An Exploration of Developing ICT-Related Pedagogical Strategies in the Professional Development of EFL Teachers in Vietnam

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Abstract In the ever-changing educational environment, the application of information and communication technology (ICT) continues to emerge as an urgent trend for teacher educators in all subject areas. This has never been more so the case until the Covid-19 crisis, which has seen a massive push for online learning as students, teachers, and school communities everywhere have been forced to adapt to unprecedented challenges as a result of the pandemic. Recent studies reveal that in-service K-12 English as a foreign language (EFL) teachers are facing a pedagogical problem of how to use ICT to teach their students in Vietnam. Consequently, preparing in-service teachers for ICT skills in the "new norm" due to the global pandemic is urgently needed. This paper attempts to explore effective pedagogical strategies for ICT-related EFL teacher professional development (PD) in the current Vietnamese education context. It aims to identify which factors should be taken into account when an ICT-related teacher training program is implemented. Qualitative-oriented research methods using meta-synthesis and document review were employed in this study, revealing five important factors that are explored in this paper. The study is significant in providing more insights into what effective practice-oriented pedagogical strategies are needed to facilitate teachers to enhance their ICT-related skills for K-12 EFL teachers in Vietnam. It is also anticipated that the findings will help bridge the gap between theory and practice of ICT-related teacher PD in Vietnam, and in countries where there are contextual similarities.

Keywords Professional development · Training for ICT · Policies · EFL teachers · Pedagogical strategies · Instructional design

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1   Introduction

Educational technology development in the twenty-first century has been moving at a faster rate than it has ever done before. For example, it took thousands of years for humans to invent the first cassette, followed by the CD in 1980 (Pohlmann, 1989), and then the USB flash disk, which appeared in the late 1990s (Welch & Lamphier, 2019). However, it took only mere decades for the cassette, which was invented in 1963, to be mostly replaced with new digital mobile devices such as MP3 players and by cloud-based services through the use of smartphones (Dholakia et al., 2015). This changing world, and the pace at which it is moving, is not likely to stop. Some of these devices now mostly exist as icons, such as the floppy disk, which is typically used to represent the saving of documents in word-processing apps and programs (Nayyar, 2019). Numerous studies from the existing literature have examined how education in the twenty-first century has been changing in alignment with the innovation and proliferation observed in technological science. The recent Covid-19 pandemic, in particular, has resulted in a global paradigm shift from traditional face-to-face teaching to online education. Consequently, upskilling teachers in ICT use is not simply a trend but also a must if current educational systems around the world are to continue to operate. Throughout the pandemic, it has not been possible to rely solely on traditional face-to-face classrooms to deliver teaching and learning in schools; as such, the application of ICT in education has become vital for teacher educators across all subject areas. The unprecedented outbreak of the pandemic has also meant that a great number of teachers have had to quickly learn how to deliver online teaching using technologies such as Zoom, MS Teams, Google Meet, and/or other asynchronous learning platforms. English as a foreign language (EFL) teachers and teacher trainers in Vietnam are no exception, being faced with the pedagogical problem of how to use ICT to teach EFL to K-12 students during the pandemic. This domain of knowledge needs to be updated by teachers in order to meet the requirements in their teaching contexts. Therefore, one of the solutions to the problem being implemented by the government of Vietnam is continuing teacher professional development (PD) with in-service formal training programs. However, there is currently a lack of support for EFL teacher trainers to explore pedagogical strategies for ICT-related PD training in the Vietnamese education context.

This paper aims to identify which contributing factors should be taken into account when an ICT-related K-12 EFL teacher training program is implemented in Vietnam in the current context. To answer the question, the paper attempts to present a meta-synthesis of the literature on the PD of ICT for in-service teachers in both international and Vietnamese educational contexts. The procedures include (1) the outlining of key literature on ICT-related teacher PD; (2) synthesizing literature on pedagogical strategies for ICT-related in-service teacher PD and training; and (3) proposing appropriate strategies that can help to shed light on the raised research problem.

2 Literature Review on ICT-Related Teachers' PD

2.1 The Global Context

The emergence of technological innovation and its proliferation in the twenty-first century has meant that teachers have had to upskill their pedagogical technological competence. "Many education ministries already understand that overhauling teacher training programs and upskilling their current teachers—in English and in other subjects—must be their top priorities" (First, 2019, p. 40). Polizzi (2020) also emphasizes that teacher training programs should be accompanied by innovative curricula and pedagogy to promote digital literacy, as echoed by Trucano (2005), who has suggested that "teacher training and on-going, relevant professional development are essential if benefits from investments in ICTs are to be maximized", but that "the existence of ICTs alone does not transform teacher practices" (p. 35). Similarly, Philipsen et al. (2019) also highlight the need for teacher training in language teacher education.

Various models of teacher PD and training have been proposed in the literature over the years. However, some of these are considered too general to employ (Clarke & Hollingsworth, 2002; Kennedy, 2005; Neil, 1986), while others were developed for specific contexts of different countries (Khan, 2014; O'Sullivan, 2001; Warriem et al., 2014) or for teachers in other subjects (Ho et al., 2013). For instance, O'Sullivan (2001), who conducted a study in Namibia with primary teachers of English, proposed a model for in-service teacher training. Built in action research with face-to-face modality of delivery, the model entails the following process: (1) needs assessment, (2) organization, (3) determination of contents, (4) training, (5) follow-up, and (6) evaluation. While practical, one shortcoming of this model is that it overstates its generalization and translation into other contexts. Khan (2014), who suggested a three-phase model, proposed that a model of integrating ICT into teacher training programs in Bangladesh based on TPCK should be implemented in three phases: Phase 1 (Pre-service, potential teachers), Phase 2 (In-service teachers), and Phase 3 (On-going: optional). It can be argued that the three phases combined are the theoretical base of teacher PD itself. To make the model more practice-oriented, it is recommended that the three phases be elaborated so that they may facilitate practitioners to articulate its use better. Ming et al. (2010), who support smart schoolteachers' continuing PD in and through ICT with a model based on a virtual platform, encourage users to add captions in video clips to promote more interaction. It can be argued, however, that enhancing teacher PD in and through ICT by adding captions in video clips in a virtual platform may not be a panacea.

2.2   The Context of ICT-Related EFL Teachers' PD in Vietnam

Since coming into being, the Doi Moi (innovation) policy has brought forth a new image of national identity, enhancing the new need for foreign language education to meet the multifaceted impacts of globalization in Vietnam. As a result, some direct policies have been breathing new life into innovation in English language teaching (ELT) in its educational system (Le & Chen, 2018).

Investment in language education, and in educational technology, has received increasing attention. In 2008, the Government of Vietnam made a decision on the teaching and learning of foreign languages in its schooling system (see No.1400/QD-TTg on Teaching and Learning Foreign Languages in the National Education System, Period 2008–2020). This project is worth a budget of approximately USD 446.43 billion (Le, 2019). The project is now being extended to 2025 and is commonly known as the NFLP 2025. In 2017, the Government of Vietnam approved the national project for the education sector to strengthen ICT application in management, in support of teaching and learning, scientific research, and contributing to quality education for the period of 2016–2020, with vision to 2025 (The Government of Vietnam, 2017). In 2019, the Ministry of Education and Training Vietnam released a Decree Nº 2268/CT-BGDĐT on missions and solution to education in which ICT is considered as a major solution to educational development including EFL as a subject (MoET, 2019).

As a result of the above policy, in-service English teacher training has been implemented nationwide with financial investment from annual budgets on education. In particular, the Vietnamese NFLP 2025 is regarded as having given a fresh impetus to the domain of teacher PD. The implementation of such teacher training programs entails more related research conducted in the discipline of CALL and ICT policies in Vietnam. However, most of these studies focus on higher education aspects. Whereas there is a paucity in research on K-12 ICT-related teacher PD.

Given that ICT-related educational reform in ELT is one important part of their strategic vision, the Government of Vietnam implements training for in-service teachers of English (ITE), especially within their plan of the NFLP 2008–2025. Le (2019) confirms that "80% of the total budget of US$446.43 million for the Project was allocated to teacher training" (p. 12). As aforementioned, despite the ambitious investment on English language education and teacher training, the effectiveness of these is open to question. Research shows that ITE in Vietnam is struggling with new challenges including those related to language competencies and teaching methods (Bui & Nguyen, 2016; Doan & Hamid, 2019; Huong, 2016), when benchmarked against the Vietnamese English Teacher Competency Framework (ETCF) and other international standards. Teachers' previous study programs at their colleges and universities cannot meet the requirements in high demand of the current situation. A report by Ky et al. (2016) points out that only a small percentage of elementary, lower secondary, and upper secondary schoolteachers meet the standards of language competence required by the MoET at 37.19, 36.71, and 26.12%, respectively.

In the social-cultural context of Vietnam, a teaching position is mostly life-long tenured, and in-service schoolteachers are those who participate in training the future workforce, including pre-service teachers. Therefore, they need to be well-trained. As K-12 teachers lay the foundation for school students in future higher education, they cannot be ignored in the realm of research, which is a sine qua non for improvement in teacher PD and training. However, there has been little discussion about specific solutions to the matters addressed in terms of ICT-related pedagogical strategies for teacher PD. This is pertinent to current problems of in-service teachers' ICT skills. There is an urgent need to enhance Vietnamese in-service EFL teachers' ICT skills and TPACK (Mishra & Koehler, 2006) in order to ameliorate their teaching quality for the benefit of all students nationwide. Technological pedagogical knowledge, the driving force for this study, is one of the three main components of the TPACK framework by Mishra and Koehler (2006). Koehler and Mishra (2005) first introduced their framework entitled TPCK (Technological Pedagogical Content Knowledge), and "the name TPACK (pronounced "tee-pack") emerged as a substitute" for TPCK in 2007 (Thompson & Mishra, 2007, p. 38). The TPACK framework shows that content knowledge without pedagogical technical knowledge cannot guarantee quality of teaching.

In Vietnam, it was not until 2014 that a course about CALL could be found in national training programs for in-service EFL teachers. Nevertheless, there is now still a dearth of research-based pedagogical strategies regarding this issue. With a lens of an insider as teacher trainer of ICT in ELT for both tertiary and K-12 teachers in Vietnam since 2014, the first author of this study has witnessed teachers struggling with ICT skills within their training programs. This reality is aligned with the findings of many other researchers (Le & Song, 2018; Ngo, 2016; Nguyen, 2019; Pham et al., 2018) with regard to the current situation of ICT literacy of ITE in this country. The crux of the matter in the status quo of training ICT skills for ITE in Vietnam is that a study on pedagogical strategies for this field is proposed. Pedagogical strategies are defined as "policies to decide the next system action when there are multiple ones available" (Chi et al., 2011, p. 137).

Regarding ICT literacy in ELT, some researchers indicate that teachers at both higher and K-12 education sector are at a low standard level (Le & Song, 2018; Ngo, 2016; Nguyen, 2019; Pham et al., 2018). Recent literature shows that in comparison to "content knowledge, professionalism, multicultural, and classroom management dimensions" (p. 161), ICT use of K-12 teachers is rated as less competent (Nguyen & Tran, 2018). Pham et al. (2018) conclude that the ICT use of EFL teachers in Vietnam is mostly at the second level of the SAMR (Substitution, Augmentation, Modification, Redefinition) model. The second level (Augmentation) is described as teachers' ability to apply technology in teaching activities with functional improvements without being able to analyze or redesign them (Hamilton et al., 2016).

The above literature review shows that teacher upskilling is a focal point in educational curriculum policies of the Vietnamese government. To implement any training, pedagogical strategies are paramount to ensure the success of a training program. However, there has been little research on the pedagogical approaches in training ICT knowledge and skills for EFL teachers at both K-12 and higher education sectors.

Most existing research topics in the Vietnamese education context focus on ICT use for language education and educational policies on ICT implementation in higher education (Dinh, 2015; Hoang, 2015; Ngo, 2016; Nguyen, 2017, 2019; Nguyen et al., 2019; Vo, 2019). Therefore, this current study attempts to address the research lacuna in exploring effective pedagogical strategies for K-12 ICT-related in-service teacher PD and training in Vietnam.

3 Method

This research problem on pedagogical strategies for ICT-related in-service teacher PD and training was examined through a meta-synthesis review of the literature and was developed according to the criteria proposed by Toye et al. (2014). These authors suggest research procedures including (1) identification, (2) criteria and screening, (3) inclusion/exclusion, (4) reviewing, and (5) analysis and findings.

3.1 Procedures for Searching, Identifying, and Selecting Articles

To ensure that high-quality articles would be included in the meta-synthesis review, the researchers accessed the Web of Science (WoS) by Clarivate via an account provided by the University of Newcastle, Australia. The reason for employing this database is that WoS is one of the world's most reliable publisher-independent global citation databases. Table 1 below demonstrates the criteria used for data collection.

Table 1 Criteria for data selection

Inclusion	
Topic for searching	Teacher professional development
Keywords for subtopics	"Teacher training", ICT, CALL, technology, and "digital competence"
Data sources	WoS
Time of publication	2011 to 2020;
Indexed by	SCI-EXPANDED, SSCI;
Exclusion	
Research participants	Pre-service teacher education or specific subject teachers other than English teaching
Level	Teacher PD and training at higher education sector
Time of publication	Publication prior to the year 2011

3.2 Selection Procedures for Data Analysis

When collecting data, we considered the inclusion and exclusion criteria on titles, abstracts and keywords for the initial selection. The number of articles found in total was 873 (with *ICT, CALL, technology,* and *digital competence* as keywords; the number of articles found by topic were *168*, *123*, *515*, and *67*, *respectively*). The search results were downloaded into an Endnote file (.enl). After the data were imported using Endnote software, we checked for duplicate articles within Endnote and removed 419 duplicates. We continued to use Endnote software and exclusion keywords (pre-service teacher, higher education) to remove irrelevant articles. After the screening, and the exclusion procedures, the number of articles that remained was 83. The data of these 83 articles were exported as an .xml file and then imported into NVivo for data coding and analysis.

4 Results and Discussion

By synthetizing articles about ICT-related in-service teacher PD in the database of WoS published in the last ten years (2011–2020), we found a fluctuation in the number of publications over the years. However, the data also showed that, in the last five recent years, the number of publications has been much higher than that of the five previous years ($n = 50$ in 2016–2020 compared to $n = 33$ in 2011–2015).

The number of publications is illustrated in Fig. 1 below.

Upon review of the 83 articles, we identified five major themes with regard to pedagogical strategies for ICT-related teacher PD. These include: (1) policies, (2) instructional design, (3) trainers' pedagogical competence, (4) teacher trainees' beliefs and self-efficacy, and (5) teacher trainees' experiences.

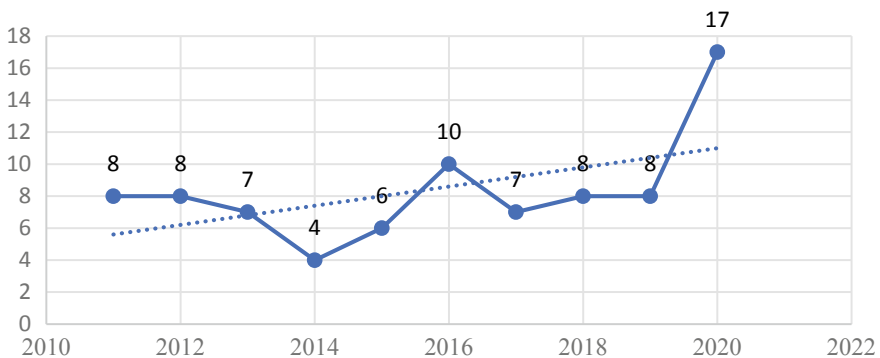The number of issues published by year is illustrated in Fig. 2 as follows:

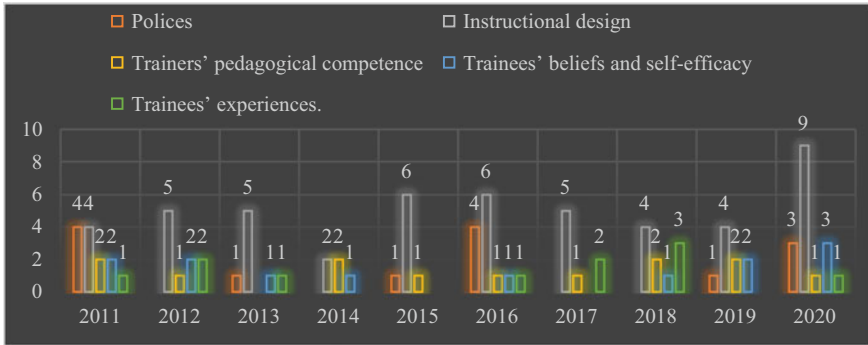**Fig. 1** Trend of publications on ICT-related PD, by year (2011–2020)

Fig. 2 Researched factors found from the papers, by year

In total, 14 papers had focused on policies, 50 on instructional design, 13 on trainers' pedagogical competence, 13 on trainees' beliefs and self-efficacy, and 11 on trainees' experiences.

These research findings suggest that education policies have an impact on teacher training programs (Bond et al., 2019; Gewerc & Montero, 2013; Handal et al., 2011; Woo, 2016). Similarly, the ICT competency standards for teachers by UNESCO (2008) confirm that "teachers must understand the intentions of national policies and be able to contribute to the discussion of education reform policies and participate in the design, implementation, and revision of programs intended to implement" (p. 10). In this respect, it is revealed that top-down policies, managerial skills, and infrastructure are also crucial to the success of a teacher training program. Educational policies on EFL teachers' PD have directly impacted the implementation of teacher training programs. For example, in Vietnam, a budget of US$446.43 million has been invested in EFL teachers' PD in which the fund is mostly allocated to teacher training. Without such educational, financial policies, the annual training programs of ICT skills for in-service EFL teachers would not have been implemented nationwide in this country since 2014. Managerial skills and infrastructure of an educational institution can also be affected by policies. For example, when a training program is devised with a Learning Management System (LMS) (e.g., Moodle, Blackboard or Canvas), program developers can find it much more feasible to design an online/a blended learning program to meet the need of twenty-first century students.

Instructional design emerged from this study as the most common theme, with 50 papers, e.g., (Abuhmaid, 2011; Alquraini & Rao, 2020; Antink-Meyer & Aldeman, 2020; Boloudakis et al., 2018; Brauer et al., 2019; Cabero-Almenara & Romero-Tena, 2020; Chien, 2020; Escudero et al., 2018; Fannakhosrow & Nourabadi, 2020; Fathema & Akanda, 2020; Garcia-Martinez et al., 2020; Han & Patterson, 2020; Handal et al., 2011; Heller et al., 2012; Iredale et al., 2020; Joubert et al., 2020; Navarro et al., 2016; Ploessl & Rock, 2014; Shernoff et al., 2020; Spiteri & Rundgren, 2017; Tarling & Ng'ambi, 2016; Tenekeci, 2011; van Zyl et al., 2013; Walton et al., 2014; Xie et al., 2017; Yeh & Tseng, 2019). Instructional design is defined as "the

science of creating detailed specifications for the design, development, evaluation, and maintenance of instructional material that facilitates learning and performance" (Martin, 2011, p. 956). Sit and Guo (2019) agree that, based on appropriate theoretical and practical framework, the development of dynamic teaching–learning activities can be greatly supported, and classroom interaction thereby enhanced.

The findings from this meta-synthesis of the literature show that, when considering instructional design strategies, one must take the following into account: (1) the employment of a specific model or framework, (2) modes of delivery, (3) the emphasis on the community of practice, and (4) teacher trainees' needs. Instructional design is to be concerned with models or frameworks (Alsofyani et al., 2012; Bond et al., 2019; Bound, 2011; Ebert-May et al., 2015; Escudero et al., 2018; Masats & Dooly, 2011; Murthy et al., 2015; Navarro et al., 2016; Ploessl & Rock, 2014; Rienties et al., 2018; Shamir-Inbal & Blau, 2020; Xie et al., 2017; Yeh & Tseng, 2019; Zhang & Cheng, 2012). A model and a theory are not exactly the same in nature. The former seems to be more practice-oriented. Bhattacherjee (2012) states that, "while a theory tries to explain a phenomenon, a model tries to represent a phenomenon. Models are often used by decision makers to make important decisions based on a given set of inputs" (p. 14). We recommend choice among the four models, namely the backward design by Wiggins et al. (2005), the ADDIE by Molenda (2003), the ASSURE by Smaldino et al. (2008), and the Essential competencies of Digital and Media Literacy by Hobbs (2010), as detailed below.

First, the backward design model is practical (Wiggins et al., 2005) because it focuses on three important stages of teacher PD: identification of desired results, determination of acceptable evidence, and planning learning experiences and instruction. Incorporating these three steps can help program developers/instructors to effectively map their courses and achieve curriculum alignment.

Second, the ADDIE model (Molenda, 2003) is practical for instructional design. It includes the "analyze, design, develop, implement, and evaluate" stages. It is also suggested that "this sequence, however, does not impose a strict linear progression through the steps" (Kurt, 2019, para.1). The ADDIE model can clearly support an ICT skills training program or its course designers.

Third, the ASSURE model (Smaldino et al., 2008) incorporates six components which stands for:

A—Analyze learners
S—State standards and objectives
S—Select strategies, technology, media, and materials
U—Utilize technology, media, and materials
R—Require learner participation
E—Evaluate and revise.

The ASSURE model elaborates clearer stages than the EDDIE model. For example, the "A" stage is specific to the analysis of learners. This is an important step because by understanding the target participants, the instructional designer can increase the chances to meet their needs.

Lastly, the process model by Hobbs (2010) includes five stages including (1) access, (2) analyze and evaluate, (3) create, (4) reflect, and (5) act. Allison (2013) supports that this model "presents a clear and practical map for coalescing and building on the many digital and media literacy programs" (p. 181). Sit (2021) further echoes this five-part communication competencies or dimensions of digital and media literacy should be fundamental for twenty-first century students to learn and communicate in the digital era and, for teacher educators, to engage their students in twenty-first century instruction.

It can be found from the aforementioned models that they all emphasize the importance of analyzing the contexts (especially learners' characteristics), creating or developing teaching instruments, and evaluating the learning outcomes. These strategies are regarded as being indispensable to instructional design.

Online learning and blended learning are mostly recommended modes of delivery for in-service teacher PD in ICT skills. The emphasis on the community of practice (Cool et al., 2020; Denker et al., 2020; Hytonen et al., 2014; Iredale et al., 2020; Ozen, 2013; Rego et al., 2013; Walton et al., 2014; Zhang et al., 2016) is also meaningful to the emergence of online learning during the current global pandemic.

Although not many articles focused on this problem, the understanding of teacher trainees' needs is of great importance (Bound, 2011; Brauer et al., 2019; Esfijani & Zamani, 2020; Li et al., 2020; Rienties et al., 2018; Tondeur et al., 2017). Darling-Hammond et al. (2017) also emphasize that regular needs assessments using data from surveys to identify areas of professional learning are most needed and desired by educators. These can help to ensure that professional learning is not disconnected from practice and that it supports the areas of knowledge and skills that educators should develop. Understanding trainees' prior training experience, current work experience can help instructors tailor their needs, pace of instruction, amount of time to allocate a task, and more importantly to decide appropriate overall input activities in a training program. We also argue that feedback and appropriate assessment methods during and after a training program are likewise important components of instructional design.

Regarding trainers' pedagogical competence, it is no doubt that the recruitment of a qualified trainer is indispensable (Bound, 2011; Brauer et al., 2019; Cabero-Almenara & Barroso-Osuna, 2016; Escudero et al., 2018; Fonsen & Ukkonen-Mikkola, 2019; Garcia-Martinez et al., 2020; Iredale et al., 2020; Joubert et al., 2020; Peeraer & Van Petegem, 2012; Rienties et al., 2018; Shernoff et al., 2020; Sundberg et al., 2012; Tarling & Ng'ambi, 2016; Tondeur et al., 2017). With the same policies, the same resources and trainees, training outcomes may differ as a result of different trainers' pedagogical competence. We suggest that the pedagogical competence of trainers is one of the key factors that can affect the quality of an ICT-related teacher training program. In addition, we recommend that a program be designed based on trainees' needs, rather than what repertoire a trainer may have.

Another strategy for enhancing ICT-related teacher PD is understanding teacher trainees' beliefs and experiences. Most conclusions from the articles that investigated the relationship between teachers' beliefs (or self-efficacy) and ICT use show that they are significantly correlated (Abuhmaid, 2011; Chou, 2012; Gewerc & Montero,

2013; Gudmundsdottir & Hatlevik, 2018; Han & Patterson, 2020; Kelley et al., 2020; Koc & Ozden, 2013; Power et al., 2016; Taimalu & Luik, 2019; Tondeur et al., 2017; Wong, 2016). The implication of this finding is that when designing an ICT skills training program for in-service EFL teachers, it is suggested that designers and trainers gradually help trainees make positive changes in their beliefs about the effectiveness of ICT use in their teaching. However, this will need time because it is not easy for one individual to change their beliefs, especially the unadventurous. Understanding teacher trainees' experiences can be taken into account when pedagogical strategies for ICT skill training are investigated (Fathema & Akanda, 2020; Handal et al., 2011; Tezci, 2011). With the lens of a teacher trainer of ICT skills for EFL teachers in Vietnam, one of the authors of this paper finds that when assigning a synchronous task in a training workshop, the necessary time to complete a task among teacher trainees is so diverse. Some can complete a task in about five minutes, while others undertaking the same task will require more than twenty minutes. This is often due to the fact that they had never experienced the ICT tools or program that they had been provided with. The implication is that placing teacher trainees with those at a similar level of competence can facilitate the training process. Therefore, understanding their needs remains an important pedagogical strategy.

5 Conclusion

This paper attempts to explore effective pedagogical strategies for ICT-related EFL teacher PD in the current Vietnamese education context by outlining key literature on the research problem and synthesizing the literature on pedagogical strategies for in-service teacher PD and training. To develop pedagogical strategies for K-12 ICT-related EFL teacher PD in the Vietnamese educational context, these five aspects, including appropriate policies, appropriate instructional design, recruitment of highly qualified trainers, and understanding about teacher trainees' needs, experiences, and beliefs, are closely investigated in this paper. The last pedagogical strategy related to trainees, especially the identification of their needs, is highly recommended. This enables the training program of ICT-related teacher PD to be tailor-made in their contexts.

Regarding limitations of the study, a nationwide survey about the current ICT skills of EFL teachers in Vietnam during the pandemic could offer the basis of an extended research study, providing further insight into their current experiences. It is recommended that future research that focuses on teachers' needs for their ICT-related PD be conducted, especially around issues relating to instructional design and the burgeoning bichronous mode of teaching delivery within the context of newly emerged ICT affordances in education. Despite the limitations, the study should provide more insights into what effective practice-oriented pedagogical strategies are needed to facilitate teachers to enhance their ICT-related skills for K-12 EFL teachers in Vietnam. It is also significant in raising more and more professional teacher trainers' awareness of the need to and how they could better equip their

teacher trainees with possible new educational technologies in language teaching and learning in countries other than Vietnam. It is at the reader's or practitioner's discretion to generalize the findings and application in relation to their own country's context.

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