolled in the MOOC besides their formal studies and teaching practicum. The findings highlighted the potential of MOOCs in CALL teacher education and professional development.

That said, MOOCs may not replace formal teacher education even in the CALL teacher education context. However, they may inform CALL teacher education with their affordances. Non-formal activities such as MOOCs help learners individualize their professional learning trajectories and support their pedagogic/non-pedagogic digital literacies in this day and age.

However, the importance of formal mentoring is also very important to transform the MOOC experience into a reflective learning activity. This way, non-formal and continuous learning through MOOCs can develop formal CALL teacher education, which may fall behind due to the slow adaptation of formal teacher education programs and policies.

Several implications can be drawn from these findings. Teacher education programs need to take precautions and promote CALL and online teaching more in the language teaching programs. MOOCs can be used as valuable resources to complement formal programs. On the other hand, the MOOC designers need to foster online learning affordances and highlight self-regulation, formative self and peer assessment, and reflection while designing MOOCs for teachers. Teacher educators, on the other hand, should provide effective mentoring to facilitate the teachers' learning trajectories in different phases of MOOCs. They need to promote these teachers' reflective learning to maintain situated learning. Further research needs to investigate MOOCs as digital learning spaces and apply various frameworks to understand learners' experiences from different theoretical perspectives.

References

Aydın, S., & Uştuk, Ö. (2020). A descriptive study on foreign language teaching anxiety. *International Online Journal of Education and Teaching*, *7*(3), 860-878.

Braun, V., & Clarke, V. (2012). Thematic analysis. In H. Cooper (Ed.), *APA handbook of research methods in psychology Vol 2: Research designs* (Vol. 2, pp. 57-71). American Psychological Association. https://doi.org/10.1037/13620-004

Cote, T., & Milliner, B. (2018). A survey of EFL teachers' digital literacy: A report from a Japanese university. *Teaching English with Technology*, *18*(4), 71-89.

Darvin, R. (2016). Language and identity in the digital age. In S. Preece (Ed.), *The Routledge Handbook of Language and Identity* (pp. 523-540). Routledge.

Darvin, R. (2017). Language, ideology, and critical digital literacy. In S. Thorne & S. May (Eds.), *Language, education and technology* (3rd ed., pp. 1-14). Springer. https://doi.org/10.1007/978-3-319-02328-1_35-1

Fisher, M., & King, J. (2010). The self-directed learning readiness scale for nursing education revisited: A confirmatory factor analysis. *Nurse Education Today*, *30*(1), 44-48. https://doi.org/10.1016/j.nedt.2009.05.020

Gkonou, C., Dewaele, J.-M., & King, J. (2020). Introduction to the emotional rollercoaster of language teaching. In C. Gkonou, J.-M. Dewaele, & J. King (Eds.), *The emotional rollercoaster of language teaching* (pp. 1–8). Multilingual Matters.

Güngör, F., & Yaylı, D. (2012). Self-efficacy and anxiety perceptions of pre-service EFL teachers. In A. Akbarov & V. Cook (Eds.), *Self-efficacy and anxiety perceptions of pre-service EFL teachers* (pp. 227–236). IBU Publications.

Jansen, R. S., van Leeuwen, A., Janssen, J., Conijn, R., & Kester, L. (2020). Supporting learners' self-regulated

learning in massive open online courses. *Computers & Education*, *146*, 103771. https://doi.org/10.1016/J.COMPEDU.2019.103771

Kessler, M., De Costa, P., Isbell, D., & Gajasinghe, K. (2021). Conducting a netnography in second language acquisition research. *Language Learning*, *71*(4), 1122-1148. https://doi.org/10.1111/lang.12456

Kozinets, R. V. (2015). *Netnography: Redefined* (2nd ed.). Sage.

Langseth, I., & Haugsbakken, H. (2016). Introducing blended learning MOOC – A study of one bMOOC in Norwegian teacher education. *IFIP Advances in Information and Communication Technology*, *493*, 59-71. https://doi.org/10.1007/978-3-319-54687-2_6

Lokita Purnamika Utami, I. G. A., & Prestridge, S. (2018). How English teachers learn in Indonesia: Tension between policy-driven and self-driven professional development. *TEFLIN Journal*, *29*(2), 245-265. https://doi.org/10.15639/teflinjournal.v29i2/245-265

MacIntyre, P. D., Gregersen, T., & Mercer, S. (2020). Language teachers' coping strategies during the Covid-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions. *System*, *94*, 102352. https://doi.org/10.1016/j.system.2020.102352

Mercer, S., & Gregersen, T. (2020). *Teacher wellbeing*. Oxford University Press.

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.

Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, *1*, 100012. https://doi.org/10.1016/j.ijedro.2020.100012

Nami, F., Marandi, S., & Sotoudehnama, E. (2016). CALL teacher professional growth through lesson study practice: an investigation into EFL teachers' perceptions. *Computer Assisted Language Learning*, *29*(4), 658–682. https://doi.org/10.1080/09588221.2015.1016439

Rieber, L. P. (2017). Participation patterns in a massive open online course (MOOC) about statistics. *British Journal of Educational Technology*, *48*(6), 1295-1304. https://doi.org/10.1111/bjet.12504

Shin, D. S., & Kang, H. S. (2018). Online language teacher education: Practices and possibilities. *RELC Journal*, *49*(3), 369-380. https://doi.org/10.1177/0033688217716535

Tafazoli, D. (2021a). CALL teachers' professional development amid the covid-19 outbreak: A qualitative study. *CALL-EJ*, *22*(2), 4-13.

Tafazoli, D. (2021b). Language teachers' professional development and new literacies: An integrative review. *Aula Abierta*, *50*(2), 603-614. https://doi.org/10.17811/RIFIE.50.2.2021.603-614

Thumvichit, A. (2021). English Language Teaching in times of crisis: Teacher agency in response to the pandemic-forced online education. *Teaching English with Technology*, *21*(2), 14-37.

Tømte, C. E. (2018). MOOCs in teacher education: Institutional and pedagogical change? *European Journal of Teacher Education*, *42*(1), 65-81. https://doi.org/10.1080/02619768.2018.1529752

Uştuk, Ö., & Çomoğlu, İ. (2021). Reflexive professional development in reflective practice: What lesson study can offer. *International Journal for Lesson & Learning Studies*, *10*(3), 260-273. https://doi.org/10.1108/IJLLS-12-2020-0092

Uştuk, Ö., & De Costa, P. (2022). 'Started working as a global volunteer …': Developing professional transnational habitus through Erasmus+. In R. Jain, B. Yazan, & S. Canagarajah (Eds.), *Transnational*

research in English language teaching: Critical practices and identities (pp. 85-105). Multilingual Matters.

VERBI Software. (2019). MAXQDA 2020.

Wei, X., Saab, N., & Admiraal, W. (2021). Assessment of cognitive, behavioral, and affective learning outcomes in massive open online courses: A systematic literature review. *Computers & Education*, *163*, 104097. https://doi.org/10.1016/J.COMPEDU.2020.104097

Yaşar, M. Ö., & Polat, M. (2021). A MOOC-based flipped classroom model: Reflecting on pre-service English language teachers' experience and perceptions. *Participatory Educational Research*, *8*(4), 103-123. https://doi.org/10.17275/per.21.81.8.4

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *The Qualitative Report*, *20*(2), 134-152.

Yeomans, M., & Reich, J. (2017). Planning prompts increase and forecast course completion in massive open online courses. *Proceedings of the Seventh International Learning Analytics & Knowledge Conference*, 464-473. https://doi.org/10.1145/3027385.3027416

Yi, Y., & Jang, J. (2020). Envisioning possibilities amid the COVID-19 pandemic: Implications from English language teaching in South Korea. *TESOL Journal*, *11*, 543. https://doi.org/10.1002/tesj.543

THE ROLE OF ETWINNING TOOLS
IN SOCIAL AND CURRICULUM INTEGRATION
USING MULTIMODAL COMMUNICATION

by **Cristina A. Huertas-Abril**

University of Córdoba, Spain

cristina.huertas @ uco.es

and **Barbara Muszyńska**

University of Lower Silesia, Poland

barbara.muszynska @ dsw.edu.pl

Abstract

Research shows that learning tools play an important role in social interactions in curriculum integration. Online social integration and interactive modality have been identified as two success factors for online learning from the students' perspective. There is little research on students' perceptions on the use of eTwinning in higher education (HE), and the use of eTwinning tools with the focus on creating a collaborative online learning environment in HE has not been explored to this date. Yet, it may have practical implications for curricular development. Therefore, the aim of the study was to learn whether eTwinning tools can play an important role in social and online curriculum integration in HE. This qualitative study aims at comparing undergraduate students' perceptions from two universities (UCO, Spain, and ULS, Poland) regarding the development of multimodal communication and telecollaborative learning. Key findings emerging from the study suggest the use of eTwinning tools enabled multimodal communication between students and the development of new social practices and social learning strategies between them. A new understanding of eTwinning tools in curriculum integration in high education was raised, and new knowledge developed, which may lead to a higher quality of teaching and learning.

Keywords: multimodal communication; eTwinning tools; higher education; social and curriculum integration

1. Introduction

Education is changing rapidly in the post-COVID-19 world. More knowledge is needed to be gained about students' learning preferences as it may constitute a valuable source of information in supporting curriculum design, as there still seems to be a disconnect between the online learning and teaching (Kehrwals & Parker, 2019). Students' perspectives can provide

invaluable insight into their educational experiences and expectations (Dawson et al., 2019; Van Wart, Ni, Ready et al., 2020b), which seems particularly relevant when new teaching approaches and technologies are introduced in education (Muir et al., 2022). Despite its importance, students' opinions on the learner-to-learner aspect of the online learning environment have not been investigated sufficiently in research studies (Van Wart, Ni & Medina, 2020a). This may be due to the fact that cognitive presence and instructional materials are identified as having a more significant value to teachers and learners than social interaction in online learning (Asoodar et al., 2016; Sebastianelli et al., 2015), although the latter has also been found noteworthy in other studies (Huertas-Abril & Muszyńska, 2022; Richardson et al., 2017). Learners' perceptions are shaped by their own sense of achievement, technical proficiency, the support they receive, intellectual and emotional stimulation, comfort with the process, and sense of learning community (Van Wart, Ni & Medina, 2020a), but also by convenience and flexibility of online learning (Lee et al., 2017). As Efthymiou and Zarifis' (2021) study on distance education shows, high levels of interaction among learners result in positive attitude, greater satisfaction and course success.

In view of the above, telecollaboration projects mediated by technology may offer such learning opportunities (Helm, 2015), and eTwinning is an interesting initiative to support transnational collaboration (Kearney, & Gras-Velázquez, 2015). Nonetheless, even though eTwinning may not be a new initiative at schools, it has been officially introduced to teacher training institutions in 2017/18 with the main purpose of internalization of HE, but also integrating eTwinning practices within pre-service teachers' curricula (van Gaalen & Feiertag, 2018). Therefore, as all new online tools and pedagogical approaches, the process of integrating eTwinning into higher education (HE) curricula still needs investigating.

The focus of this article is on identifying university students' perceptions of the use of tools for international telecollaboration on online social integration and interactive modalities in an eTwinning project since understanding students' needs and perceptions may lead to course design improvement. Researchers still lack understanding of what student needs are being addressed by the integration of eTwinning within HE courses, and this study aims at adding to research in this respect. The gained knowledge could advance understanding of the role of social and online curriculum integration with eTwinning tools in HE. An international eTwinning project was carried out with pre-service English as a Foreign Language (EFL) and bilingual education teachers at the University of Córdoba (Córdoba, Spain) and the University of Lower Silesia (Wrocław, Poland) in the form of a telecollaborative undertaking called "Learning English with Technology", organized within the European Commission's initiative

eTwinning for Future Teachers (EUN, 2021a). The aim of the project was to involve students in different locations using Internet tools and resources to work together on TwinSpace (eTwinning online platform), exchange ideas, experiences, and resources connected to English language learning, language acquisition, self-study, teaching methods, and approaches as well as online tools. The findings may provide more insight to practitioners and lead to a higher quality of teaching and learning.

This qualitative study aims at comparing pre-service English as a Foreign Language (EFL) and Bilingual Education (BE) teachers' experiences and attitudes from two universities (University of Lower Silesia, Poland, and University of Córdoba, Spain) regarding the use of eTwinning tools, and analyze whether there are similarities and differences based on sociocultural context, approaches to education, or teacher practices since studies show that these independent variables may affect students perceptions on the quality of the course (Van Wart, Ni & Medina, 2020a). More specifically, the following research questions (RQ) are posed:

RQ1: What is the previous knowledge that pre-service EFL and BE teachers have about eTwinning?

RQ2: What are the advantages that pre-service EFL and BE teachers find regarding the integration of eTwinning in the bilingual and EFL curriculum?

RQ3: What are the limitations that pre-service EFL and BE teachers find regarding the integration of eTwinning in the bilingual and EFL curriculum?

RQ4: What are the similarities and differences in the experiences and perceptions of pre-service EFL and BE teachers from ULS and UCO regarding the integration of eTwinning in the bilingual and EFL curriculum?

2. Literature review

2.1. Multimodal communication and social integration

Multimodal communication is not new, even literacy which is based on paper uses visual modes (i.e., illustrations, photographs, charts, maps) to accompany the text (Lotherington & Jenson, 2011). Nowadays, social and technological contexts of communicating and learning are changing. Therefore, different forms of engagement and modalities in meaning-making should be implemented in teaching and learning. The term 'multimodal' refers to the modes of meaning-making (e.g., visual, audio, spatial, linguistic, or gestural) that are integrated to create (electronic) multimedia texts (Kalantizis, Cope, & Dalley-Trim, 2016). As Kress (2010) states,

a multimodal text can convey meaning through a combination of two or more modes, which is beneficial for students who experience challenges in print-based classroom activities (Drewry, Cumming-Potvin, & Maor, 2019; Joucius, 2017). Every mode is part of a message and contributes to it in a different way. It must be highlighted that multimodality itself does not make use of digital technologies; rather, the technologies intensify multimodal possibilities in the act of meaning making in different ways (Dahlström, 2021; Jewitt, 2009). Digitally-mediated, multimodal communication is dynamic and adds a dimension of space (e.g., as a co-writer in texts or an avatar in virtual games) and time by connecting students' interests and lifeworlds (Lotherington & Jenson, 2011; Magnusson & Godhe, 2019). The use of different modalities in meaning-making is a dynamic process of transformation rather than reproduction (Cope & Kalantizis, 2009). It seeks more productive, relevant, creative, and emancipatory pedagogy, in which a student becomes an active designer of meaning, the learning process, and the process of self-re-creation (Cope & Kalantizis, 2009). This process was observable in the study described in this article. Modes chosen by the students participating in the eTwinning project were obtained through culturally-negotiated semiotic resources with the aim to convey certain meaning and, therefore, not static or universal (Liu, 2013; Kress, 2009). Social integration and building a collaborative, online learning environment in the project were encouraged by purposefully designed tasks involving shared learning and collaboration among students across the two countries. Social integration is understood here as involvement in activities (appropriateness of course content) and the presence of positive relationships with peers (Tinto, 1993).

2.2. The eTwinning for Future Teachers Initiative

In the field of Computer-Assisted Language Learning (CALL), 'telecollaboration' refers to "the application of online communication tools to bring together classes of language learners in geographically distant locations to develop their foreign language skills and intercultural competence through collaborative tasks and project work" (O'Dowd, 2013, p. 342). These virtual exchanges can be synchronous or asynchronous and enhance the development of multimodal communication, intercultural communicative competence, learner autonomy, and language development (Helm, 2015). Considering its advantages when supporting foreign language learning and teaching (Huertas-Abril, 2020), eTwinning has emerged as a key tool for telecollaboration (Bozdağ, 2018).

eTwinning is a European initiative for educators launched in 2005, which creates an online community for schools (Kearney, & Gras-Velázquez, 2015). There are over 961,572

school teachers and 222,010 schools across Europe who participate in eTwinning projects with their students (EUN, 2021b). The eTwinning projects aim to create international educational networks which enhance innovation and motivation in online learning and teaching practices (EUN, 2021b). What is noteworthy, Giannis' (2022, p. 14) analysis shows that "countries with lower educational standards make an effort to achieve distinction at international level through eTwinning". According to this author, eTwinning "could serve as a tool for promotion or image making for those countries by placing them in the club of the educationally more advanced countries." Hence, eTwinning can be described as direct-action type of policy work of the European Commission (Galvin, Austin, Revyakina, & McMorrough, 2020, p. 93).

In the field of teacher training, the eTwinning for Future Teachers initiative (EUN, 2021a) was officially first developed in 2012 under the name of eTwinning Teacher Training Institutes Initiative as a pilot programme and was later introduced at teacher training institutions in 2017/18. It is an example of how eTwinning projects can foster the development and practical application of digital literacy skills and the engagement in international collaborative initiatives by pre-service teachers. The aim of the eTwinning for Future Teachers is to provide pre-service teachers with an international and intercultural experience, together with preparing them for work at schools and equipping them with a set of skills and competences necessary for the implementation of eTwinning projects with their pupils (EUN, 2021a). Such international, online initiatives may also help pre-service teachers bridge the gap between their (and later their students') social and academic uses of technology. The increase of studies dealing with the educational potential of eTwinning in different educational settings, from Early Childhood Education (e.g., Redondo et al., 2020; Zamanillo et al., 2018; Gajek, 2017; Papadakis, 2016) to HE (Tonner-Saunders & Shimi 2021; Paz-Albo & López-Cirugeda, 2017; Camilleri & Gritter 2016), shows the interest that this international telecollaborative platform has gained in recent years.

Despite its relevance in teacher training, we have found no studies have investigated the role of eTwinning tools in multimodal communication on HE level. There are studies on intercultural communication and telcollaboration (e.g., O'Dowd & Dooly, 2020), on teacher tellecollaboration in foreign language teacher education (Krajka, 2015), but up to the authors' knowledge not on the use of eTwinning tools in constructing collaborative online learning for pre-service teachers, which may give them more insight into how to later work with learners at schools. As a consequence, the goal of this study was to establish whether the use of eTwinning learning tools can construct a collaborative online learning environment and encourage multimodal communication. During the project, pre-service teachers acted as moderators and

shared their expertise with one another through different semiotic resources (spoken/written language, visual, audio, gestural, and spatial) with the use of the eTwinning tools and educational technology.

3. Methods

3.1. Research design

Considering this is an exploratory study, the research was designed to perform a qualitative analysis according to the Qualitative Evaluation Checklist (Patton, 2003). The main purpose of a qualitative study is to examine the experiences and attitudes of the participants to understand and/or interpret the phenomena according to the meaning that the participants attach to them (Denzin & Lincoln, 2017). For this purpose, the methodological procedure of content analysis and open coding procedure was used to make a first approach to the phenomenon.

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 the use of eTwinning for the EFL and bilingual classroom. 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 Figure 1.
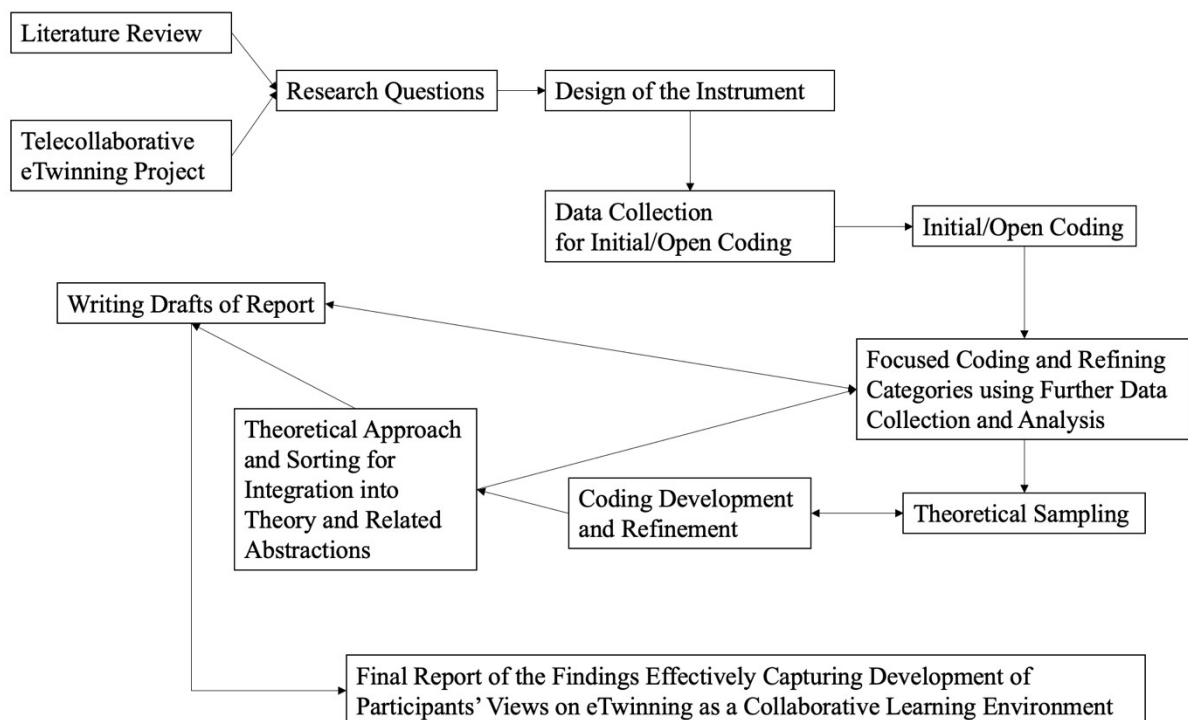

Figure 1. Qualitative research process

The study sought to compare the experiences and perceptions of bilingual and EFL pre-service teachers from each institution with the strengths, limitations and previous knowledge of eTwinning for the classroom, in addition to providing an understanding by comparing their attitudes towards this collaborative learning environment. Four structured questions, used as a guided reflection tool, with identical terminology were given to all the pre-service teachers, which guarantees that all results were comparable (Bogdan & Taylor, 1975).

3.2. Context and participants

A non-probabilistic sample based on convenience was used for the selection of the participants (n=76). The results were obtained from guided reflections made by pre-service EFL teachers from the University of Lower Silesia (ULS) in Wroclaw, Poland (n=24), and pre-service bilingual and EFL from the University of Córdoba (UCO) in Córdoba, Spain (n=52). A total of 91.67% (n=22) of the pre-service teachers from ULS identified themselves as female, while 8.33% (n=2) identified themselves as male. On the other hand, 80.77% (n=42) of pre-service teachers from UCO identified themselves as female, while 19.23% (n=10) identified as male. Regarding the nationalities of the participants, all participants from ULS were Polish (100%, n=24), while the distribution of UCO participants was as follows: 94.24% (n=49) Spanish, 1.92% (n=1) Austrian, 1.92 (n=1) Finnish, and 1.92 (n=1) Turkish. The authors conducted this study during the academic year of 2019-2020.

All the participants were selected through criterion-referenced (purposive) sampling techniques (Mertens, 2014). Eligibility criteria were based on proximity and participation in a teaching experience based on eTwinning for Future Teachers (EUN, 2021a) developed by the two participating institutions: "Learning English with Technology". This project was part of a synchronous online course, although project tasks were done by the students asynchronously.

3.3. Instrument and data analysis

For this study, we used a qualitative method following an exploratory design. The theoretical framework was based on content analysis and open coding procedure, which have been systematically obtained and analyzed using comparative analysis (Chun Tie et al., 2019). The data collection instrument used was a four open-ended question instrument administered in English to pre-service teachers from ULS and from UCO. The questions were:
(1) What did you like most about the eTwinning project?
(2) What did you like least about the eTwinning project?

(3) Before doing this project, had you heard about eTwinning? What do you think about this platform?

(4) Do you have other thoughts or comments about eTwinning?

All participants were given a digital worksheet based on Google Forms with the guided reflection. The categories were classified into: (i) advantages, (ii) limitations, and (iii) previous knowledge and use of eTwinning. After the data were collected, the answers were coded, and content analysis was performed to analyze the reflections in order to respond to the four research questions (RQs) posed. Moreover, for confidentiality reasons, the study participants received corresponding codes for use during the study. Finally, all responses were coded and gathered by category using NVivo Plus 12 for Windows, as it allows the researchers to operate with different categories and subcategories that can be compared with each other thanks to the intersection matrices (Valdemoros-San Emeterio et al., 2011).

4. Findings

Following the content analysis and open coding procedure, the conceptual map with the results obtained after the coding and categorization process was drawn up. An explanation of the coding process was also carried out based on the themes and contents included in the conceptual map, together with their corresponding interrelationships, definitions, and at least one textual example of each category. The core of the responses of the participants' experience of using eTwinning for Future Teachers was reduced into seven key themes (see Fig. 1), and resulted in the complex interaction among them. One theme was found related to previous knowledge that pre-service EFL and bilingual teachers have about eTwinning, connected to RQ1. Four themes, aligned with the advantages of eTwinning for Future Teachers, responded to RQ2. Finally, the other two themes, related to the limitations found related to eTwinning for Future Teachers, portrayed RQ3. Finally, RQ4 will be discussed by comparing the findings of RQ1, RQ2, and RQ3.
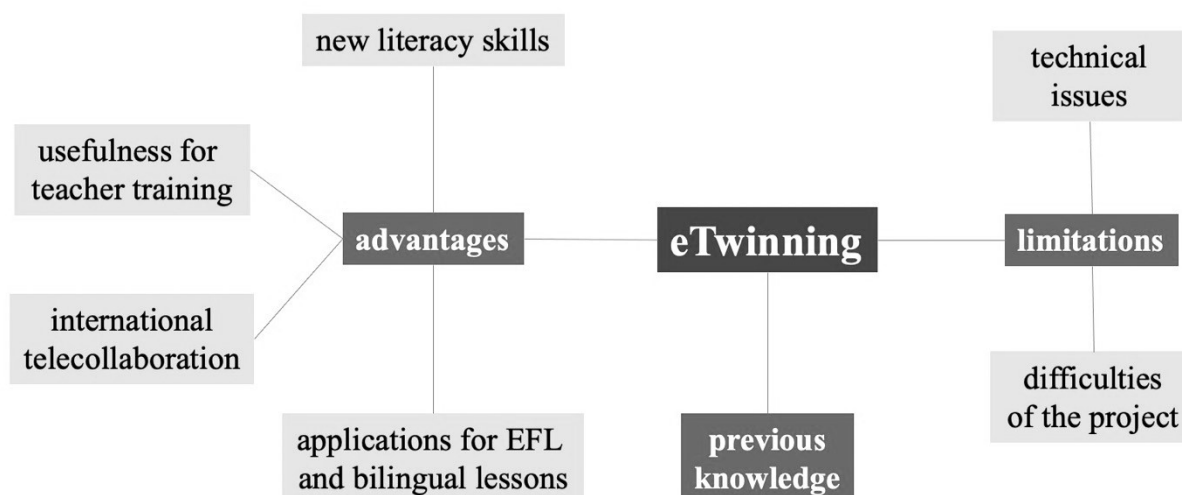
Figure 2. Conceptual map after content analysis and open coding

Findings showed that the majority (89.47%) of the participants from both of the institutions did not have any previous knowledge about eTwinning before this experience but had very positive perceptions after their first practice.

> I have never heard about this project. I think it is a great resource for teachers in general and also for kids. I think it is an excellent opportunity to exchange knowledge with teachers, to communicate and to improve the teaching-learning process. Moreover, it is also a good tool for children, because I believe they could learn a lot of English through communication with people from different countries, so they are also improving their social skills. I think this could open their minds and they could understand other cultures, other countries, etc. (Participant 48, UCO)
>
> Before starting the project, I hadn't heard of eTwinning. I think it is a very interesting way of learning a language and making contact with others. (Participant 8, ULS)

When comparing participants from the two institutions, more ULS respondents were familiar with the eTwinning initiative and consequently with eTwinning tools, mainly during their teacher training process.

> I started using this platform thanks to my postgraduate studies. I enjoy it very much. In my opinion it is a great opportunity to teach in a "wide range", exchange ideas and raise young, aware citizens of the world. (Participant 4, ULS)
>
> I am using this platform since last year and I thoroughly love it. (Participant 2, ULS)

Nevertheless, only one UCO participant had used eTwinning before this telecollaborative virtual exchange, but when she was a student.

I had heard about it because when I was in fourth grade of high school I traveled to London
with my classmates and we attended some English lessons there. The project was E-twin, I still
have the certificate. (Participant 15, UCO)

As shown in Figure 2, in the category 'Perceived advantages of eTwinning for Future
Teachers', four themes were coded: new literacy skills, usefulness for teacher training,
international telecollaboration, and applications for EFL and bilingual lessons.

Regarding the development of new literacy skills, a positive impact derived from the
use of eTwinning among participants, it can therefore be highlighted, as it was considered an
enriching learning experience:

> Many different courses propose different tasks to do in order to apply the Bologna Plan. Many
> of them are useless in the sense that they do not prepare student teachers for our professional
> life at all. This project has really developed many competencies that are necessary in our future
> career. This project has made me feel satisfied and proud. (Participant 3, UCO)
> This [eTwinning] creates a great opportunity to cooperate with people from many countries and
> cultures and also for self-development. (Participant 6, ULS)

In this light, the development of linguistic skills via the improvement of multimodal
communication and digital literacy is emphasized by most of the respondents, and more
specifically, "the possibility of talking in a foreign language and developing speaking skills"
(Participant 12 – ULS) and "communication skills in different ways" (Participant 11 – UCO) as
"this platform helps to develop language skills" (Participant 23 – ULS). Participant 26 (UCO)
states that "The best part of this project has been the opportunity to apply our skills in English
in such a real situation. It was a clear motivation to improve our speaking skills."

Paying special attention to digital literacy, it is interesting to pinpoint the benefits
identified by UCO participants:

> This experience has allowed me to improve my digital competence and become more
> interested in it. Also, as in some previous projects, I have really enjoyed carrying out this
> project, as it is totally different from many of the others. I really like innovation and interaction
> with other people. (Participant 7, UCO).
> I liked the way in which this course is focused, because apart from improving my English, I
> have improved my digital competence as a teacher, because I have discovered a lot of new
> platforms, like eTwinning, Genially, Loom, and they can be really useful for me. (Participant
> 12, UCO).

It needs to be added that all students saw digital literacies as means for multimodal communicating with others and expressing their ideas, whether with the use of writing, speaking, animation, video, or images. It was noticeable that younger students used more images, sound, and pictures than their older colleagues, who seemed to have struggled more with technology.

Moreover, online social integration, interpersonal and intercultural communicative competence was emphasized as a relevant skill put into practice thanks to the learning experience based on eTwinning for Future Teachers:

> [What I like most about eTwinning for Future Teachers was] Getting to know different cultures better by talking on-line to Spanish students. (Participant 4, ULS)
>
> What I liked the most about this project is that we have had the opportunity to get to know people from different cultures. In this way, we have enriched ourselves from other peoples' ideas and traditions, which is quite beneficial in order to open our minds. (Participant 30, UCO)

Regarding the usefulness of eTwinning for Future Teachers, participants considered it a relevant international initiative to improve teachers' performance and (future) professional development: "In my opinion it is the best platform for teachers to be active and progress their creativity. It's great opportunity for professional development" (Participant 12 – ULS); "What I like most about eTwinning is the possibility of sharing our experiences as future teachers with students from other universities" (Participant 43 – ULS).

> I had not heard of the eTwinning platform before, but thanks to the project I am discovering the possibilities of this platform. I love the online training and seminars. I am going to use the eTwinning platform in my kindergarten work and create a project with another kindergarten (Participant 20, ULS)

Focusing on international telecollaboration, two subcodes were identified: international collaboration and multimodal communication, and telecollaborative skills. On the one hand, regarding the former, both UCO and ULS participants emphasized "communication with people from another country and the knowledge we can share in community" (Participant 14 – UCO), "the possibility to exchange experiences with people from different countries and backgrounds" (Participant 6 – ULS), "contacting with people from other countries because I had the opportunity to know their stories, some aspects of their cultures and, the most important fact, I talked in English, so it helped me to improve and loss the embarrassment to talk in public" (Participant 6 – UCO). On the other hand, regarding the latter, Participant 8 (ULS)

mentioned that "I liked that we could meet Spaniards and work with them and that we could exchange various information related to education, etc." Similarly, Participant 47 (UCO) highlighted: "What I liked most was interacting with partners from another country such as Poland and learning things both from their city and from teaching there thanks to the Skype meeting we had."

Finally, concerning the applications of eTwinning for EFL and bilingual lessons, the participants stated that their participation in the project "Learning English with Technology" has allowed both UCO and ULS participants to "learn interesting English language learning techniques" (Participant 8, ULS), "find new really good resources and tools" (Participant 23, ULS), "exchange of information, getting to know helpful tools and brainstorming teaching methods" (Participant 4, ULS), and "know more about other educational systems and about the teachers' life" (Participant 32, UCO).

> What I liked most was the experience of meeting new people and sharing knowledge about teaching in both countries. In addition to this, we have exchanged resources that will serve me in my future as a teacher (Participant 36, UCO).

The last category found in this study was perceived limitations of eTwinning for Future Teachers, where two subcodes were identified: technical issues and difficulties of the project. Regarding technical issues, several UCO participants mentioned that the eTwinning platform is not easy to use. Participant 36 (UCO) stated: "At first I didn't know how to use eTwinning, it was difficult for me to find the pages or chats. I think it is a bit complex." Similarly, Participant 1 (UCO) mentioned: "At first it was a bit frustrating because I didn't understand the platform, but then, when I understood it, I realized that it was quite easy." Moreover, only UCO participants alluded technical issues related to Internet connection: "I only was sad about the bad Internet connections and problems with Skype that occurred every now and then I could not hear anything" (Participant 21, UCO). Only one ULS participant mentioned a technical issue: the "limit of the size of the files in the uploaded materials" (Participant 4, ULS).

Regarding the difficulties encountered to carry out the project "Learning English with Technology", both UCO and ULS participants regret the limitations of time to do the different tasks, and especially the Skype meetings: "if we had had more weeks to continue with the project we could have gone deeper into some aspects such as exchange of our first language or something similar" (Participant 20, UCO); "If there were more meetings required we would gain a chance to make closer connections and do something together in the future" (Participant 6, ULS).

Participants also mentioned that telecollaboration with peers who do not know each other beforehand is not always easy, especially when English as language of communication is essential: "I was nervous before the conversation with Spanish girls because I was afraid that I wouldn't understand them, it was a problem" (Participant 23, ULS); "Although the international meetings are beneficial, it may be difficult to arrange it, and people may feel uncomfortable talking to unknown people" (Participant 4, UCO). Despite this initial uncertainty or reluctance, the final result has been positive, as stated by Participant 35 (UCO): "Firstly, I didn't like the idea of talking with unknown people, but the video call was so funny!"

Finally, and despite these difficulties, the general perception of eTwinning is positive: "I have enjoyed this project, it has been very innovative and different from what we are used to do" (Participant 26, UCO); "I will definitely participate in future projects" (Participant 15, ULS); "I'm already thinking about my own project with another kindergarten" (Participant 18, ULS).

5. Discussion

There are numerous opportunities to use eTwinning in pre-service teacher training, especially in the contexts of EFL and bilingual education, as this initiative enhances virtual exchanges among students strengthening their language proficiency and meaning making sills in a foreign language, as well as their intercultural communication and intercultural awareness. However, regarding the previous knowledge that pre-service EFL and bilingual teachers have about eTwinning (RQ1), it is remarkable that almost all participants in both institutions were not familiar with this European initiative (RQ4). The reason behind this finding may lie in the fact that even though the eTwinning training courses and seminars are becoming common at different levels of non-university education (Paz-Albo & López-Cirugeda, 2017), their implementation at higher education level is still limited (Bonet et al., 2019). Despite being a new experience for the participants, their feedback after having being involved in an eTwinning project was highly positive, in line with previous studies (Paz-Albo, & Hervás, 2017).

Regarding the advantages found on the integration of eTwinning in the bilingual and EFL classroom (RQ2), the participants highlighted the development of new literacy skills, a positive impact derived from this multimodal telecollaboration learning experience. Participants indicated that online communication was a good medium for social interaction, which is important, because the development of social practices and social learning strategies is essential in the process of engaging with new literacies (West, 2019). These findings are in line with previous research, which underlines that such initiatives can help develop teachers' digital

literacy (Gülbay, 2018), but also interpersonal, social and professional interaction (Vrasidas & Glass, 2004; Wu et al., 2014), and reflection on teaching practice (Hawkes & Romiszowiski, 2001). Participants emphasized the importance of eTwinning projects in the teacher training process. It seems that projects that allow to view learning through both the lens of a teacher and of a learner are of great value to pre-service teachers (Tonner-Saunders & Shimi 2021).

The relevance of international telecollaboration found is in line with highly consolidated research that states that "Participation in interactional activities has been argued to be an intrinsic part of learning wherein professional knowledge is co-constructed, negotiated and improved" (Wu et al., 2014, p. 230). Moreover, virtual exchanges and telecollaboration based on eTwinning can foster the formation of communities of practice to promote teachers' professional development (Riordan & Murry, 2012), and they are able to adapt and engage themselves and students in language learning and teaching despite the potential difficulties (Huertas-Abril, 2020).

On the other hand, respondents found certain limitations regarding the integration of eTwinning in the bilingual and EFL classroom (RQ3). Only UCO students found technical issues (RQ4), but participants from both institutions mentioned some specific difficulties found when developing the project. The limitations found were related to time constraints, which resulted in absence of strong ties between international participants. Nevertheless, following Haythornthwaite and De Laat (2010), both weak ties between new acquaintances and strong ties in long-lasting collaborations are found to play key roles when gaining access to new knowledge and maintaining commitment to telecollaboration activities in online communities, which is probably why the feedback from the participants was highly positive, in line with previous studies (Paz-Albo & Hervás, 2017).

In the light of the findings, it is undeniable that diversity is universal in today's world, and a multiliteracies approach guides diversity into rather than out of literacy education (Dooley, 2008). Multimodal communication using a foreign language and eTwinning tools allows students to learn and communicate with learners from another country using different modalities of text and gain more confidence in the process.

6. Practical implications

There is no doubt that digital technologies are seen as an integral part of today's learning process (EC, 2019). They are changing the reading and writing practices in native and foreign language learning, leading to the development of new literacies and the use of different modalities in meaning-making, but also, providing instant help in obtaining information on

pronunciation, for example. This with no doubts leads to greater learner autonomy. In this light, teachers should be aware that "literacy teaching is not about skills and competence; it is aimed at creating a kind of person, an active designer of meaning, with a sensibility open to differences, change and innovation" (Cope & Kalantzis, 2009, p. 175). Teaching cannot continue to be a process of transmission, as this creates uniformity in students (Cope & Kalantizis, 2009). Teachers should carry out a pedagogy of multiliteracies involving not only situated practice and overt instruction but also critical framing and transformed practice (Kinzer & Leu, 2017). We envisage that the EFL and BE pre-service teachers participating in eTwinning telecollaboration projects at university level will be able to organize their school practice more effectively, understanding better how to integrate social and academic use of technology, allow new literacies in their classes and create opportunities for their students to integrate multiple modalities in expressing themselves in a foreign language. Direct experience of using technology in a meaningful way should help them apply their learning to their teaching (Jaipal-Jamani & Figg, 2015), but only if they find it important for teaching (Ertmer & Ottenbriet-Leftwich, 2013; Miranda & Russell, 2012). In general, as research shows, educators are more inclined to integrate technology in their classroom if it is part of the curriculum (Hutchison & Reinking, 2011), including HE institutions. Therefore, the new understanding of curricular integration of eTwinning tools within university courses was developed, and eTwinning telecollaboration projects will become part of the courses for pre-service teachers also in the following years at both universities participating in this study, to improve the quality of EFL and bilingual teacher education.

One obstacle that teachers face is that schools and classrooms are not usually organized in ways allowing the easy use of technology and instruction (O'Brien & Scharber, 2008). Therefore, classrooms need to be reorganized to facilitate uses of technology and to enable students to work within and beyond classrooms (Kinzer & Leu, 2017) in order to meaningfully engage in communication as it exists in the social world (Lotherington & Jenson, 2011), and to gain the ability to effectively select the tools and forms of modality that meets their literacy and communication needs (West, 2019). Failure to include multimodal resources that students use in their everyday lives in the classroom means that we ignore the modes students already use to make meaning (Street et al., 2009). However, educators also need to be prepared that their role as moderators of student learning will not only require a thoughtful plan of how they want students to engage with new literacies but also the readiness to become learners alongside their students who are often more proficient in digital tools than them (West, 2019).

7. Conclusion

The findings presented in this paper suggest that this approach was successful in taking the main emphasis from the digital tools to situational practice, which gave students' opportunities for new ways of social learning, meaning-making and multimodal communication in a foreign language, but also encouraged multiple perspectives and representations of concepts and content, self-regulation during learning and knowledge construction process (students decided how they would learn), and embedded learning in social experience. In view of the above-mentioned, this study provides a basis for certain general implications for how to strengthen teacher training for EFL and BE education pre-service teachers, which could be further explored in the future.

The findings, however, should be interpreted in the light of three limitations. First, the study is qualitative, and quantitative data could complement the qualitative findings and as warrant more potential independent variables. Second, the qualitative findings reported here were only based on self-reported data so that they may be affected by respondents' subjective opinions about the phenomena. Third, due to the nature of an exploratory study, only participants from two universities from two different countries (ULS in Poland and UCO in Spain) were considered as the target population. The findings may then not be applicable to pre-service teachers from other institutions, backgrounds, or contexts.

Future research should consider some key needs derived from the existing findings and gaps of this study. Further research on pre-service teachers' opinions about usability and preferences regarding eTwinning in EFL and bilingual education should be explored in other contexts and institutions, recruiting participants from different educational and sociocultural backgrounds to perform comparisons with this research. Moreover, future studies should also consider obtaining data through additional sources to obtain more reliable and comparable data.

In-service teachers' perceptions towards eTwinning collaborative online environment and virtual exchanges using eTwinning tools should be further analyzed so that the effects of its implementation in HE curriculum could be more thoroughly studied. To facilitate its implementation in international EFL and bilingual contexts in HE, it would be necessary that researchers suggested design principles and models that were empirically proven in order to provide teachers with a general framework of use, resulting in providing access to appropriate personalised learning resources and meaningful and authentic (multimodal) tasks. This would be directly connected to teacher training. Now, it is the time to support the use of educational technology in initial teacher training; otherwise, it may be difficult to connect teachers' professional development with the reality at schools.

References

Asoodar, M., Vaezi, S., & Izanloo, B. (2016). Framework to improve e-learner satisfaction and further strengthen e-learning implementation. *Computers in Human Behavior, 63,* 704-716. https://doi.org/10.1016/j.chb.2016.05.060

Ayaz, M. F., & Şekerci, H. (2015). The effects of the constructivist learning approach on student's academic achievement: A meta-analysis study. *The Turkish Online Journal of Educational Technology, 14*(4), 143-156.

Barman, P., & Bhattacharyya, D. (2015). Effectiveness of constructivist teaching method: An experimental study. *International Journal of research in Social Sciences and Humanitie*s, *5*(1), 69-76.

Bogdan, R., & Taylor, S. J. (1975). *Introduction to qualitative research.* John Wiley.

Bonet, A., Capó, J., & Giménez-Morera, A. (2019). Perspectivas eTwinning en la educación superior: boceto del esqueleto curricular. *IN-RED 2019. V Congreso de Innovación Educativa y Docencia en Red.* http://dx.doi.org/10.4995/INRED2019.2019.10385

Bozdağ, Ç. (2018). Intercultural learning in schools through telecollaboration? A critical case study of eTwinning between Turkey and Germany. *International Communication Gazette*, *80*(7), 667-694. https://doi.org/10.1177%2F1748048518802221

Camilleri, R-A., & Gritter, K. (2016). Global education and intercultural awareness in eTwinning. *Cogent Education*, *3*(1), 1210489. https://doi.org/10.1080/2331186X.2016.1210489

Chun Tie, Y., Birks, M., & Francis, K. (2019) Grounded theory research: A design framework for novice researchers. *SAGE Open Medicine 7,* 1-8. https://doi.org/10.1177/2050312118822927

Collet, V. S. (2013). Helping teachers make the shift: Professional development for renovated writing instruction. In K. E. Pytash, R. E. Ferdig, & T. V. Rasinki (Eds.), *Preparing teachers to teach writing using technology* (pp. 111-123). ETC Press. https://doi.org/10.1184/R1/6686879.v1

Cope, B., & Kalantzis, M. (2009). "Multiliteracies": New literacies, new learning. *Pedagogies: An International Journal, 4*(3), 164-195. https://doi.org/10.1080/15544800903076044

Cope, B., & Kalantzis, M. (Eds.). (2000). *Multiliteracies: Literacy learning and the design of social futures*. Routledge.

Dahlström, H. (2021). Students as digital multimodal texts designers: A study of resources, affordances, and experiences. *British Journal of Educational Technology, 53*, 391-407. https://doi.org/10.1111/bjet.13171

Dawson, P., Henderson, M., Mahoney, P., Phillips, M., Ryan, T., Boud, D., & Molloy, E. (2019). What makes for effective feedback: Staff and student perspectives. *Assessment & Evaluation in Higher Education, 44*(1), 25-36. http://dx.doi.org/10.1080/02602938.2018.1467877

Denzin, N. K., & Lincoln, Y. S. (Eds.). (2017). *The SAGE handbook of qualitative research* (5th ed.). SAGE.

Dooley, K. (2008). Multiliteracies and pedagogy of new learning for students of English as an additional language. In A. Healey (Ed.), *Multiliteracies and expanding landscapes: New pedagogies for student diversity* (pp. 102-125). Oxford University Press.

Drewry, R. J.*,* Cumming-Potvin, W. M.*, &* Maor, D. (*2019). New approaches to literacy problems: Multiliteracies and inclusive pedagogies*. *Australian Journal of Teacher Education, 44(*11*),* 61-78*. https://doi.org/10.14221/ajte.2019v44.n11.4

EC. (2013). *Study of the Impact of eTwinning on Participating Pupils, Teachers and Schools: Final Report.* Publications Office of the European Union. https://op.europa.eu/s/nFAW

Efthymiou L., & Zarifis, A. (2021). Modeling students' voice for enhanced quality in online management education. The International Journal of Management Education, 19(2), 100464. https://doi.org/10.1016/j.ijme.2021.100464

Ertmer, P. A., & Ottenbreit-Leftwich, A. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255-284. http://dx.doi.org/10.1080/15391523.2010.10782551

Ertmer, P. A., Gopalakrishnan, S., & Ross, E. M. (2001). Technology using teachers: Comparing perceptions of exemplary technology use to best practice. *Journal of Research on Technology in Education, 33*(5), 1-26.

EUN. (2021a). *eTwinning for Future Teachers.* https://www.etwinning.net/en/pub/benefits/learning-opportunities/teacher-training-institutes.htm

EUN. (2021b). *eTwinning is the community for schools in Europe.* https://www.etwinning.net/en/pub/index.htm

Gacs, A., Goertler, S., & Spasova, S. (2020). Planned online language education versus crisis-prompted online language teaching: Lessons for the future. *Foreign Language Annals*, *53*, 380-392. http://dx.doi.org/10.1111/flan.12460

Gajek, E. (2017). Curriculum integration in distance learning at primary and secondary educational levels on the example of eTwinning projects. *Education Sciences, 8*(1), 1-15. https://doi.org/10.3390/educsci8010001

Galvin, C., Austin, R., Revyakina, E., & McMorrough, A. (2020). Building cultural awareness and understanding in Europe's schools. In W. J. Hunter, and R. Austin (Eds.), *Blended and Online Learning for Global Citizenship: New Technologies and Opportunities for Intercultural Education* (pp. 92-121). Routledge.

Giannis, T. (2022). Interpreting the statistics of eTwinning: European Quality Label. *International Journal of Educational Innovation, 4*(2), 5-15.

Gülfbay, E. (2018). eTwinning collaborative learning environment in initial teacher education. *International Journal of Advanced Research in Science, Engineering and Technology, 5*(2), 5234-5242.

Hawkes, M., & Romiszowiski, A. (2001). Examining the reflective outcomes of asynchronous computer-mediated communication on in-service teacher development. *Journal of Technology and Teacher Education, 9*(2), 283-306.

Haythornthwaite, C., & De Laat, M. (2010, May). Social networks and learning networks: Using social network perspectives to understand social learning. *Proceedings of the 7th international conference on networked learning* (pp. 183-190). Lancaster University.

Helm, F. (2015). The practices and challenges of telecollaboration in higher education in Europe. *Language Learning & Technology, 19*(2), 197-217. http://llt.msu.edu/issues/june2015/helm.pdf

Huertas-Abril, C. A., & Muszyńska, B. (2022). Learning design preferences in LMOOCs: An international comparative study. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT), 12*(1), 1-17. http://doi.org/10.4018/IJCALLT.291106

Huertas-Abril, C. A. (2020). Telecollaboration in emergency remote language learning and teaching. *2020 Sixth International Conference on e-Learning (econf)* (pp. 87-91). IEEE. https://doi-org.ezproxy.newcastle.edu.au/10.1109/econf51404.2020.9385425

Hutchison, A., & Reinking, D. (2011). Teachers' perceptions of integrating information and communication technologies into literacy instruction: A national survey in the United States. *Reading Research Quarterly, 46*(4), 312-333. http://dx.doi.org/10.1002/RRQ.002

International Reading Association (2009). *New literacies and 21st century technologies. A position statement of the International Reading Association*. https://www.literacyworldwide.org/docs/default-source/where-we-stand/new-literacies-21st-century-position-statement.pdf?sfvrsn=6

Jaipal-Jamani, K., & Figg, C. (2015). A case study of a TPACK-based approach to teacher professional development: Teaching science with blogs. *Contemporary Issues in Technology and Teacher Education, 15*(2). https://citejournal.org/volume-15/issue-2-15/science/a-case-study-of-a-tpack-based-approach-to-teacher-professional-developmentteaching-science-with-blogs/

Jewitt, C. (2009). *Introduction.* In C. Jewitt (Ed.), *The Routledge handbook of multimodal Analysis* (pp. 14-28). Routledge.

Jocius, R. *(*2017*).* Good student/bad student: Situated identities in the figured worlds of school and creative multimodal production*. Literacy Research: Theory, Method, and Practice, 66(*1*),* 198-214*.* https://doi.org/10.1177/2381336917718177

Kalantzis, M. (2000). Multicultural citizenship. In W. Hudson & J. Kane (Eds.), *Rethinking Australian citizenship* (pp. 99-110). Cambridge University Press.

Kalantzis, M., Cope, B., Chan, E., & Dalley-Trim, L. (2016). *Literacies* (2nd ed.). Cambridge University Press.

Kearney, C., & Gras-Velázquez, Á. (2015). *eTwinning Ten Years On: Impact on Teachers' Practice, Skills, and Professional Development Opportunities, as Reported by eTwinners. A Report.* Central Support Service of eTwinning - European Schoolnet. http://www.eun.org/es/resources/detail?publicationID=701

Kinzer, C. K., & Leu, D. J. (2017). New literacies, New Literacies. In M. A. Peters (Ed.), *Encyclopedia of Educational Philosophy and Theory* (pp. 1559-1565)*.* Springer.

Krajka, J. (2015). Extending teacher training into the virtual space: Telecollaboration in foreign language teacher education. In M. Marczak & M. Hinton (Eds.), *Contemporary English Language Teaching and Research* (pp. 2-20). Cambridge Scholars Publishing.

Kress, G. (2010). *Multimodality: a social semiotic approach to contemporary communication.* Routledge.

Kress, G. (2009). What is a mode? In C. Jewitt (Ed.), *The Routledge handbook of multimodal analysis* (pp. 54-68). Routledge.

Lee, Y., Stringer, D., & Du, J. (2017). What determines students' preference of online to F2F class? *Business Education Innovation Journal, 9*(2), 97-102.

Leu, D. J., Kinzer, C. K., Coiro, J., & Cammack, D. (2004). Towards a theory of new literacies emerging from the Internet and other ICT. In R. B. Ruddell & N. Unrau (Eds.), *Theoretical models and processes of reading* (5th ed., pp. 1570-1613). International Reading Association.

Liu, J. (2013). Visual images interpretive strategies in multimodal texts. *Journal of Language Teaching and Research, 4*(6), 1259-1263. https://doi.org/10.4304/jltr.4.6.1259-1263

Lord, T. R. (1999) A comparison between traditional and constructivist teaching in environmental science. *The Journal of Environmental Education, 30*(3), 22-27. https://doi.org/10.1080/00958969909601874

Lotherington, H., & Jenson, J. (2011). Teaching multimodal and digital literacy in L2 settings: New literacies, new basics, new pedagogies. *Annual Review of Applied Linguistics*, 31, 226-246. https://doi.org/10.1017/S0267190511000110

Magnusson, P., & Godhe, A. L. (2019). Multimodality in language education – Implications for teaching. *Designs for Learning, 11(*1*), 127-137. https://doi.org/10.16993/d.127

Mertens, D. M. (2014). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods.* SAGE.

Metruk, R. (2018). Extensive listening practice of EFL Learners with authentic English videos. *Teaching English with Technology, 18*(4), 3-19.

Miranda, H., & Russell, M. (2011). Predictors of teacher-directed student use of technology in elementary classrooms: A multilevel SEM approach using data from the USEIT study. *Journal of Research on Technology in Education, 43*(4), 301-323. http://dx.doi.org/10.1080/15391523.2011.10782574

Miranda, H., & Russell, M. (2012). Understanding factors associated with teacher-directed student use of technology in elementary classrooms: A structural equation modeling approach. *British Journal of Educational Technology, 43*(4), 652-666. http://dx.doi.org/10.1111/j.1467-8535.2011.01228.x

Muir, T., Wang, I., Trimble, A., Mainsbridge, C., & Douglas, T. (2022). Using Interactive Online Pedagogical Approaches to Promote Student Engagement. Education Sciences, 12, 1-18. https://doi.org/10.3390/educsci12060415

New London Group. (1996). A pedagogy of multiliteracies: Designing social factors. *Harvard Educational Review*, *66*, 60-92.

O'Brien, D., & Scharber, C. (2008). Digital literacies go to school: Potholes and possibilities. *Journal of Adolescent and Adult Literacy, 52*(1), 66-68. http://dx.doi.org/10.1598/JAAL.52.1.7

O'Dowd, R. (2013). Telecollaboration and CALL. In M. Thomas, H. Reinders, & M. Warschauer (Eds.), *Contemporary Computer-Assisted Language Learning* (pp. 123-139). Bloomsbury.

O'Dowd, R., & Dooly M. (2020). Intercultural communicative competence development through telecollaboration and virtual exchange. In J. Jackson (Ed.) *The Routledge Handbook of Language and Intercultural Communication* (pp. 261-375). Routledge.

Papadakis, S. (2016). Creativity and innovation in European education. Ten years eTwinning. Past, present and the future. *International Journal of Technology Enhanced Learning, 8*(3-4), 279-296.

Patton, M. Q. (2003). *Qualitative evaluation checklist. evaluation checklists project.* http://dmeforpeace.org/sites/default/files/Patton_Qualitative%20Evaluation%20Checklist.pdf

Paz-Albo, J, & Hervás, A. (2017). The eTwinning experience: Beyond school classrooms. En L. Gómez, A. López, & I. Candel (Eds.). *ICERI2017 Proceedings. 10th annual International Conference of Education, Research and Innovation* (pp. 8848-8851). IATED Academy. http://dx.doi.org/10.21125/iceri.2017.2445

Paz-Albo, J., & López-Cirugeda, I. (2017). Higher education perspectives on eTwinning: The future of Initial Teacher Training learning. In L. Gómez, A. López, & I. Candel (Eds.), *INTED2017. Proceedings of the 11th international technology, education and development conference* (pp. 1073-1076). IATED Academy. http://dx.doi.org/10.21125/inted.2017.0403

Redondo, B., Cózar, R., González-Calero, J.A. & Sánchez R.R. (2020). Integration of augmented reality in the teaching of English as a foreign language in early childhood education. *Early Childhood Education Journal*, *48*, 147-155. http://dx.doi.org/10.1007/s10643-019-00999-5

Richardson, J. C., Maeda, Y., Lv, J., & Caskurlu, S. (2017). Social presence in relation to students' satisfaction and learning in the online environment: A meta-analysis. *Computers in Human Behavior, 71,* 402-417. http://dx.doi.org/10.1016/j.chb.2017.02.001

Riordan, E., & Murry, L. (2012). Sharing and collaborating between an online community of novice teachers: CMC in language teacher education. *Journal of e-Learning and Knowledge Society, 8*(3), 95-107.

Sebastianelli, R., Swift, C., & Tamimi, N. (2015). Factors affecting perceived learning, satisfaction, and quality in the online MBA: A structural equation modeling approach. *Journal of Education for Business, 90*(6), 296-305. http://dx.doi.org/10.1080/08832323.2015.1038979

Sinclair, G. (2010, May). *Exploring Canada's digital future.* Featured "Big Thinking" lecture at the Congress of the Humanities and Social Sciences, Concordia University, Montreal, Quebec, Canada.

Solomon, G., Allen, N., & Resta, P. (2003). *Toward digital equity: Bridging the divide in education*. Pearson Education.

Street, B., Pahl, K., & Rowsell, J. (2009). Multimodality and new literacy studies. In C. Jewitt (Ed.), *The Routledge handbook of multimodal analysis* (pp. 191-201). Abingdon, UK: Routledge.

Taralova, T. (2010). The use of eTwinning in secondary schools in Bulgaria. *Teaching English with Technology, 10*(2), 21-34

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). The University of Chicago Press.

Tonner Saunders, S., & Shimi, J. (2021). Exploring student teachers' experiences of engaging in hands of the world, a contextualised global intercultural eTwinning Project. *International Journal of Higher Education Pedagogies, 2*(4), 10-20. https://doi.org/10.33422/ijhep.v2i4.104

Valdemoros-San Emeterio, M. A., Ponce-de-León-Elizondo, A., & Sanz-Arazuri, E. (2011). Fundamentos en el manejo del NVIVO 9 como herramienta al servicio de estudios cualitativos. *Contextos Educativos: Revista de Educación, 14*, 11-30. http://dx.doi.org/10.18172/con.637

van Gaalen, A., & Feiertag, S. (2018). Is there a gap to bridge between internationalization in secondary and higher education? In D. Proctor, & L. E. Rumbley (Eds.), *The Future Agenda for Internationalization in Higher Education. Next Generation Insights into Research, Policy, and Practice* (pp. 199-211). Routledge. https://doi.org/10.4324/9781315266909-19

Van Wart, M., Ni, A., Medina, P. (2020a). Integrating students' perspectives about online learning: a hierarchy of factors. *International Journal of Educational Technology in Higher Education, 17,* 53. https://doi.org/10.1186/s41239-020-00229-8

Van Wart, M., Ni, A., Ready, D., Shayo, C., & Court, J. (2020b). Factors leading to online learner satisfaction. *Business Educational Innovation Journal, 12*(1), 15-24.

Vrasidas, C., & Glass, G. V. (Eds.). (2004). *Online professional development for teachers.* Information Age.

Wang, L., Bruce, C., & Hughes, H. (2011). Sociocultural theories and their application in information literacy research and education. *Australian Academic & Research Libraries, 42*(4), 296-308. https://doi.org/10.1080/00048623.2011.10722242

West, J. A. (2019). Using new literacies theory as a lens for analyzing technology-mediated literacy classrooms. *E-Learning and Digital Media, 16*(2), 151-173. https://doi.org/10.1177/2042753019828355

Wu, H., Gao, J., & Zhang, W. (2014). Chinese EFL teachers' social interaction, socio-cognitive presence in synchronous computer-mediated communication. *Language Learning & Technology, 18*(3), 228-254.

Zamanillo-Mateo, B., Sanz de la Cal, E., & Ramos-Rodríguez, J. (2018). La internacionalización de la educación infantil a través de un proyecto eTwinning entre España y Francia. *Investigación en la Escuela, 96*, 33-49. http://dx.doi.org/10.12795/IE.2018.i96.03

CALL INITIAL TEACHER EDUCATION
IN VIETNAMESE HIGHER EDUCATION:
UNHEARD VOICES

by **Luan T. Nguyen**

Ho Chi Minh City Open University, Vietnam

luan.nguyen @ ou.edu.vn

and **Ngoc Giang Tran**

Hanoi National University of Education, Vietnam

giangtn85 @ hnue.edu.vn

Abstract

The pressing need to prepare Computer-Assisted Language Learning (CALL) professional competence for English as a Foreign Language (EFL) pre-service teachers has come to be significant to ongoing national reforms to improve English teaching pedagogy. This study employed a convergent mixed-methods research design to investigate the perceptions of Vietnamese EFL pre-service teachers and teacher educators concerning technology preparation and integration into the EFL initial teacher education in Vietnamese higher education. The data included a survey completed by 67 pre-service teachers, a focus group discussion with six of them, and a semi-structured interview with three teacher educators at a higher education institution in Vietnam. Findings reveal that pre-service teachers received significant opportunities to learn regarding CALL-related knowledge within their initial teacher education program. The findings also show a number of substantial factors impacting the integration of Information and Communications Technology (ICT) into the initial teacher education regarding individual teacher educators, individual EFL pre-service teachers, the provision of resources, and CALL technology-related policies. The study suggests that the EFL initial teacher education program needs to take the opportunity to learn and policies on CALL-related pedagogies into account developing pre-service teachers' professional competence.

Keywords: Initial teacher education; pre-service teacher education; English as a Foreign Language (EFL); Computer-Assisted Language Learning (CALL); technology integration; Vietnamese higher education

1. Introduction

Computer-Assisted Language Learning (CALL) integration into language initial teacher education has come to be recognised as one of the most important and growing interests in CALL teacher education in the 21st century mobile and diverse contexts (Gillespie, 2020; Hubbard, 2019; Meihami, 2021; Son, 2018). The line of CALL research has made pivotal

contributions to the integration of ICT into the programs for language teaching and language teacher education across levels. Hubbard (2008) contended the significance of the future of CALL which "is closely tied to the future of language teacher education because language teachers are pivotal players: they select the tools to support their teaching and determine what CALL applications language learners are exposed to and how learners use them" (p. 176). Hubbard's argument was clearly asserted in a later work by Hong (2010) emphasising that "the ultimate goal of CALL teacher education is to enable L2 teachers to integrate CALL technology into their classroom with confidence and knowledge" (p. 53). The experience in CALL-related technology integration into classroom practice has therefore become one of researchers' and educators' particular interests and concerns. Echoing this and focusing more on the integration of CALL for teacher training and development, Son (2018) proposed a model for CALL teacher development with four elements: exploration, communication, collaboration, and reflection. Therefore, there is an insistent need for more research on CALL preparation and integration in the ITE programs in diverse contexts.

The current study contributes to the fragmented body of research on CALL initial teacher education. While the integration of ICT and CALL-related technology has been found to be at the core of the initial teacher education and influenced by contexts (Gudmundsdottir et al., 2020; Hong, 2010; Masoumi, 2021; McGarr & Ó Gallchóir, 2020; Rana & Rana, 2020), little research has been conducted in the tertiary initial teacher education in the EFL contexts, including Vietnam, which involves a huge population of pre-service teachers. To provide a missing fragment, the current study aims to provide insights into EFL pre-service teachers' and teacher educators' perceptions of the preparation of ICT and CALL integration into tertiary EFL initial teacher education, a hitherto under-researched context.

2. ICT integration in the initial teacher education

The educational applications of ICTs have been acknowledged in different ways in the literature. Researchers utilised ICTs as new teaching tools and technologies for education (Masoumi, 2021; McGarr & McDonagh, 2021; McGarr & Ó Gallchóir, 2020; Valverde-Berrocoso et al., 2021) described as "computer- and internet-based technologies, covering both generic software applications (e.g., word processors, presentation software, email packages, web browsers, search and download) and CALL software applications plus websites useful for teaching foreign languages" (Dang, 2013, p. 2). In this notion, Vo (2019) furthered the definition of ICT as technology-related applications that are used in the contexts of EFL teaching and learning, consisting of hardware equipment, CALL technologies, and software.

Strong interest in ICT application and integration in the initial teacher education has been observed around the world, with an array of different models proposed by several researchers (Aşık et al., 2020; Gudmundsdottir et al., 2020; Masoumi, 2021; McGarr & McDonagh, 2021; Nguyen, 2019; Vo, 2019). In the European context, while having the same conclusion about the role of ICT as an important component in the ITE programs, Aşık et al. (2020) and Gudmundsdottir et al. (2020) pointed to diffirent foci in such integrated processes. In fact, Aşık et al. (2020) based on their interviews with pre-service teachers from Turkey, Portugal and Poland to highlight the significance of modelling and reflection in ICT integrated initial teacher education programs. On the other hand, Gudmundsdottir et al. (2020), from a large scale survey on more than 1,000 pre-service teachers in Norway and Spain, emphasised the growing importance of the responsible use of ICT in initial teacher education programs. This responsible use of ICT involves multiple aspects, including privacy-related matters, cyber ethics, and critical digital literacy. Also stressing the vital role of cyber ethics in ITE programs, McGarr and McDonagh (2021) based their study in the context of Ireland and concluded that digital competence as well as ICT integration is "an evolving concept and care must be taken" (p. 115) to maintain the pre-service teachers' autonomy and the employment of ICT.

Interestingly, sometimes the views of pre-service teachers and teacher educatiors are reported to be opposite. Specifically, Masoumi (2021) in a Sweden-based research project found that while the pre-service teachers felt insufficiently supported for the future use of ICT, the teacher educators were sure about multiple initiatives implemented to prepare the next generation of teachers for technology use. Such misalignment in the pre-service teachers' and teacher educators' perspectives might have been due to the fact that initial teacher education programs in Sweden did not provide an adequate learning environment for the pre-service teachers to develop their technological literacies. In this line of thought, various researchers pointed out an array of negative factors influencing the process of ICT application in initial teacher education programs: limited access to ICT resources, lack of institutional support, weak digital competence of teacher educators, cultural and language differences, lack of time, and so on (Aşık et al., 2020; Gudmundsdottir et al., 2020; Tran et al., 2020; Valverde-Berrocoso et al., 2021; Vo et al., 2020). However, Le et al. (2022) observed that infrastructure and learning experiences had positive impact on pre-service teachers' ICT competence. Le et al.'s (2022) observations confirmed what Granston (2003) found that institution-levelled factors importantly contributed to the interactive process between pre-service teachers and educators in their efforts to integrate technology in teaching and learning. These findings were in line with what Vo (2019) found in the context of ICT integration in a tertiary EFL initial teacher

education program in Vietnam highlighting that barriers across levels were related to the lack of ICT policies. Vo's (2019) conclusions confirmed what Peeraer and Van Petegem (2012) had found earlier in their attempt to investigate the relationship between ICT policies in teacher education and their actual applications in the context of Vietnam. Based on their analysis of the vision statements for the integration of ICT in five different teacher education institutions in Vietnam, these researchers revealed that the practices of ICT applications were limited (Peeraer & Van Petegem, 2011). Although the training for basic ICT skills was planned, there was a lack of concrete ideas and topics for training on the use of ICT in teaching and learning (Peeraer & Van Petegem, 2012).

In addition, the plans of these teacher education institutions were perceived as unbalanced in the sense that they put strong priority on the infrastructure development and neglected the professional development for teaching staff, especially pedagogical and curricular change and revision. Therefore, teacher educators are in charge of their personal professional development (PD) at the different degrees of engagement and in different ways; for example, undertaking intensive PD courses (Nguyen, 2019; Tafazoli, 2021b) or engaging with the online community of practices (Mai et al., 2020). These findings empirically raised greater attention in the EFL initial teacher education programs to the practice of CALL integration in the pedagogy. In fact, numerous guidelines across levels for EFL pre-service teacher education reflect these concerns.

In the unprecedented context of the COVID-19 pandemic, the integration of ICT in initial teacher education programs has been put to test due to the mass and sudden application of remote learning across educational institutions. Given this, Valverde-Berrocoso et al. (2021) argued for the need of a flexible education system which promotes fairness, equity, accessibility, and creativity. This flexibility in education with ICT integration "requires a redefinition of teacher training model that encourages learning anywhere, anytime" (Valverde-Berrocoso et al., 2021, p. 1). Echoing the emphasis on preparing pre-service teachers for ICT skills in the 'new norm' due to the global pandemic, Nguyen et al. (2022) identified a number of factors that should be thoroughly considered for the ICT integration in ITE programs.

EFL pre-service teacher competence in the 21st century digital age that is constituted from categories of teacher knowledge and dispositional components (Blömeke & Delaney, 2014; Nguyen, 2021) values the integration of ICT pedagogies in initial teacher education. The Technological Pedagogical Content Knowledge (TPACK) was built from Shulman's (1986, 1987) notion of pedagogical content knowledge as a theoretical framework for understanding the utilisation of EFL pre-service teachers' technology knowledge in their preparation. The

technological knowledge is situated within the overlap of content and pedagogical knowledge to form four more categories of interrelated knowledge. Among emerged categories, TPACK regarding "the knowledge required by teachers for integrating technology into their teaching in any content area" (Schmidt et al., 2009, p. 125) was regarded as the basis of good teaching with effective technology integration (Mishra & Koehler, 2006; Schmidt et al., 2009) and focus on opportunity to learn in the program (Schmidt et al., 2011). The EFL pre-service teachers' acquisition of these domains contributes to their professional competence preparation. For example, Turkish pre-service teachers found technological competence as a crucial element to their professional preparation across diverse contexts (Ekrem & Recep, 2014).

In conclusion, research has shown the practices of ICT and CALL integration in the initial teacher education, but further research is needed for a more nuanced understanding of EFL pre-service teachers' perceptions of their CALL-related knowledge preparation in their initial education program. Within available literature, little is known about the preparation of EFL pre-service teachers ICT and CALL integrated knowledge domains in Vietnamese higher education institutions, even though EFL pre-service teachers' voices have been found to be context-dependent (Masoumi, 2021; McGarr & McDonagh, 2021; Tran et al., 2020; Vo et al., 2020). It is worth noting that a few studies have focussed on the influential barriers (Le et al., 2022; Vo, 2019) and limited opportunities for teacher PD in CALL (Mai et al., 2020; Nguyen, 2019), but ignored the CALL-related knowledge preparation for Vietnamese EFL pre-service teachers. To fill this gap, the current study is timely investigating the following research questions:

1. How is the practice of ICT integration into the EFL initial teacher education in Vietnamese higher education perceived?
2. What factors impact the integration of ICT into the EFL initial teacher education in Vietnamese higher education?

3. Theoretical framework

CALL research must be in close line with research on language teacher education and situated in a changing milieu to address the effective integration of CALL technology into teaching practice (Hong, 2010; Hubbard, 2019; Son, 2018). Initial teacher education in CALL focuses on what CALL-related knowledge and skills are taught and how they are taught to prepare pre-service teachers for their teaching. The theoretical framework by Hong (2010) visible in Figure 1 highlights that language teachers' integration of CALL technology into their classroom practice is influenced by three orbital factors: "CALL teacher education, teachers' individual

factors, and contextual factors" (p. 60). The orbit of CALL teacher education in the centre of the sphere emphasises the importance of language teachers' technology integration relative to the factors of teachers' individual beliefs and milieu. The nearer or further distance across orbital factors indicates twofold that (1) CALL teacher education is likely to impact language teachers' individual beliefs regarding their knowledge, skills, attitudes, and perceptions towards CALL technology; and (2) contextual factors and CALL teacher education are relatively interdependent. Hong's (2010) model has been framed to enhance L2 teachers' CALL competence (Son et al., 2011) and further explore the benefits and barriers that Iranian teachers encountered in their practices of CALL (Tafazoli, 2021a). This study adopted Hong's (2010) model as a theoretical framework to inform data collection and analysis to investigate how EFL pre-service teachers perceive the practice of ICT integration into their initial education, how educators voice their teaching practices, and how different factors affect the practice of ICT integration into the EFL initial teacher education in Vietnamese higher education.
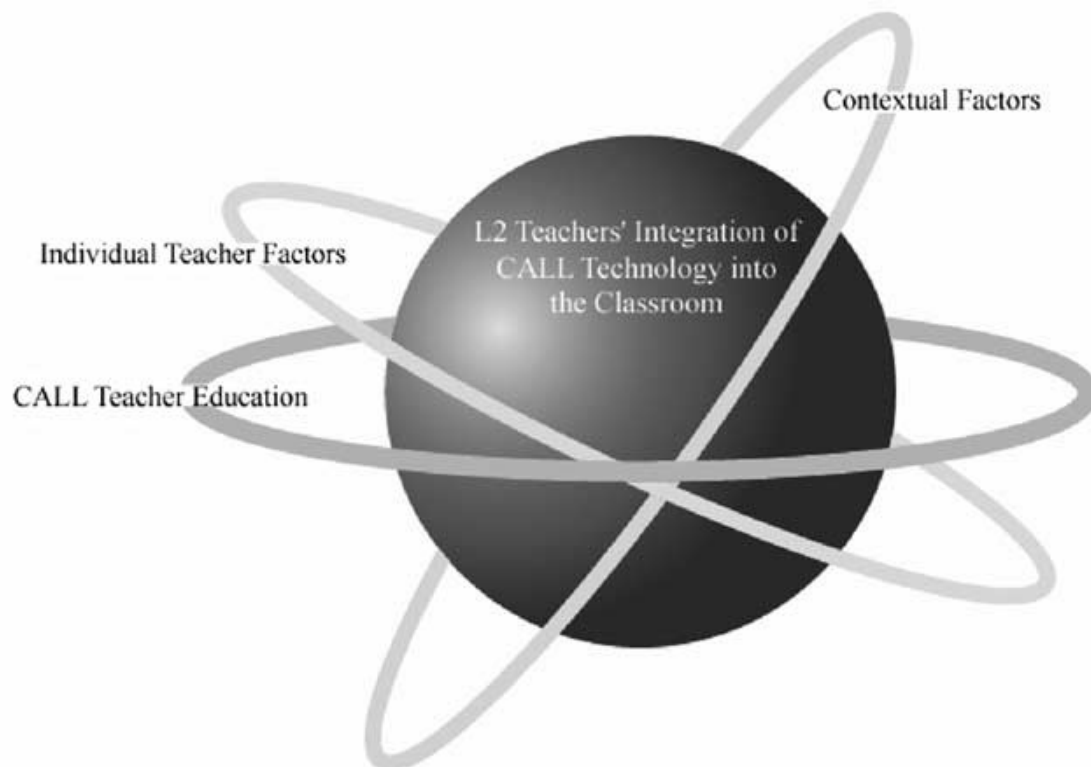

Figure 1. The Sphere Model of L2 teacher's integration of CALL technology into the classroom (Hong, 2010, reduced with permission)

4. Methodology

A convergent mixed-methods design was employed to conduct this research for a number of reasons (Creswell & Guetterman, 2019). First, these researchers claim that the combination of

quantitative and qualitative methods will "provide a better understanding of the research problem and question than either method by itself" (Creswell & Guetterman, 2019, p. 535). Moreover, the use of multiple sources of data will enhance the validity of a study through the triangulation process (Mertens, 2014). The following sections present the context of the study, the instruments and data collection procedure, and data analysis.

4.1. Context of the study

The research site chosen for this study was a leading institution of teacher education located in one of the largest cities in the south of Vietnam. This institution has a long tradition of development with prestigious achievements. It prides itself on the mission of training, fostering teachers, and organising applied research in education and other disciplines to fulfil the needs of high-quality teachers' training, of advanced research for the cause of developments in education, society, and economy of the provinces in Southern Vietnam and the whole country.

4.2. Participants

The current study reported in this article was part of a larger project exploring EFL pre-service teachers' perceived experience in their tertiary initial education in Vietnam (Nguyen, 2021). The participants were sixty-seven EFL pre-service teachers and three EFL teacher educators in the faculty of English language teacher education at a Vietnamese university in southern Vietnam. These EFL pre-service teachers were undertaking their final year of studies in a four-year EFL initial teacher education program and would become English teachers in upper-secondary schools once they had completed their initial education program. They were, at the time of the research conducted, in their current and direct engagement in the 2013-2017 cohort, from 21 to 23 years of age, of both genders (80% female and 20% male), varied in background and English language proficiency, and had completed the school-based teaching practicum. Some participants were from big cities and urban areas, even from the gifted upper secondary schools specialising in English. Some others came from the rural, isolated, and mountainous regions where English teaching and learning had many difficulties and limitations. Three EFL teacher educators were recruited based on the convenience sampling method and had extensive experience in the EFL initial teacher education and curriculum development under research (Table 1).

Table 1. EFL Teacher educators' demographic information

Participant	Gender	Age	Highest qualifications	Years of experience in EFL initial teacher education
E1	Male	20 - 30	Master's Degree	5 – 10
E2	Female	31 – 40	Master's Degree	More than 10
E3	Male	31 – 40	PhD	More than 10

These educators had been teaching in the program for years and working on the curriculum innovations, development, design, and revision within their institutional education programs. They had insightful perspectives about the education programs and policy.

4.3. Instruments and data collection procedure

Surveys, semi-structured focus group interviews, and individual interviews were used as three main instruments of data collection. We chose to conduct a survey because it enabled us to collect a large amount of reliable and valid data regarding the factual, behavioural and attitudinal opinions in a large group (Dörnyei & Taguchi, 2010). The survey consisted of questions that were developed and structured to align with the categories. This part of the survey was developed in a larger project and was well-matched with the context of the current study. The survey was anonymous and included two sections. The first section contained questions to collect participants' demographic data such as gender, higher education institution and the period of studies abroad. The second section was to elicit EFL pre-service teachers' perceptions of how they experienced the current pedagogical practices of CALL-related categories of knowledge in their initial education program. The survey was designed in the form of a 4-point Likert scale from 1 to 4, indicating the different degrees of intensity (*no opportunity = 1, ample opportunity = 4*). The middle point of *neither little opportunity nor some opportunity* as in the 5-point original Likert scale model was purposefully removed from this survey. This removal encourages the final year EFL pre-service teachers to think thoroughly before making their final decision on indicating the extent and degree of *opportunity* that they were provided to learn in their initial program because "there is no absolute standard for the number of response options to be used on Likert scales (and on rating scales in general" (Dörnyei & Taguchi, 2010, p. 8).

The focus group and individual interview questions were developed based on the synthesis of literature and Hong's (2010) framework. The researchers conducted a focus group interview with a team of six EFL pre-service teachers who responded to and provided their

contacts after the survey completion and analysis. The use of focus group interviews was to help the researchers discover the hidden rationales, experiences, perceptions, and perspectives about the themes which emerged from the results of the quantitative data analysis. The focus group interview lasted between 30 and 60 minutes and was audiotaped fully with the permission of the group members. During the focus group, the participants used mostly Vietnamese and sometimes switched to English when they felt comfortable. The focus group was conducted in the classroom, which was convenient for the participants after their class hours. The researchers transcribed the focus group recording. The transcript was then translated into English utilising the back-translation method for data analysis because the final results were to be presented in English (Liamputtong, 2010).

After the focus group interview with EFL pre-service teachers, the researchers employed semi-structured individual interviews with three EFL teacher educators to examine their perspectives about their practices of institutional policy-related administration and pedagogy by collecting meaningful and rich responses because these interviews allowed the researchers to approach "closer to an individual's perspective" (Kayrooz & Trevitt, 2005, p. 10), to capture further in-depth information, to measure attitudes and interests, and to explore perceptions, perspectives, feelings, and values (Johnson & Christensen, 2020). The researchers aimed to contrast the teacher educators' perspectives to EFL pre-service teachers' perceptions of their program that was crucial to provide a contextualisation of their voices.

4.4. Data analysis

The researchers analysed the quantitative data utilising IBM SPSS Statistics 26.0 and used descriptive statistics with the closed-ended questions. The analysis of Cronbach alpha indicated that this part of the survey designed for a larger project and reported in this paper achieved high reliability ($\alpha=0.90$).

The researchers coded the focus group and interview data manually and with the help of NVivo 12 software. Each interviewee was coded with a number plate to protect the confidentiality of the participating pre-service teachers and teacher educators. Inductive thematic analysis was utilised to code the data to identify and report emerging patterns (themes). This inductive method allowed the researchers to explore the richness, depth, and divergence of professional experiences and to identify key patterns that aggregated and emerged from the data through the pre-service teachers' and educators' perspectives and words. The researchers engaged with the identification of themes by adopting an iterative process consisting of steps suggested by Braun and Clarke (2006): data familiarisation, generation of

codes, aggregating and refining themes. This coding process was iterative until the researchers accepted the content and meaning of participants' responses to the questions, as illustrated in Figure 2.
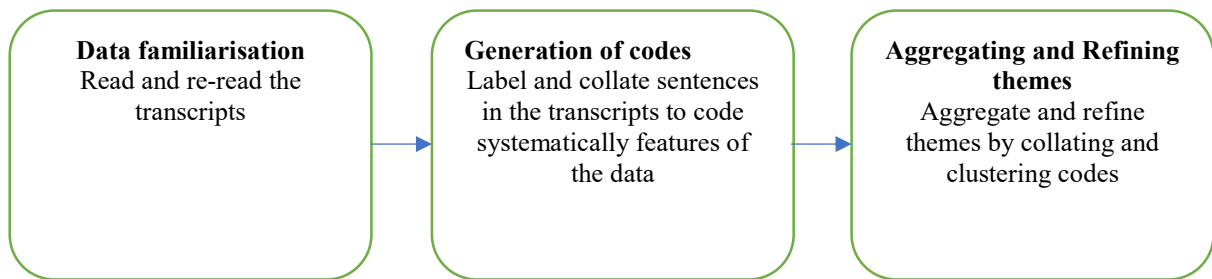

Figure 2. The coding process

Specifically, after reading and rereading through the transcripts several times in the first phase, we created a code of "opportunity to learn CALL knowledge" and assigned it to the transcripts, as appropriate, at the second phase. The researchers added new codes as new content emerged. In the third phase, the researchers analysed data involving selecting one key category and collating all relevant categories to this key core category to aggregate themes based on the data. The researchers selected "opportunity to learn CALL knowledge" as the core category. The researchers coded all focus group and individual interview transcripts independently, placing all illustrative quotes in each category by each participant's self-reported experiences in their initial education program and practices. The researchers compared and checked a cluster of codes under different categories to ensure accurate expression of each participating pre-service teacher and educator. Any inconsistencies were discussed and resolved. The emerging themes represented the EFL pre-service teachers' experiences in an opportunity to learn and educators' perspectives of their practices in the initial teacher education program.

5. Findings

The research reported in this article was part of a larger project investigating EFL pre-service teachers' experience in their initial teacher education in Vietnamese higher education. Using the lens provided by Hong (2010) and focussing on two prominent themes, we were able to explore EFL pre-service teachers' and educators' perceptions of how the practices of ICT and CALL technology are integrated into the Vietnamese tertiary initial teacher education.

5.1. High presence of opportunity to learn CALL-related knowledge

Most of the participating EFL pre-service teachers reveal a high presence of opportunity to learn CALL-related knowledge in their initial teacher education program (M=3.05). Preservice teachers reported that their program provided a high volume of opportunities to learn the 21st century enabling knowledge and skills with a key focus on the digital media technology competences and ICT pedagogies (M=3.33), as illustrated in Table 2. Pre-service teachers had ample opportunity to learn about searching for potential teaching materials and downloading resources from the online sources (M=3.45), using word-processing software to write a worksheet, following standard conventions (M=3.42), creating lessons with downloaded texts, pictures, graphics (M=3.28), and using a data projector for lessons involving the internet or a DVD (M=3.27).

In a similar vein, pre-service teachers reported receiving less opportunity to learn about designing blended learning modules using a learning management system (i.e., Moodle) (M=3.11), using any standard Windows/Mac software, including media players (M=3.09), coordinating project work with digital media (i.e., using a camera, the internet, social networks) (M=3.05), about using any available classroom digital equipment, my mobile, tablet profitably for language learning (M=2.85), organising computer files in logically ordered folders (M=2.81), setting and supervising online work for learners (M=2.64), and selecting and using online exercises appropriate to their personalised needs (M=2.57). However, pre-service teachers reflected that they received little opportunity to learn about troubleshooting the problems with classroom digital equipment (M=2.28).

Responses from the survey participants were supported by a student in the focus group interview who said that she was educated to become a diversified teacher in today's digital age.

> I had the opportunity to learn not only professional competence but also modern, the latest and trendy educational technologies. For instance, I was instructed how to use computer and digital media technologies for online teaching, digital storytelling, and recording and editing teaching video clips. (FG1)

While most EFL pre-service teachers highlighted a high volume of opportunities that their program had provided to learn CALL-related and technology-enhanced knowledge, some interviewees reflected receiving limited opportunity to learn digital media and ICT pedagogies in English language teaching. The other two focus group students expressed their dissatisfaction with the quality of teaching education technology in their English language teaching program, stating that the teaching had not been well prepared and superficial (FG4,

FG3). In this notion, one teacher educator shared that they valued technology-enhanced knowledge preparation for their pre-service teachers. This educator also raised their concerns that the existing curriculum content regarding CALL-related knowledge in the institution was quite outdated. He showed his expectations that "*I would hope how to develop my and other colleagues' professional competence to enhance our teaching practices to meet and satisfy EFL pre-service teachers' needs and demands*" (E1). The interview excerpt emphasised educators' expectations towards more opportunities for continuing professional development to upskill their knowledge and skills.

Table 2. EFL Pre-service teachers' perceptions of opportunity to learn CALL-related knowledge

	Items	Participants (n)	Mean
1.	My program provides me with opportunities to learn about information and communication technology (ICT) pedagogies.	67	3.33
2.	My program provides me with opportunities to learn about using word-processing software to write a worksheet, following standard conventions.	67	3.42
3.	My program provides me with opportunities to learn about searching for potential teaching materials on the internet.	67	3.45
4.	My program provides me with opportunities to learn about downloading resources from websites.	67	3.45
5.	My program provides me with opportunities to learn about creating lessons with downloaded texts, pictures, graphics, etc.	67	3.28
6.	My program provides me with opportunities to learn about organising computer files in logically ordered folders.	67	2.81
7.	My program provides me with opportunities to learn about using software for handling images, DVDs, and sound files.	67	3.22
8.	My program provides me with opportunities to learn about using any standard Windows/Mac software, including media players.	67	3.09
9.	My program provides me with opportunities to learn about using a data projector for lessons involving the internet, a DVD, etc.	67	3.27
10.	My program provides me with opportunities to learn about setting and supervising online work for learners.	67	2.64
11.	My program provides me with opportunities to learn about selecting and using online exercises appropriate to my individual needs.	67	2.57
12.	My program provides me with opportunities to learn about coordinating project work with digital media (e.g., using a camera, the internet, social networks).	67	3.05
13.	My program provides me with opportunities to learn about troubleshooting most problems with classroom digital equipment.	67	2.28
14.	My program provides me with opportunities to learn about using any available classroom digital equipment, my mobile, tablet, etc. profitably for language learning.	67	2.85
15.	My program provides me with opportunities to learn about designing blended learning modules using a learning management system (e.g., Moodle).	67	3.11

In addition, most of the pre-service teachers indicated that they mainly used ICT pedagogies that they had been taught for resource discovery (94.0%), archiving lessons

(91.0%), exchanging information (91.0%), and developing pedagogical materials (79.1%). Meanwhile, they admitted less frequently using technology-related competence for communicating with colleagues and personal organising and planning as elaborated in Table 3.

Table 3. Frequencies of pre-service teachers' purposes of ICT use

	Items	Participants (n)	Frequencies (%)
1.	development of pedagogical material	53	79.1%
2.	archiving lessons	61	91.0%
3.	information exchange	61	91.0%
4.	communication with colleagues	52	77.6%
5.	personal planning	39	58.2%
6.	organisation	42	62.7%
7.	resource discovery	63	94.0%

EFL pre-service teachers' responses were strongly supported by all educators when they were asked about ICT applications in their practices. All of the teacher educators indicated that they used ICT in their teaching practices on a weekly basis. Notably, some educators claimed that they had been integrating ICT into every lesson they had with their pre-service teachers, ranging from using common presentation tools such as MS PowerPoint to complex virtual classroom management platforms like Moodle. One educator shared that, "… *in the current situations, generally speaking, the frequency of using [ICT] is a lot, and this frequency will depend on the applications themselves*" (E2). Educator 2's sharing in the interview excerpt highlighted a high degree of frequent use of CALL and ICT tools in their practices as a daily basis, which agrees with pre-service teachers' reported responses.

5.2. Factors impacting ICT integration in the EFL initial teacher education

Teacher educators perceived that the practice of ICT integration in their program was influenced by a variety of factors. Informed by Hong (2010), these factors included the individual educator obstacles, the provision of infrastructure, the EFL pre-service teacher-related obstacles and the CALL EFL pre-service teacher preparation policies.

5.2.1. Individual educator obstacles

Most of the teacher educators pointed out a number of problems existing among themselves, which prevented the use of ICT or made the ICT use less effective in their teaching practices. To be more specific, the educators were well aware of the influence of their skills, knowledge, and confidence on the use of ICT applications in the lessons for their pre-service teachers. As a result, if such factors were negative, the application of ICT in the EFL initial teacher education

programs would be badly affected or limited. For example, when an educator was not confident with their skills and knowledge about ICT, they would find using CALL technologies time-consuming; and therefore, they would choose not to use them or only use to a limited level.

Another obstacle to using CALL technologies in the educators' teaching practices was the so-called 'fear of change'. Some educators noticed that their colleagues did not want to move away from their familiar teaching style to try new features, for example, ICT applications, fearing that such changes might be too difficult or might not be suitable in their situations.

> The biggest barrier here is the teachers' thoughts, many of them, who are quite old-aged, are afraid of doing it [using ICT]. They keep thinking that it will be too time-consuming, they don't even try it just once, to see that it is good, okay, and there is no problem with it. (E1)

This educator's interview response showed the barriers educators encountered with attention to their anxiety of change when deploying CALL-related and ICT-related activities in their lesson planning and delivery.

5.2.2. Provision of infrastructure

All three interviewed educators shared the views that one of the biggest barriers to ICT use in their context was the limited institutional infrastructure. More specifically, they were most concerned about issues with the infrastructure with respect to the availability and quality of the Internet connection. It was clear that these educators found it difficult, sometimes impossible, to make good use of ICT applications they wanted to use in their lessons if the Internet connection was unstable, unreliable, or even unavailable. The use of mobile internet connection from their mobile phones was only a temporary solution because it was costly and required technical skills from the educators.

In addition, the poor quality of the ICT equipment in class was another problem for the teacher educators. Some educators emphasised that the available equipment in their classes, such as computers, projectors, smart boards, audio systems was unreliable due to the frequent errors whilst using such equipment. They reported facing challenges in troubleshooting such equipment. One of the most optimal solutions was that they had to prepare their own laptops or ended up using traditional ways of teaching instead of blending their lessons with ICT applications. One educator noted that "*Ah ... yes ... I think there are a number of difficulties. Firstly, as you may know, there is Wi-Fi connection here in some buildings, but it is really*

unstable, on and off" (E2). Educator 2's response highlighted issues related to the poor quality of infrastructure, e.g. poor internet connection, at the higher education institution.

An additional issue that many educators mentioned was the limited and slow support they received in cases of technical errors with ICT equipment. When a piece of equipment in the classroom was not functioning properly as it should; for example, a projector was broken down, unable to show images or connect to the computer/laptop, the educator had to call for a technician for support. It was obvious that the educator in this scenario expected a fast and helpful technician to minimise the downtime of the lessons. However, the educators in this study reflected that the technical support they received in such situations was normally slow and limited, which contributed to the obstacles preventing their use of ICT in their EFL initial teacher education programs (E2, E3).

5.2.3. EFL pre-service teacher-related obstacles

Some educators believe that their pre-service teachers' attitude, interest, and readiness are also part of existing barriers to ICT use in their initial education. One educator stated that,

> Ah, generally speaking when I use Moodle with my class, some of them are quite lazy. Actually, sometimes I post the documents online, but they don't log in to get it, so I have to check if they access it regularly, some students do it every two days, some take longer. …. So, it depends on the students. (E2)

The interview excerpt showed issues with regards to individual pre-service teachers' dispositions. Student disengagement in the lesson caused interruption of educators' use of CALL technologies in their classroom.

5.2.4. CALL technology integration policies

All of the interviewed educators claimed that there were no official requirements in their institution regarding the use of ICT in the education programs, or, at least, they had never been aware of any such requirements. According to the educators, their institutions' management boards only encouraged them to use ICT, if possible, to enhance the quality teaching and learning. Therefore, many of the educators explained that their use of ICT in their teaching practices came from their personal interests in ICT and CALL technologies in education. They believed that this was an effective way to help improve their teaching performance and capabilities. Also, one educator expressed their desire for an official institutional guideline or

policy document with a key focus on the implementation and use of ICT applications and CALL technologies in their EFL initial teacher education program, stating that,

> I think, …ah…, there should be a specific requirement because at the moment some people
> may find designing lesson plans and then using online learning platform a bit time and energy
> consuming, but it is only short-term, for long-term, this will have more benefits. (E1)

They argued that this clear policy was necessary for a long-term positive effect on the quality education and training of the institution. One educator highlighted that "*at the moment, it is still at the encouragement level with some directions and the development of the current M-learning platform also serves as a fundamental step to encourage the educators here to use more ICT in their teaching*" (E3).

Educator 3's sharing indicated the inconsistent policies on the integration of ICT and CALL tools into the teaching and learning in the program. No official policy on requirements and guidelines about the CALL technology integration resulted in the variations in educators' practices, which affected the pre-service teachers' learning experience and academic outcomes.

6. Discussion

6.1. The significance of opportunity to learn for professional development

While answering the first research question on the perceived ICT integration in the EFL initial teacher education program, the current study found that EFL pre-service teachers perceived and valued opportunity to learn in their initial education program. For example, the majority of participants were provided with highly present opportunities to learn CALL-related knowledge and skills, which is consistent with findings of a study conducted by Schmidt et al. (2011) stating the important role of learning opportunities with emphasis on domains of knowledge in teacher preparation. The current study argued that the English language teacher education institution structures pre-service teacher competence as an outcome of initial teacher education through their provision of opportunity to learn to the extent that is consistent with the philosophy of the articulation between initial teacher education and actual teaching (Blömeke & Delaney, 2014). This philosophy, which has been dominant in guiding teacher education reforms in the past decades, emphasises the need to enhance teacher knowledge preparation in which teachers are viewed as learners of teaching, what they need to know and can do (Shulman, 1987). The current study has furthered understanding on the provision of opportunity to learn as an important dimension of the quality assurance of the initial teacher

education program. More specifically, the opportunity to learn CALL-related knowledge importantly contributes to preparing pre-service teachers for the technology integration into their competent practices once they complete their initial program (Le et al., 2022; McGarr & McDonagh, 2021; Schmidt et al., 2011; Valverde-Berrocoso et al., 2021).

In addition, qualitative interview analysis showed interesting findings. The interviewed educators expressed their desire for and expectations about their professional development opportunities with key focus on pedagogical and technological competence. These findings concur with the observations in the literature that foreground the teacher educators' needs for continuing professional development with particular attention to their personal demands, interests, and practices through various modes (Nguyen, 2019; Nguyen et al., 2022). By considering various presence of opportunity, the current study contributed to the literature on the integration of ICT and CALL technologies in the initial teacher education where prior research usually explored only a few traits such as use of ICT in the program (Gudmundsdottir et al., 2020), modelling in ICT (Aşık et al., 2020), and extensive attention to digital competence (McGarr & McDonagh, 2021).

6.2. Framed barriers and inconsistent policies

The results showed the factors influencing the integration of ICT and CALL technologies in the initial teacher education with attention to educator-related and pre-service teacher-related challenges, the provision of resources, and policies on CALL teacher education. While educators admitted adverse influence of professional knowledge, skills, confidence, and psychological fear of change on their deployment of CALL activities, pre-service teachers' attitude, engagement and willingness were reported as existing obstacles to ICT- and CALL-integrated initial teacher education. These findings prove that the teacher educators are sure that they are prepared for their personal continuing professional development in many ways and willing to update the trend and innovations (Nguyen et al., 2022). While in agreement with the observations that the educators' attitudes toward technology had a significant impact on their teaching practices (Afshari et al., 2009; Masoumi, 2021), the current study highlighted that although the educators are regarded as agents of change, they would face challenges in accepting the changes for their practices as "technology integration takes time: time to learn about the innovation, time to be adequately prepared to use it" (Afshari et al., 2009, p. 96). In addition, the current study argued that the initial teacher education program provides EFL pre-service teachers with opportunities to learn and practise the CALL-related knowledge in their coursework program to prepare them well for teaching and learning as categories of teacher

knowledge are part of constituents to the EFL pre-service teacher professional competence (Blömeke & Delaney, 2014; Le et al., 2022; Shulman, 1987).

In addition, the analyses of interviews showed issues with the limited quality of infrastructure related to poor internet connectivity, under-resourced and dated ICT equipment, and slow support to troubleshooting technological problems. These findings aligned with previous results that the level and available accessibility of the ICT infrastructure with particular attention to equipment, hardware, and software importantly affect the efficient and effective practice of ICT and CALL technology integration (Aşık et al., 2020; Tran et al., 2020; Valverde-Berrocoso et al., 2021; Vo et al., 2020). The current study argued that the EFL initial teacher education program focuses on the sufficient provision of resourceful opportunities for ICT integration and ongoing support in terms of technology and administration in an appropriate manner as the quality of equipment and infrastructure is also at the core of the support.

The results also noted an absence of policies on official requirements for and guidelines on the implementation of ICT and CALL technologies in the initial teacher education program. Many researchers have argued that the lack of consistent policies and concrete training content has been considered as key barriers influencing the practices of ICT and CALL integration and the consistency across educators' teaching (Peeraer & Van Petegem, 2012; Vo, 2019; Vo et al., 2020). The findings partially corroborate Hong's (2010) findings, sharing three factors, namely, individual educator factors, EFL pre-service teacher-related factors, and contextual factors. Interestingly, the current study further highlighted the factor of CALL integration policy. This distinction suggests that CALL practices and policy on EFL initial teacher education in the context of Vietnamese higher education need further investigation.

7. Conclusion

The study showed that EFL pre-service teachers perceived a high presence of opportunity to learn CALL-related knowledge in their initial education program, and several factors influencing ICT integration in the EFL initial teacher education were identified. These factors were related to the individual educator- and EFL pre-service teacher-related obstacles, the provision of infrastructure, and the policies regarding CALL technology integration. According to Hong (2010), CALL initial teacher education factors, individual educator factors, and contextual factors significantly impact the integration of ICT in the EFL pre-service teachers' initial education. We argued that the preparation of CALL-related knowledge for EFL pre-service teachers with a focus on their opportunity to learn and policies on the implementation

of technology pedagogies in the initial teacher education programs made a pivotal contribution to the practices of ICT or CALL technology integration into the EFL initial teacher education. The study suggests that these components are interdependent with an intertwined relationship across each of them.

It is to be noted from the study that EFL pre-service teachers could be helped to reflect critically on their initial education, which may provide more insights for them to take advantage of the opportunity to learn. Informed by the EFL pre-service teachers' voice, the educators may be able to better scaffold instruction and curriculum content to prepare the EFL pre-service teachers well for their needs with regard to the CALL-related knowledge preparation. The study further highlights the need for educators' continuing professional development in terms of better pedagogical and technical training as well as more administrative support, to propose official policy and explicit guidelines from the institution for the implementation of ICT or CALL technology integration into the ITE programs as the basis for educators' teaching practices.

The study, despite its contribution, has some limitations. For example, the number of participants in the current study was small, and the research site was a higher education institution in southern Vietnam. The findings of this study, therefore, are not meant to be generalised for all EFL pre-service teachers' and educators' views regarding the ICT integration in the initial teacher education in Vietnamese higher education and internationally. In addition, the study does not examine the educators' evaluation of integrating ICT into their pre-service teachers' CALL-related knowledge preparation. Future research may investigate the educators' assessments to gain more insight into their practices. Finally, the program curriculum is a factor impacting the knowledge preparation for EFL pre-service teachers. However, the current study has not explored how the institutions' program curriculum has affected the practices of ICT integration into the initial teacher education. Future studies could be conducted to investigate how the program curriculum influences the educators' practices.

References

Afshari, M., Bakar, K. A., Luan, W. S., Samah, B. A., & Fooi, F. S. (2009). Factors affecting teachers' use of information and communication technology. *International Journal of Instruction*, *2*(1), 77-104.

Aşık, A., Köse, S., Yangın Ekşi, G., Seferoğlu, G., Pereira, R., & Ekiert, M. (2020). ICT integration in English language teacher education: Insights from Turkey, Portugal and Poland. *Computer Assisted Language Learning*, 33(7), 708-731. https://doi.org/10.1080/09588221.2019.1588744

Blömeke, S., & Delaney, S. (2014). Assessment of teacher knowledge across countries: A review of the state of research. In S. Blömeke, F.-J. Hsieh, G. Kaiser, & W. H. Schmidt (Eds.), *International perspectives on*

teacher knowledge, beliefs and opportunities to learn: TEDS-M results (pp. 541-585). Springer. https://doi.org/10.1007/978-94-007-6437-8_25

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77-101. https://doi.org/10.1191/1478088706qp063oa

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE.

Dang, X. T. (2013). *ICT in foreign language teaching in an innovative university in Vietnam: Current practices and factors affecting ICT use* [Doctoral thesis, La Trobe University, Australia].

Dörnyei, Z., & Taguchi, T. (2010). *Questionnaires in second language research: Construction, administration, and processing*. Routledge.

Ekrem, S., & Recep, Ç. (2014). Examining preservice EFL teachers' TPACK competencies in Turkey. *Journal of Educators Online*, *11*(2), 1-22.

Gillespie, J. (2020). CALL research: Where are we now? *ReCALL*, *32*(2), 127-144. https://doi.org/10.1017/S0958344020000051

Granston, C. (2003). Models for integrating technology into teacher training programs. *Florida Association of Teacher Educators Journal, 1*(3), 75-103.

Gudmundsdottir, G. B., Gassó, H. H., Rubio, J. C. C., & Hatlevik, O. E. (2020). Student teachers' responsible use of ICT: Examining two samples in Spain and Norway. *Computers & Education, 152*, 103877. https://doi.org/10.1016/j.compedu.2020.103877

Hong, K. H. (2010). CALL teacher education as an impetus for L2 teachers in integrating technology. *ReCALL, 22*(1), 53-69. https://doi.org/10.1017/S095834400999019X

Hubbard, P. (2008). CALL and the future of language teacher education. *CALICO Journal, 25*(2), 175-188.

Hubbard, P. (2019). Five keys from the past to the future of CALL. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT), 9*(3), 1-13. https://doi.org/10.4018/IJCALLT.2019070101

Johnson, R. B., & Christensen, L. B. (2020). *Educational research: Quantitative, qualitative, and mixed approaches* (7th ed.). Sage Publications.

Kayrooz, C., & Trevitt, C. (2005). *Research in organisations and communities: Tales from the real world*. Allen & Unwin.

Le, T. H., Dinh, T. K. T., Vu, P. L., & Nguyen, T. P. V. (2022). ICT competence of pre-service teachers in Vietnam: Structure and impact model. *Journal of Educational and Social Research, 12*(3), 172. https://doi.org/10.36941/jesr-2022-0076

Liamputtong, P. (2010). *Performing qualitative cross-cultural research*. Cambridge University Press.

Mai, M. T., Nguyen, T. L., Tran, L. N. T., & Le, V. T. (2020). EFL teachers' Facebook groups as online communities of practice: Toward configurations for engagement and sustainability. *CALL-EJ, 21*(3), 140-158.

Masoumi, D. (2021). Situating ICT in early childhood teacher education. *Education and Information Technologies, 26*(3), 3009-3026. https://doi.org/10.1007/s10639-020-10399-7

McGarr, O., & McDonagh, A. (2021). Exploring the digital competence of pre-service teachers on entry onto an initial teacher education programme in Ireland. *Irish Educational Studies, 40*(1), 115-128. https://doi.org/10.1080/03323315.2020.1800501

McGarr, O., & Ó Gallchóir, C. (2020). Exploring pre-service teachers' justifications for one-to-one technology use in schools: Implications for initial teacher education. *Technology, Pedagogy and Education, 29*(4), 477-490. https://doi.org/10.1080/1475939X.2020.1784261

Meihami, H. (2021). A narrative inquiry into Iranian EFL teacher educators' voice about challenges of CALL teacher education. *Teaching English with Technology, 21*(2), 92-111.

Mertens, D. M. (2014). *Research and Evaluation in Education and Psychology: Integrating Diversity With Quantitative, Qualitative, and Mixed Methods*. SAGE Publications.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054.

Nguyen, T. H. N. (2019). Teachers' implementation of computer-assisted language learning in the context of educational change in Vietnam. In V. C. Le, T. M. H. Nguyen, T. T. M. Nguyen, & R. Barnard (Eds.), *Building teacher capacity in English language teaching in Vietnam* (pp. 133-149). Routledge. https://doi.org/10.4324/9780429457371

Nguyen, T. L. (2021). *Investigating students' perceptions of Vietnamese tertiary English education* [Unpublished PhD thesis, The University of Newcastle]. Newcastle, Australia.

Nguyen, V. T., Sit, H. H., & Chen, S. (2022). An exploration of developing ICT-related pedagogical strategies in the professional development of EFL teachers in Vietnam. In A. W. B. Tso, A. C.-k. Chan, W. W. L. Chan, P. E. Sidorko, & W. W. K. Ma (Eds.), *Digital communication and learning: Changes and challenges* (pp. 203-220). Springer Singapore. https://doi.org/10.1007/978-981-16-8329-9_11

Peeraer, J., & Van Petegem, P. (2011). ICT in teacher education in an emerging developing country: Vietnam's baseline situation at the start of 'The year of ICT'. *Computers & Education, 56*(4), 974-982. https://doi.org/10.1016/j.compedu.2010.11.015

Peeraer, J., & Van Petegem, P. (2012). Information and communication technology in teacher education in Vietnam: From policy to practice. *Educational Research for Policy and Practice, 11*(2), 89-103. https://doi.org/10.1007/s10671-011-9106-9

Rana, K., & Rana, K. (2020). ICT integration in teaching and learning activities in higher education: A case study of Nepal's teacher education. *Malaysian Online Journal of Educational Technology, 8*(1), 36-47. https://doi.org/10.17220/mojet.2020.01.003

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009). Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. *Journal of Research on Technology in Education, 42*(2), 123-149. https://doi.org/10.1080/15391523.2009.10782544

Schmidt, W. H., Cogan, L., & Houang, R. (2011). The role of opportunity to learn in teacher preparation: An international context. *Journal of Teacher Education, 62*(2), 138-153. https://doi.org/10.1177/0022487110391987

Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14. https://doi.org/10.2307/1175860

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-23. https://doi.org/10.17763/haer.57.1.j463w79r56455411

Son, J.-B., Robb, T., & Charismiadji, I. (2011). Computer literacy and competency: A survey of Indonesian teachers of English as a foreign language. *CALL-EJ, 12*(1), 26-42.

Son, J. B. (2018). *Teacher development in technology-enhanced language teaching*. Palgrave Macmillan.

Tafazoli, D. (2021a). Affordances of computer-assisted language learning in Iranian higher education: A qualitative inquiry. *Lenguas Modernas, 58*, 55-70.

Tafazoli, D. (2021b). CALL teachers' professional development amid the COVID-19 Outbreak: A qualitative study. *CALL-EJ, 22*(2), 4-13.

Tran, T., Phan, H., Le, H., & Nguyen, H. (2020). ICT integration in developing competence for pre-service mathematics teachers: A case study from six universities in Vietnam. *International Journal of Emerging Technologies in Learning (iJET), 15*(14), 19-34. https://doi.org/10.3991/ijet.v15i14.14015

Valverde-Berrocoso, J., Fernández-Sánchez, M. R., Revuelta Dominguez, F. I., & Sosa-Díaz, M. J. (2021). The educational integration of digital technologies preCovid-19: Lessons for teacher education. PL*OS ONE, 16*(8), e0256283. https://doi.org/10.1371/journal.pone.0256283

Vo, P. T. N. (2019). *An investigation of ICT policy implementation in an EFL teacher education program in Vietnam*. Unpublished PhD thesis. Edith Cowan University.

Vo, T. K. A., Pang, V., & Wah, L. K. (2020). Evaluating Vietnam's pre-service English teacher education program for technology integration in education. *CALL-EJ, 21*(3), 8-22.

PRE-SERVICE EFL TEACHERS AS DIGITAL MATERIAL DESIGNERS: A CASE STUDY INTO THE TPACK DEVELOPMENT IN THE TURKISH CONTEXT

by **Işıl Günseli Kaçar**

Middle East Technical University, Ankara, Turkey

isil @ metu.edu.tr

Abstract

Pre-service teachers of the 21st century are expected to be equipped with both pedagogical and digital competence. In fact, teacher education programs should give prospective teachers the opportunity of becoming the designers of their own lessons instead of dictating them certain ways of integrating technology. The pre-service teacher education programs tend to fail to equip prospective teachers with a sound TPACK knowledge base, which is likely to pose a challenge for them in the way of effective technology integration. The aim of the 10-week qualitative study was twofold: (1) to examine the TPACK development of the English as a Foreign Language (EFL) pre-service teachers of English in Turkey at a private K-12 school and 2) to investigate how Turkish pre-service teachers' TPACK knowledge was reflected in their digital materials. 24 pre-service EFL teachers who took the elective course "Designing and Using Digital Materials for ELT" in the spring semester of the 2020 and 2021 academic year and 9 in-service EFL teachers at a private K-12 school participated in the study. Purposeful sampling was used for the participant selection. The data were collected via pre-service teachers' reflective journals as well as a technology integration observation instrument (for in-service teachers) (Harris et al., 2010) and analyzed via content analysis. The findings revealed that the pre-service teachers reported gains in terms of all the components of the TPACK framework (Koehler & Mishra, 2009) in varying degrees, with an enhanced awareness towards the purposeful integration of technology, content, and pedagogy.

Keywords: technology integration; digital literacy; technological pedagogical content knowledge (TPACK) development; pre-service teachers; digital materials

1. Introduction

Today's language teachers are expected to possess "more than just so-called 21st century skills" such as creativity, collaboration, critical thinking, and problem-solving" (Tafazoli, 2021a, p. 604). Being proficient in digital literacy is regarded as "a survival skill" for the 21st century teachers (Eshet-Alkalai, 2004, p. 101). In this paper, digital literacy is defined as "an ability to interpret, manage, share and create meaning in the growing range of digital communication channels" (Tafazoli et al., 2017, p. 716). It is essential not only to enhance the future teachers' digital skills but also to teach them how to transfer these skills into real classroom contexts (see Tafazoli, 2021a, 2021b). There seems to be a shift in emphasis on recent Computer-Assisted

Language Learning (CALL) research from "*whether or not* to integrate language instruction to language teaching to "*how, when* and *for what purpose* technology can be effectively integrated (Nami, 2021, p. 578) (see also Labbas & El Shaban, 2013). Today's teachers are supposed to integrate their CALL-related literacy into their course/lesson planning, implementation, and evaluation (Nami, 2021). To manage students who "have access to anything they want to learn on their own, at any time" (Baskerville, 2012, p.119). 21st century teachers are expected to provide effective technology-enhanced instruction (Egbert et al., 2011).

The above-mentioned language teacher profile is also expected in the Turkish context (Kımav & Kürüm-Yapıcıoğlu, 2021). In fact, the Council of Higher Education stated that teacher candidates are supposed to operationalize their content-area and pedagogical knowledge via their Information Communication Technology (ICT) skills and to use these ICT skills effectively in teaching (Brittingham et al., 1999). Turkish pre-service teachers are expected to be equipped with well-developed technological pedagogical content knowledge (TPACK) to be able to effectively integrate technology into their future teaching practices. The Turkish Ministry of National Education also included digital competencies as one of the general competencies for teachers in the K-12 context (Directorate General for Teacher Training and Development, 2017). However, since Turkish pre-service teacher education programs fail to provide teacher candidates with a sound TPACK basis for effective technology integration, the pre-service teachers tend to encounter considerable challenges in this regard. Although technology integration has been investigated in teacher education and professional development (Nazari & Xodabande, 2020), there seems to be a lack of concentration on the pre-service teachers' technopedagogical development (Tafazoli, 2021b). Considering the paucity of research on the pre-service teachers' digital literacy development in the Turkish context (e.g., Koçoğlu, 2009; Kurt et al., 2014), the current study investigates the TPACK development journey via a digital material design project as well as how the Turkish pre-service EFL teachers' TPACK knowledge is reflected in these digital materials.

The current study addressed the following research questions:

1. In what ways did a digital EFL material design project contribute to the TPACK development of Turkish pre-service EFL teachers in a pre-service language teacher education program?

2. How was the Turkish pre-service EFL teachers' TPACK knowledge reflected in their digital EFL materials in the project?

2. Literature review

2.1. The theoretical framework: Technological Pedagogical Content Knowledge (TPACK)

TPACK is an extended version of Shulman's (1986) categorization of knowledge for teaching content via technology (Mishra & Koehler, 2006). It has been introduced as a conceptual framework for teacher knowledge for effective technology integration (Mishra & Koehler, 2006). It focuses on "the integration of content, pedagogical and technological knowledge" which is mostly neglected in teacher education and professional development programs (Tafazoli, 2021b, p.6). It is considered "context-bound" (Mishra & Koehler, 2006, p.1032). Thus, it contributes to the integration of technology into education significantly by adopting content knowledge as the basis (Tafazoli, 2021b).

TPACK is acknowledged to have "a transformative perspective" as it views learners and context as an integral component of the TPACK teachers have (Rosenberg & Koehler, 2015, p. 188). It includes several knowledge components as follows (Rosenberg & Koehler, 2015, p. 187): the knowledge of technology (TK), the knowledge of pedagogy (PK), the knowledge of content (CK).

The abovementioned knowledge components combine to form the following parts of the framework (Rosenberg & Koehler, 2015, p.187): technological pedagogical knowledge, pedagogical content knowledge (PCK), and technological content knowledge (TCK) (See Figure 1).
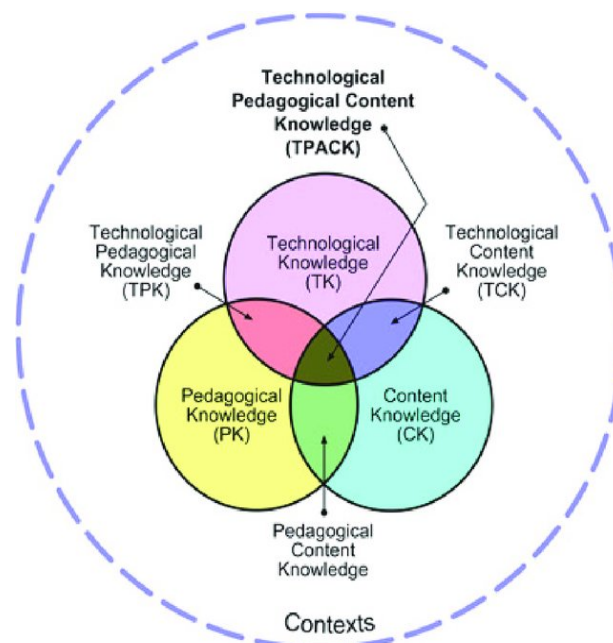

Figure 1. The TPACK framework (used with permission from http://tpack.org)

TPACK facilitates teachers' understanding of technology use regarding the following issues (Harris et al., 2009):

a) Gaining a basic understanding of the relevant concepts

b) Customizing content teaching in line with the learners' needs

c) Developing familiarity with the challenges regarding teaching concepts

d) Raising awareness of the students' understanding of technological and content-related issues

e) Constructing knowledge to support student learning.

Although TPACK provides a theoretical framework for technology integration for teachers, it "offers no specific directives about *what* content to teach… *which* pedagogical approaches are useful… and *what* kinds of technologies to use in teaching" (Mishra et al., 2011, pp. 23-24). It fails to provide a clear road map for teachers as to how to benefit from it for professional development purposes (Mouza, 2011). Recently, a further dimension has been added to the TPACK Framework: Contextual Knowledge (XK) (Mishra, 2019), which is of "critical importance to teachers" (Mishra, 2019, p. 2). The lack of contextual knowledge is argued to constrain the sphere of the effectiveness of TPACK development or effective technology integration (Mishra, 2019). In the current study, XK was added as an additional dimension of TPACK.

2.2. TPACK and technology integration in the English language pre-service teacher education context in Turkey

The studies into technology integration and TPACK in the Turkish pre-service language teacher education were limited. While some studies focused on the TPACK development and perspectives of pre-service EFL teachers, others concentrated on the design and evaluation of computer-assisted courses and training programs for prospective teachers of EFL or the pre-service teachers' TPACK levels. Regarding the studies on the TPACK-related perceptions and TPACK development of pre-service teachers, Koçoğlu (2009) suggested that the pre-service teachers' engagement in a CALL language learning course in the Turkish higher education context promoted their TPACK development and the integration of TPACK into classroom practices. In a similar vein, Kurt et al. (2013) investigated the TPACK development of Turkish pre-service teachers of EFL engaged in collaborative technology-integrated lesson design and implementation in authentic classroom settings. The study revealed a statistically significant rise in TK, TPK, TCK, and TPACK scores of prospective teachers. However, Çetin-Berber and Erdem (2015) pointed out that while CK and PK had a significant contribution to pre-service

teachers' TPACK development, TK was not found to predict TPACK development significantly.

Regarding the studies concerning technology-enhanced course design and evaluation in the pre-service language teacher education context in Turkey, Ekmekçi (2021) investigated the impact of a CALL syllabus design aligned with the TESOL Technology Standards for Language Teachers for pre-service teacher training in a state university. The findings demonstrated a statistically significant improvement in the prospective teachers' ICT competencies and TPACK knowledge. In another study, Solak and Çakır (2014) revealed no significant difference concerning the participants' academic achievement level and their TPACK knowledge, but a significant impact of gender on the participants' TPACK competency. On the other hand, Aşık et al. (2020) highlighted insufficient preparation of pre-service EFL teachers for technology integration and ICT competencies in the undergraduate programs in Turkey. They emphasized the restricted access to technology resources and inadequate training of pre-service teachers regarding technological competencies along with the scarcity of institutional support and teacher educators who successfully integrate technologies into their classroom practices.

In a recent study on the impact of teacher education strategies on pre-service teachers' TPACK, Baran et al. (2017) found that the implementation of the strategies outlined in the Synthesis of Qualitative Evidence (SQD) model was likely to be useful in teacher education programs to maximize pre-service teachers' TPACK-practical levels. Providing pre-service teachers with opportunities for ongoing feedback and evaluation related to their competencies and for designing technology-enhanced lessons in pre-service teacher education programs was indicated to foster the pre-service teachers' effective use of technology. Examining TPACK research in the Turkish context, Baran and Canbazoğlu Bilici (2015) indicated that the quantitative surveys and scales were the main source of data collection, and the pre-service teachers were the most common participant group. In addition, science and maths were the two academic fields where TPACK research is conducted. The researchers also pointed out the limited number of TPACK studies focusing on the design and application of TPACK. They emphasized the need for more studies on how TPACK knowledge is reflected in practice in teacher education programs.

3. The current study

3.1. The research design

The current study adopted an exploratory qualitative case research design aiming at an in-depth investigation of a phenomenon in its local context (Yin, 2009). Exploratory case study design is employed to investigate the situations where the outcomes of the intervention embedded in the study design are not clearly foreseen and where the cause-effect relationship among variables is not clear (Yin, 2003). As the current study is concerned with the exploration of the TPACK development of senior Turkish pre-service EFL teachers and how this development is reflected in the digital materials that they created, the case study was considered an appropriate research design.

3.2. Participants

Twenty-four Turkish pre-service EFL teachers of English (14 female and 10 male pre-service teachers) who took *FLE 470 Designing and Using Digital Materials for English Language Teaching* (ELT) course at an English-medium urban state university and 8 English teachers in the spring semester of the 2020 and 2021 academic year participated in the study. The purposeful sampling strategy was utilized for the selection of the participants. It is a common sampling strategy employed in qualitative research to identify and select information-rich cases to utilize the existing resources effectively (Patton, 2002). The senior pre-service teachers who were simultaneously involved in teaching English in real classroom settings as part of their practicum were included in accordance with the aims of the study. They were doing their practicum at different urban state K-12 schools in central Anatolia. Due to the administrative constraints, it was not possible for them to perform their internship at the private urban K-12 school where the study was conducted. The participants, aged between 22 and 38, were motivated prospective teachers who were committed to ongoing professional development. The pre-service teachers passed an institutional English language proficiency exam with grades that correspond to IELTS 7.0/TOEFL IBT 110/CEFR C1. They were estimated to have an advanced level of proficiency in English. Prior to their involvement in the study, they completed all the ELT methodology courses offered in their undergraduate studies and a basic digital literacy course. None of them had any prior teaching experience in a real classroom setting nor were they involved in designing digital teaching materials.

Moreover, nine English teachers voluntarily participated in the study who acted as mentors in the study. Each teacher was responsible for a specific grade level from kindergarten to Grade 8. They had a range of teaching experience from 3 to 10 years and were chosen via an online technology integration questionnaire (Ertmer et al., 2006) and an online interview. The

Cronbach Alpha coefficient of the survey was 0.76, a moderate level of reliability. The teachers with a relatively high level of computer proficiency and digital literacy who viewed intrinsic factors as being more influential than extrinsic factors in their decisions on technology integration (M=4.51) were invited for a semi-structured Zoom interview. Those who were found to be committed to integrating technology into their classroom practices actively and enthusiastically were included in the study.

3.3. The study context

The digital material preparation project was integrated into an elective course *Designing and Using Digital Materials for ELT* for senior pre-service EFL teachers at an urban state university in Turkey. The course aimed to highlight the theoretical frameworks for technology integration into language teaching, approaches to CALL, CALL tools, and TPACK in language education.

The project was launched in the fourth week of the 14-week course. 14 pre-service teachers were involved in the digital material preparation process for the primary school and 10 for the middle school.. The pre-service teachers worked in pairs. There were 12 pairs of pre-service teacher participants in the study. The pre-service teachers in the study were allowed to choose their pairs and the grade level (from kindergarten to Grade 8) where they would work. Each English teacher in the primary school division was matched with two pairs of pre-service teachers while there was a one-on-one match between the pairs and the English teachers in the middle school division. Each pair was responsible for creating digital teaching materials for different language skills in ELT under the supervision of their mentor teachers at the K-12 school. The pre-service teachers were provided with online guidance, detailed and constructive online feedback by their mentor teachers at the K-12 school throughout their digital materials development process. The course instructor, who was also the researcher, acted as a coordinator in the project. The timetable for the data collection can be seen in Table 1 in Appendix A.

3.4. Data collection instruments

The study data were collected via pre-service teachers' reflective journals, the online semi-structured interviews with the pre-service teachers and the English teachers as well as the technology integration observation instrument. The reflective journals contained open-ended questions exploring the main insights pre-service teachers gained via their digital material preparation experience and the challenges they encountered in the material preparation process as well as their TPACK development. The pre-service teachers wrote individual reflection

journals related to each digital material they produced in the study. The total number of reflections for each pre-service teacher was three.

As for the semi-structured interviews with the participants, they were composed of open-ended items concerned with their perceptions regarding the benefits and challenges of the project experience and the TPACK development of the pre-service teachers. The semi-structured interviews with the pre-service teachers were concerned with the insights they gained into their TPACK development, the benefits of the project for their professional development, and their challenges in the project. The interview templates for both parties can be seen in Appendix B.

The Technology Integration Observation Instrument developed by Harris et al. (2010) aimed to evaluate "the quality technology integration in an observed lesson" (p. 3840). The Cronbach's alpha reliability of the scale was calculated to be .911 (Harris et al., 2010). It was composed of six categories using a four-point Likert scale. The following categories were incorporated into the instrument: "(1) Curriculum goals and technologies; (2) instructional strategies and technologies; (3) technology selection(s); (4) fit; (5) instructional use; and (6) technology logistics" (p. 3840). The categories are assigned a score from 1 to 4, with explanations. The first four categories are concerned with the instructional plans while the last two categories are related to the implementation of these plans (Harris et al., 2010). Hence, in the current study, only the first four categories were employed for the evaluation of the pre-service teachers' digital materials. The first category of the instrument was related to the alignment between technology and curriculum in the digital materials. The second category was related to the interrelation between instructional strategies and technologies. The third one addressed the teachers' technology preferences. The fourth category was pertinent to the alignment among content, pedagogy, and technology (Harris et al., 2010).

3.5. Data collection and analysis procedures

The data in the study were collected via the following procedures. The pre-service teachers uploaded their reflections to the Google Drive folders that were formed for them by the course instructor, along with the digital materials they produced in the study.

In relation to the technology integration observation instrument forms, the English teachers at the K-12 school (mentor teachers) filled in a digital evaluation form regarding the technology integration for each digital teaching material produced by each pair in the project, and they uploaded these evaluation forms to the Google Drive folders of the pre-service teachers that they were mentoring.

As regards the semi-structured interviews, at the end of the study, both the English teachers and pre-service teachers were interviewed online regarding their project experience. Each interview lasted 45 minutes and was recorded online via Zoom. The semi-structured interview templates can be found in Appendix B. The online interviews with the mentor teachers and the pre-service teachers were transcribed by the course instructor later on. The written consent forms were obtained from the pre-service teachers and the mentor teachers regarding the use of their data for research purposes.

Qualitative content analysis was used to analyze the data in the study. It is one of the methods utilized in qualitative research for data analysis and interpretation (Schreier, 2012). In content analysis, the aim is to derive concepts describing the phenomenon of interest by forming categories, a conceptual map, or systems via the reduction of the data (Elo & Kyngäs, 2008). To ensure the trustworthiness of the data analysis, the researcher collaborated with a colleague from her department who is experienced in qualitative data analysis, to enhance "the comprehensivity and … the sound interpretation of the data" (Elo et al., 2014, p. 5). The researcher and her departmental colleague were initially engaged in reading the total data set iteratively through a constant comparative method and identified the relevant data parts for research purposes (Lincoln & Guba, 1985). Later on, they formed codes based on similar meanings in the data. Next, they created categories based on similar codes and combined similar ones to develop new categories. Finally, they created main themes and sub-themes that emerged from these categories. In case of a lack of consensus over the categories and themes in the data, both coders convened and negotiated any divergent ideas on the categorization issues until they came to an agreement. The interrater reliability was calculated at .95, which signifies a substantial agreement (Landis & Koch, 1977).

The online semi-structured interview data from the pre-service teachers and the mentors were transcribed by the course instructor and the departmental colleague. Subsequently, the transcribed data were sent to both parties for member checking. The pre-service teachers' data from the online interviews were triangulated with their written online reflections. Moreover, the data from the online interviews with the mentor teachers were triangulated with the data from technology observation instrument forms. The triangulation of the data from different sources and member checking was employed to further enhance the trustworthiness of the study (Elo et al., 2014). Figure 2 illustrates the phases of the data analysis in the study.
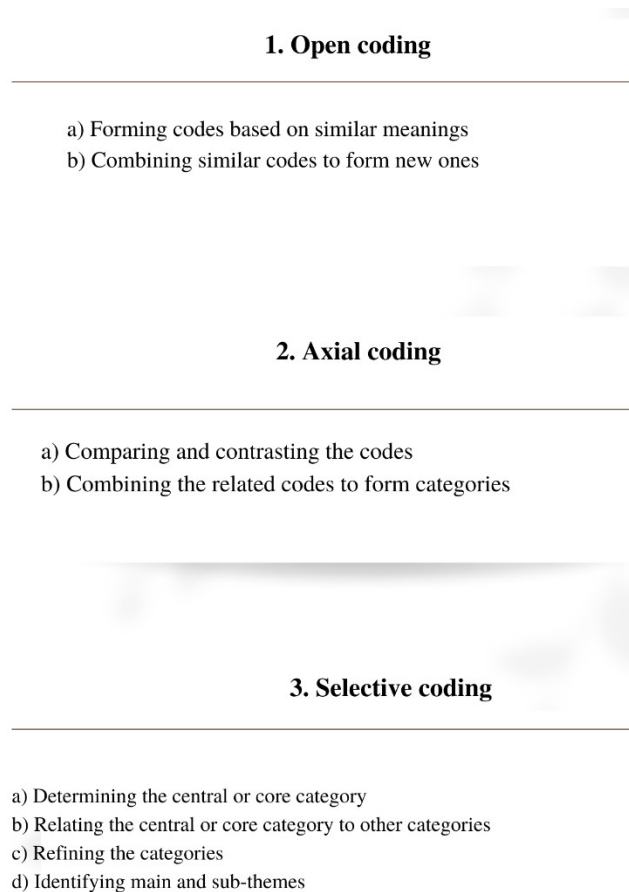
1. Open coding

a) Forming codes based on similar meanings
b) Combining similar codes to form new ones

2. Axial coding

a) Comparing and contrasting the codes
b) Combining the related codes to form categories

3. Selective coding

a) Determining the central or core category
b) Relating the central or core category to other categories
c) Refining the categories
d) Identifying main and sub-themes

Figure 2. Qualitative data analysis phases in the study (Strauss & Corbin, 1990)

4. Findings

The findings are presented in line with the research questions in the study.

4.1. Contribution of the digital material project to the TPACK development of the Turkish pre-service EFL teachers

Regarding the pre-service teachers' perceptions of their TPACK development journey, they indicated their consensus on the multiple benefits of their project involvement for their professional development in the reflective journals. The pre-service teachers mentioned that the flexibility built into the project as well as their mentors' ongoing support and constructive detailed feedback contributed to their teacher-agency development. The liberty pre-service teachers in the study were granted to become designers of their own digital materials promoted their autonomy and self-efficacy as prospective teachers and their TPACK development. The project enabled their engagement in a "bottom-up process" of "technology integration in language education" where they "should be in charge of conducting their professional development" (Tafazoli, 2021b, p. 12). The pre-service teachers acknowledged certain

challenges during their TPACK journey in their digital material development process. However, they managed to overcome them by collaborating with their partners. They also remarked that their mentors' affective support acted as a booster for their emerging teacher self.

The pre-service teachers in the project concurred that the emphasis on the integration of content, pedagogy, and technology in the project with a holistic perspective toward effective technology integration into education (Tafazoli, 2021b). In addition, the inclusion of the context into the picture, which appears to be the neglected element in TPACK (Kelly, 2010), required the pre-service teachers to consider the grade level, the student characteristics, and the types of available technologies (see Mishra & Koehler, 2006). The project emphasized that learners and the context should be "integral to teachers' TPACK" (Rosenberg & Koehler, 2015, p. 188).

Technological Knowledge (TK)

The pre-service teachers in the study reported an increase in their confidence to integrate technology into the digital material preparation process. In their journals, they indicated that they added new e-tools and websites into their professional repertoire thanks to their participation in the project. The pre-service teachers not only enhanced their familiarity with the new e-tools but also gained hands-on experience with these tools, raising their awareness towards the ease of use, challenges, and the sphere of applicability of these tools to teach different language skills. In his reflective journal, Participant 6 (Grade 2) voiced the development in his technological skills in the following way:

> Ed-puzzle helped us attain our objectives. Thanks to this material preparation process, we
> learned about this site better and discovered many of its features.

Pedagogical Knowledge (PK)

The pre-service teachers referred to pedagogical knowledge in their reflective journals or in the online semi-structured interviews very rarely. This might be attributed to their familiarity with the methodologies for teaching English to young learners through the course they took prior to their involvement in the study. However, one participant (P1- Grade 2) indicated her PK development in the study in the following way:

> I learned a lot in this study. One of them is the characteristics and needs of the age group we
> work with. I learned that we can attract them to the lesson with colorful visual materials and
> provide an effective revision activity.

Technological Content Knowledge (TCK)

The pre-service teachers in the study pointed out that becoming a digital material designer enhanced their creativity and problem-solving skills, which echoes Hughes' (2005) transformation function of technology-supported pedagogy. The project engagement provided the teacher candidates with an opportunity to bring creative solutions to their challenges through problem-solving activities (Hughes, 2005). Participant 5 (Grade 3) illustrated her project engagement in this regard as follows:

> When we found that the crossword puzzle feature of Wordwall is not free, we looked for some other digital platforms, like puzzle maker., discoveryeducation.com, rif.org. We thought that puzzle.org is the most appropriate one since it has a basic interface and allows interactive crossword puzzles.

The participants underlined that their project engagement shifted their role from passive consumers of technology to active technology users seeking proactive solutions to their challenges. They turned into autonomous teachers with a high level of agency.

Technological Pedagogical Knowledge (TPK)

The pre-service teachers in the study indicated in their reflective journals and during the semi-structured interviews how content they were to have improved their TPK. Participant 10 (Grade 7) stated that the project engagement helped her internalize the pedagogical concept of differentiated instruction and provided her with an opportunity to prepare differentiated activities to achieve the learning objectives she was given. She voiced her sentiments as follows:

> The most important insight that I have acquired thanks to this project is that we should follow the same objective(s) while preparing different versions of the same task.

Some pre-service teachers reported that their project engagement served as an eye-opening pedagogical experience for them as it helped them be informed of how to prepare engaging and informative digital instructional materials for young learners. As they had no prior teaching experience with this group of learners, they were not familiar with the teaching materials geared towards these learners. Participant 9 and Participant 10 (Grade 3) respectively illustrate their views in this respect:

> I think this process helped me understand the young learners' needs better. To make our material appeal to our 3rd grade students, we used cartoons in our questions as well as crossword puzzles (P9).

> We have learned how important it is to integrate visuals to our digital materials for young
> learners. We tried to find a web tool that has the feature of uploading pictures (P10).

The prospective teachers appreciated their course instructors' and their mentors' guidance and scaffolding throughout the project regarding the purposeful integration of technology into pedagogy. They emphasized their appreciation for collaborating with mentors who are equipped with techno-pedagogical competence (Tafazoli, 2021b). This finding is inconsistent with that of Aşık et al. (2020), who showed that language teacher education programs had no or very little institutional support and few teacher educators competent in technology integration into their classroom practices.

Pedagogical Content Knowledge (PCK)

Relatively few teachers highlighted the project gains concerning PCK, which might be attributed to their completion of all the ELT methodology courses prior to their involvement in the project. In these courses, they were exposed to different language teaching approaches, methods, strategies, and techniques, prepared and implemented lesson plans, in micro-teaching conditions (see also Tafazoli, 2021b). The following comments by Participant 1 and Participant 2 (Grade 2) respectively indicated the benefits of the project in terms of PCK:

> I learned new strategies as to how to promote students' higher-order thinking and creative
> thinking skills in online learning environments (P1).
> During this material preparation process, I learned how important it is to write the instructions
> as simple and understandable as possible, especially for young learners (P2).

Although P1 and P2 expressed their familiarity with the basic principles of teaching young learners through their methodology courses, they did not have any prior hands-on digital material preparation experience. Despite being aware of the importance of activating their students' creative thinking skills and of giving clear instructions, they admitted that they did not know how to create activities and materials to achieve these goals, particularly in a technology-enhanced lesson.

Content Knowledge (CK)

In terms of content knowledge, the pre-service teachers reported the digital material design project helped develop their content knowledge related to teaching young learners. They indicated that while the course *Teaching English to Young Learners*, which they took prior to their engagement in the project, enriched mostly their conceptual knowledge, they were not

engaged in preparing any digital learning materials for young learners in that course. Their practical experience was limited to one microteaching only. The pre-service teachers emphasized that their mentors' guidance helped them expand their content knowledge in terms of preparing digital instructional materials for young learners. The following quote by Participant 4 (Grade 3) is represented in this respect: "This digital material preparation journey helped me learn how to prepare appropriate materials for children."

Contextual Knowledge (XK)

Due to their lack of familiarity with the learner profile and the learning environment at the private school in the study, the pre-service teachers found it hard to align the difficulty level of their teaching materials with the level-specific learner profile, which is shown in the following quote by Participant 2 (Grade 2): "… we realized that we were working with a profile that was very different from the student profile we thought at the beginning of the project."

The lack of contextual knowledge of the pre-service EFL teachers in the study was due to the fact that they were not doing their practicum at the private K-12 school where the study was conducted. This goes opposite to the findings of Phelps et al.'s study (2021), where the pre-service teachers were provided with an opportunity to improve their contextual knowledge through their engagement in field experiences.

4.2. The reflection of Turkish pre-service EFL teachers' TPACK knowledge in their digital materials

Regarding the second research question in the study, two overarching themes emerged in relation to how pre-service teachers' TPACK knowledge was reflected in their digital materials. These included the relatively successfully integrated TPACK components into the digital materials (PK, CK, and TK) and relatively poorly integrated TPACK components into the digital materials (PCK, TPK, TCK, and XK).

The pre-service teachers were found to integrate their PK, CK, and PCK into their digital materials relatively successfully. From a PK perspective, the mentors' evaluations of the pre-service teachers' level of technology integration revealed that the pre-service teachers tended to align the pedagogical goals with the instructional strategies in their materials successfully. This might be attributed to their already existing pedagogical knowledge. In fact, M1, who was an English teacher in the third grade, made the following comment regarding how pre-service teachers reflected their pedagogical knowledge in the technology integration evaluation form:

> With this instrument, students can easily practice the topic. While multiple-choice questions are
> helpful for eliciting/ revising the topic, open-ended questions are beneficial for punctuation and
> spelling as well as grammar.

Mentor 1 indicated the successful integration of the pre-service teachers' PK in the form of instructional strategies:

> With the help of the instrument, students can focus on the form (the superlative). Also, students
> practice not only grammatical rules but also the spelling and punctuation.

During the semi-structured interviews, the mentor teachers remarked that the majority of the pre-service teachers gained new insights into the instructional strategies and the types of activities that were likely to appeal to young learners in the project.

As regards the CK, although the mentors had a consensus on the pre-service teachers' general understanding of the types of content (i.e., classroom activities and tasks) for young learners, they pointed out the need for the latter to refine their content knowledge so that they could integrate technology into their digital material design process effectively.

From the PCK standpoint, during the semi-structured interviews, the mentor teachers mentioned the pre-service teachers' challenge to prepare differentiated teaching materials for young learners. The mentors reported their need for continuous guidance and scaffolding concerning the differentiation of digital materials for young learners. This might be due to the insufficient emphasis on differentiated instruction in the pre-service EFL teacher education curriculum in the Turkish context. However, the mentors' engagement in an ongoing constructive feedback provision process, their clear guidance, and continuous support for the pre-service teachers helped the latter overcome their challenges in this respect. Even though the pre-service teachers did not feel competent in how to differentiate their digital materials at the beginning of the project, the mentor teachers highlighted their gains in this respect, which might contribute to their PCK during the project.

As regards the TK perspective, the mentor teachers also pointed out that the pre-service teachers had a moderate level of TK during the interviews. The former reported observing the latter's familiarity with quite a few e- tools and websites for teaching different language skills in English. The e-tool and website presentations by the course instructor and their peers as well as the hands-on practice with the tools and websites during the technology course appeared to raise the technological self-efficacy level of the pre-service teachers. As the mentors pointed out, although the prospective teachers were initially challenged to integrate some technological devices and resources with which they lacked familiarity, their experiential learning experience in the project helped them develop their TK.

Even though the pre-service teachers appeared to be able to integrate the pedagogical and content knowledge, on the whole, mentors suggested that the pre-service teachers had certain challenges while integrating their PCK, TPK, TCK, and XK, in addition to TK (see Kurt et al., 2014). As regards the pre-service teachers' TCK integration, the mentor teachers reported that, along with their challenge related to the integration of their CK into the digital material preparation process, the pre-service teachers expressed difficulty aligning technological tools and resources with a specific content they would create. However, the ongoing feedback cycle embedded in the digital material preparation process and their regular online interaction with their mentor teachers throughout the digital material preparation process enabled the pre-service teachers to choose the appropriate tools for their activities after their initial confusion.

In fact, one of the mentor teachers (Mentor 1- the kindergarten level) expressed her satisfaction with the pre-service teachers' tool choice:

> Bamboozle is a very good choice for very young learners with its differentiated tasks, the student-friendly interface and the formative assessment feature.

As for the pre-service teachers' integration of their TPK into the digital instructional materials, the mentor teachers indicated the pre-service teachers' challenges regarding the skillful integration of the technological tools into the pedagogical activity design in line with the characteristics of the learner profile in focus. The former reported that the final products were sometimes not conducive to the learning process of the young learners fully as the pre-service teachers were not always able to align technology and pedagogy in ways appropriate to the learner profile.

From an XK standpoint, the mentor teachers emphasized the pre-service teachers' lack of knowledge of the students' educational background and the learning environment at the K-12 school posed a challenge for them. They were not thoroughly familiar with the organizational and contextual constraints in the learning environment at the private school. The lack of such contextual knowledge seemed to affect their digital material design process unfavorably initially. Thus, they found it hard to tailor the difficulty level of their digital materials to the students' proficiency levels. However, through their mentors' guidance and the ongoing feedback, they managed to accommodate the digital materials they prepared to the pedagogical characteristics and proficiency levels of the intended target audience in the final version of their materials.

5. Discussion

This study is significant as it highlighted an under-researched topic in the Turkish context, which is the pre-service teachers' experiences regarding digital materials design for a real audience in collaboration with English teachers in the Turkish K-12 context. It enhances our understanding of the TPACK development of pre-service EFL teachers and the pre-service teachers' digital content creation experiences in a real learning environment (see Baran & Canbazoğlu Bilici, 2015; Baran et al., 2017; Çetin-Berber & Erdem, 2015; Koçoğlu, 2009; Kurt et al., 2014).

The study findings demonstrated that the digital materials design project helped pre-service teachers develop their TPK, TCK and XK mostly as well as their TK and CK to a certain extent (See Kurt et al., 2014). This may be attributed to the design of the project and the technology course where the project was integrated. The pre-service teachers in the study worked in close online collaboration with the English teachers at the private K-12 school. The mentors' provision of regular, detailed, and constructive feedback for the prospective teachers helped them promote the latter's contextual knowledge about the target K-12 student profiles in different grades at the private school. The mentors' provision of sample digital materials they were using in the institution and their guidance and modeling for the pre-service teachers' technology integration process seemed to enhance their understanding of how to align their activity types with the pedagogical aims of the activity (PK), the characteristics of the target learner profile (young learners) (CK) as well as with the technology selection (TCK). The pre-service teachers also benefitted from the project engagement in terms of TPK as well when their mentor teachers provided them with feedback about the strong and weak points of the digital materials and some suggestions for further improvement.

The pre-service teachers also appreciated their mentors' showing them what is/is not likely to work in the real classroom context. The course design where the pre-service teachers were engaged was also conducive to their TPACK knowledge gains as well, which is consistent with the previous research (Angeli & Valanides, 2009). Adopting a technology course design which includes TPACK instruction was found beneficial for the pre-service teachers' TPACK development. However, when pre-service teachers are actively engaged in different ways of technology integration as well as implementing their techno-pedagogical knowledge via hands-on experiential activities in class, they are likely to obtain full benefit in terms of TPACK knowledge enhancement (Krause et al., 2017). It is also argued that the pre-service teachers should be engaged in the technology implementation systematically (Ottenbreit-Leftwich, 2010). The study results concerning the development of XK and TK as the integral elements of

meaningful technology integration (Mishra, 2019) corroborate the findings of Phelps et al. (2021). The rise in the TPACK levels of pre-service teachers might also be attributed to their engagement in an experiential learning experience (see Seels et al., 2003). The structured guided and monitored nature of the digital materials creation experience enhanced the benefits for the pre-service teachers (Lim & Hang, 2015).

The current study findings are not in line with the previous research that pointed out the lack of institutional support and teacher educators who exhibit competency in technology integration in the pre-service teacher education context (Aşık et al., 2020). However, the findings are aligned with Ekmekçi (2021), indicating the benefits of a structured CALL course for the TPACK development of pre-service teachers. The autonomy-inducing nature of the project involvement highlighted by the pre-service teachers was also revealing, which echoes Tafazoli's (2021b) emphasis on "the bottom-up" nature of the technology integration process. Acting as the designers of their own materials is likely to play an important role in enhancing the pre-service teachers' agency which, in turn, promotes their teacher self-efficacy.

6. Conclusion

The study revealed that involvement in a structured and guided TPACK development experience is likely to play an important role in pre-service teachers' internalization of the mutual relationship between different parts of the TPACK framework (Phelps et al., 2021). In fact, it highlighted "the transformative perspective" of the TPACK, with an emphasis on the integral nature of learners and context (Rosenberg & Koehler, 2015, p. 188). Just as it was the case in the current study, granting the pre-service teachers the autonomy to design their digital materials for real learners for specified learning outcomes under the supervision of English teachers competent in technology integration may help them become self-directed teachers with well-developed technological competencies. Such prospective teachers might feel more efficacious and more competent to integrate technology into their classes in the future.

Although this study indicated the pre-service teachers' TPACK development, the lack of a teaching component in the study may have constrained the degree of development. As indicated in Mishra and Koehler (2006), "merely knowing how to use technology is not the same as knowing how to teach with it" (p. 1033). In fact, the degree of pre-service teachers' exposure to technology integration and instruction determines the level of TPACK development for prospective teachers (Lee & Tsai, 2010). Hence, integrating this TPACK development experience into the practicum course where the prospective teachers can implement their digital materials in a real learning environment might enable them to build a bridge between theory

and practice (see Gawrisch et al., 2020). The integration of the TPACK development into course work is likely to be beneficial for the development of CK, XK and TCK, and TPK, which are relatively hard to develop out of context (see also Phelps et al., 2021). Despite the limited number of participants and the relatively limited duration of the study, findings of the study may provide insights for EFL teacher educators in similar contexts regarding how to promote the pre-service EFL teachers' TPACK development through authentic digital material design experiences.

Regarding future research, the technology integration practices of teacher candidates who have digital content creation experience prior to their practicum might be compared to the practices of those in the practicum period with no prior experience in digital content creation. Furthermore, the pre-service and in-service teachers' perspectives towards the integration of technology into ELT might be worth investigating in the future. Last but not least, the relationship between in-service teachers' beliefs about technology integration and their technology integration practices might be considered as an area of further investigation.

References

Angeli, C., & Valanides, N. (2009). Epistemological and methodological issues for the conceptualization, development, and assessment of ICT-TPCK: Advances in technological pedagogical content knowledge (TPCK). *Computers & Education, 52*, 154-168. https://doi.org/10.1016/j.compedu.2008.07.006

Aşık,A., Köse, S., Ekşi, G.Y., Seferoğlu, G, Pereira, R., & Ekiert, M. (2020). ICT integration in English language teacher education: Insights from Turkey, Portugal and Poland. *Computer Assisted Language Learning, 33*(7), 708-731. https://doi.org/10.1080/09588221.2019.1588744

Baran, E., & Canbazoğlu Bilici, S. (2015). A review of the research on technological pedagogical content knowledge: The case of Turkey. *Hacettepe University Journal of Education, 30*(1), 15-32.

Baran, E., Canbazoğlu Bilici, S., Albayrak Sari, A., & Tondeur, J. (2017). Investigating the impact of teacher education strategies on preservice teachers' TPACK. *British Journal of Educational Technology*, *50*(1), 357-370. https://10.111/bjet.12565

Baskerville, D. (2012). Integrating on-line technology into teaching activities to enhance student and teacher learning in a New Zealand primary school. *Technology, Pedagogy and Education, 21*(1), 119-135. https://doi.org/10.1080/1475939X.2012.65988

Brittingham, B., Sands, M., Erbas, S., Kavak, Y., Tarhan, L., Ayas, A., Vancı Osam, Ü., Özsoy, V., Topbaş, S., Ardac. D., Badavan. Y., Cephe, P. T., Ok, A., Paker, T., & Tercanlıoglu, L. (1999). *Türkiye'de öğretmen eğitiminde standartlar ve akreditasyon [The standards and accreditation in the Turkish teacher education]*.YÖK/ DÜNYA BANKASI Milli Eğitimi Geliştirme Projesi Hizmet Öncesi Öğretmen Eğitimi.

Çetin-Berber, D., & Erdem, A. R. (2015). An investigation of Turkish pre-service teachers' technological, pedagogical and content knowledge. *Computers, 4*, 234-250. https://doi.org/10.1080/1359866X.2014.932332

Directorate General for Teacher Training and Development (2017). General competencies for teaching profession 2017 report. https://oygm.meb.gov.tr/meb_iys_dosyalar/2018_06/29111119_TeachersGeneralCompetencies.pdf

Egbert, J., Akasha, O., Huff, L., & Lee, H. G. (2011). Moving forward: Anecdotes and evidence guiding the next generation of CALL. *International Journal of Computer-Assisted Language Learning and Teaching, 1*(1), 1-15. https://doi.org/10.4018/ijcallt.2011010101

Ekmekçi, E. (2021). Pursuing a standardized content of a CALL course for pre-service EFL teachers: The procedure, impacts, and reflections. *Computer Assisted Language Learning,* 1-35. https://doi.org/10.1080/09588221.2021.1968913

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A focus on trustworthiness. *Sage Open*, *4*, 1-10. https://10.1177/2158244014522633

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing, 62*, 107-115. http://dx.doi.org/10.1111/j.1365-2648.2007.04569.x

Eshet-Alkalai, Y. (2004). Digital literacy: A conceptual framework for survival skills in the digital era. *Journal of Educational Multimedia and Hypermedia, 13*(1), 93-106.

Ertmer, P. A., Ottenbreit-Leftwich, A., & York, C. S. (2006). Exemplary technology-using teachers: Perceptions of factors influencing success. *Journal of Computing in Teacher Education, 23*(2), 55-61.

Gawrisch, D., Richards, K., & Killian, C. (2020) Integrating technology in physical education teacher education: A socialization perspective. *Quest, 72* (3), 260-277. https://doi.org/10.1080/00336297.2019.1685554

Harris, J., Grandgenett, N., & Hofer, M. (2010). Testing a TPACK-based technology integration assessment rubric. In C. D. Maddux, D. Gibson, & B. Dodge (Eds.), *Research highlights in technology and teacher education* (pp. 323-331). Society for Information Technology & Teacher Education (SITE).

Harris, J., Mishra, P., & Koehler, M. (2009). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology integration reframed. *Journal of Research on Technology in Education, 41*(4), 393-416. https://doi.org/10.1080/15391523.2009.10782536

Hughes, J. E. (2005). The role of teacher knowledge and learning experiences in forming technology-integrated pedagogy. *Journal of Technology and Teacher Education, 13*, 277-302.

Kelly, M. (2010). Technological pedagogical content knowledge (TPACK): A content analysis of 2006-2009 print journal articles. In D. Gibson & B. Dodge (Eds.), *Proceedings of SITE 2010--Society for Information Technology & Teacher Education International Conference* (pp. 3880-3888). Association for the Advancement of Computing in Education (AACE).

Kımav, A. U., & Kürüm-Yapıcıoğlu, D. (2021). A blended INSET program design for technopedagogical development in teaching English. *The Turkish Online Journal of Educational Technology, 20* (3), 1-23.

Koçoğlu, Z. (2009). Exploring the technological pedagogical content knowledge of pre-service teachers in language education. *Procedia - Social and Behavioral Sciences, 1,* 2734-2737.

Krause, J.M., Franks, J., & Lynch, B. (2017). Current technology trends and issues among health and physical education professionals. *The Physical Educator, 74*(1), 164-180.

Kurt, G., Mishra, P., & Koçoğlu, Z. (2013, March). *Technological pedagogical content knowledge development of Turkish pre-service teachers of English*. [Paper presentation]. 24th Society for Information and Teacher Education (SITE) International Conference, New Orleans, LA., U.S.A.

Kurt, G. , Akyel, A , Koçoğlu, Z , & Mishra, P . (2014). TPACK in practice: A qualitative study on technology integrated lesson planning and implementation of Turkish pre-service teachers of English. *ELT Research Journal, 3* (3), 153-166.

Labbas, R., & El Shaban, A. (2013). Teacher development in the digital age. *Teaching English with Technology, 13*(3), 53-64.

Landis, J., & Koch, G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*, 159-174.

Lee, M. H., & Tsai, CC. (2010). Exploring teachers' perceived self-efficacy and technological pedagogical content knowledge with respect to educational use of the World Wide Web. *Instructional Science, 38*, 1-21. https://doi.org/10.1007/s11251-008-9075-4.

Lim, C. P., & Hang, D. (2003). An activity theory approach to research of ICT integration in Singapore schools. *Computers & Education, 41*(1)*,* 49-63. https://doi.org/10.1016/S0360-1315(03)00015-0

Lincoln, Y., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.

Mishra, P. (2019) Considering contextual knowledge: The TPACK diagram gets an upgrade. *Journal of Digital Learning in Teacher Education, 35*(2), 76-78. https://doi.org/10.1080/21532974.2019.1588611

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*, 1017-1054. https://doi.org/10.1111/tcre.2006.108.issue-6

Mishra, P., Koehler, M. J., & Henriksen, D. (2011). The seven trans-disciplinary habits of mind: Extending the TPACK framework towards 21st century learning. *Educational Technology, 51*, 22-28.

Mouza, C. (2011). Promoting urban teachers' understanding of technology, content, and pedagogy in the context of case development. *Journal of Research on Technology in Education, 44*(1), 1-29.

Nami, F. (2021). How computer-assisted language learning literacy is conceptualized in research: A general review. *Aula Abierta, 50*(2), 577-584. https://doi.org/10.17811/rifie.50.2.2021.577-584

Nazari, M., & Xodabande, I. (2020). L2 teachers' mobile-related beliefs and practices: Contributions of a professional development initiative. *Computer Assisted Language Learning*, *35*(7), 1354-1383. https://doi.org/10.1080/09588221.2020.1799825

Ottenbreit-Leftwich, A. T. (2010, February). *Teacher technology professional development and policy in the United States*. [Working paper No.20]. Giovanni Agnelli Foundation. https://www.fondazioneagnelli.it/wp-content/uploads/2017/08/A._T._Ottenbreit-Leftwich_Teacher_Technology_Professional_Development_-_FGA_WP20_01.pdf

Patton, M.Q. (2002). Two decades of developments in qualitative inquiry: A personal, experiential perspective. *Qualitative Social Work, 1*(3), 261-283.

Phelps, A., Colburn, J., Hodges, M., Knipe, R., Doherty, B., & Keating, D. X. (2021). A qualitative exploration of technology use among pre-service physical education teachers in a secondary methods course. *Teaching and Teacher Education*, *5*, 1-11. https://doi.org/10.1080/1359866X.2010.541601

Rosenberg, J., & Koehler, M. (2015). Context and technological pedagogical content knowledge (TPACK): A systematic review. *Journal of Research on Technology in Education, 47*(3), 186–210. https://doi.org/10.1080/15391523.2015.1052663

Schreier, M. (2012). *Qualitative content analysis in practice*. Sage.

Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(4), 4-14. https://doi.org/10.3102/0013189x015002004

Seels B., Campbell S., & Talsma V. (2003). Supporting excellence in technology through communities of learners. *Educational Technology Research and Development, 51*(1), 91-104.

Solak. E., & Çakır, R. (2014). Examining preservice EFL teachers' TPACK competencies in Turkey. *Journal of Educators Online, 11*(2), 1-22. http://dx.doi.org/10.9743/JEO.2014.2.2

Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques.* Sage.

Tafazoli, D. (2021a). Language teachers' professional development and new literacies: An integrative review. *Aula Abierta, 50*(2), 603-614. https://doi.org/10.17811/rifie.50.2.2021.603-614

Tafazoli, D. (2021b). CALL teachers' professional development amid the COVID-19 outbreak: A qualitative study. *CALL-EJ, 22*(2), 4-13.

Tafazoli, D., Gómez Parra, M. E., & Huertas Abril, C. A. (2017). Computer literacy: Sine qua non for digital age of language learning & teaching. *Theory and Practice in Language Studies, 7*(9), 716-722. http://dx.doi.org/10.17507/tpls.0709.02

Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Sage.

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Sage.

Appendix A. Timetable for the Data Collection

Weeks (Duration: 10 weeks)	Procedures
Week 1	Online Zoom meeting with pre-service teachers to discuss the project procedures
Week 2	Pre-service teachers' work on their first digital materials
Week 3	Pre-service teachers' first online draft material submissions to their mentors Mentors' online feedback provision (via e-mail, Zoom, or WhatsApp)
Week 4	Pre-service teachers' revisions on their first draft materials and their final online material submissions to their mentors
Week 5	Pre-service teachers' work on their second digital materials
Week 6	Pre-service teachers' second online draft material submissions to their mentors Mentors' online feedback provision
Week 7	Pre-service teachers' revisions on their second draft materials and their final online material submissions to their mentors
Week 8	Pre-service teachers' work on their third digital materials
Week 9	Pre-service teachers' online submissions of their third draft materials to their mentors Mentors' online feedback provision
Week 10	Pre-service teachers' revisions on their third draft materials and their final online material submissions to their mentors

Appendix B.

a) **The Semi-structured Interview Template for the Pre-service Teachers**

1. What are the main insights you gained into the digital material preparation process?

2. What are the challenges that you encountered during the digital material preparation process?

3. What do you think of the feedback you received from your mentor? How did your mentor's feedback affect your digital material preparation process?

4. How did your project involvement affect your TPACK development as a prospective teacher?

b) **The Semi-structured Interview Template for the English Teachers**

1. What are the benefits of the digital material preparation project experience for the pre-service teachers?

2. What are the challenges of the digital material preparation project experience for the pre-service teachers?

3. What are your perceptions of the TPACK development of the pre-service teachers in the project?

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