Taiwan Journal of TESOL
Vol. 18.2, 29-62, 2021 DOI: 10.30397/TJTESOL.202110_18(2).0002

IN-SERVICE LANGUAGE TEACHERS' ATTITUDES TOWARDS TECHNOLOGY USE AND THE DEVELOPMENT OF THEIR PERCEIVED CALL COMPETENCIES

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ABSTRACT

In the light of national educational reform known as National Foreign Language Project 2020 (NFLP 2020), Information Communication Technology (ICT) was integrated into the language teaching curriculum, which required English teachers to possess technological skills and knowledge – CALL competencies (Computer Assisted Language Learning) to implement into their teaching practice (MOET, 2014). Although numerous training courses were organized to enable teachers to master these competencies, the efficacy of those courses were not explored comprehensively. This study was conducted to examine the development in teachers' perceptions of their CALL competencies before and after the course, as well as their attitudes towards technology's utilization, and the relationship between attitudes and self-perceptions of CALL competencies. Results from data analysis documented positive attitudes towards technology and advancements in the perceptions of their competencies. However, learner attitude was not a predictor of this development. Suggestions for improvements in future ICT courses are also included in the study. This pioneering research in the local context could potentially contribute to enhancing the effectiveness of ICT courses and consequently better realize the NFLP's goals and ambitions with the provision for the extended period to 2025. It also helps to illuminate the global portrait of CALL teacher education.

Key Words: in-service teacher education, perception, CALL competencies, attitude.

INTRODUCTION

Technology has increasingly transformed the educational landscape in general and in language teaching in particular. In language classrooms, teachers undoubtedly play a crucial role in realizing the potentials of CALL, considered as "pivotal players" (Hubbard, 2008, p. 176) and those who "significantly shape the outcomes of CALL" (Arnold & Ducate, 2015, p. 1). Given this, a number of standards and frameworks for teacher education have addressed teachers' competencies in using technologies, namely the European Profile for Language Teacher Education (Kelly, Grenfell, Allan, Kriza, & McEvoy, 2004), TESOL Technology Standards Framework (Healey et al., 2011) and ACTFL's Program Standards for the Preparation of Foreign Language Teachers (Languages, 2013). This has led to the incorporation of CALL competencies development in some in-service training programs such as the American Council on the Teaching of Foreign Languages (2011).

After periods of CALL training implementation, some gaps between the training programmes' objectives and outcomes have been revealed. These discrepancies were mainly related to the mismatch between teachers' expectations and their perceptions of the actual efficacies of the training. For instance, Kazeroni (2006) observed that most language teachers in a CALL training program in France reflected their frustration and dissatisfaction with technology since the program did not meet their expectations. Hence, the level of teachers' later technology integration into their teaching practices was lower than expected (Hedeyati & Marandi, 2014; Wesely & Plummer, 2017). The worse possible ramifications are teachers' changing attitudes towards technology in forms of resistance to new technology or refusal to practice change even after their attendance in CALL competencies development courses. This reality illuminates the significance of taking teachers' perceptions and attitudes into account for developing and improving the quality of CALL training programs.

In conjunction with the world trend in building and developing teachers' CALL competencies, the Vietnamese Ministry of Education and Training has stipulated the inclusion of teachers' capability of integrating Information Communication Technology (ICT) into language classrooms as one of the basic requirements for qualified English Language (EL) teachers in general education (MOET, 2014). This decision was supported by the inclusion of a CALL competencies development course (yet was officially named as ICT training course) into annual professional development programmes

for in-service EL teachers across the country under the framework of the National Foreign Language Project 2020 (NFLP), which has been extended to 2025. This course aims at developing teachers' CALL competencies for English language education and also building a network of interaction among participants within and after the course.

Regarding teachers' experiences of their ICT training in Vietnam, Dang, Nicholas, and Lewis (2012) discovered a surprising result that only 31.1% of teachers benefited from ICT training workshops organized by the university and the majority (89.2%) had self-taught their ICT skills. The authors stressed the necessity of on-going and updated professional development programs in competencies to deal with technology for in-service teachers. This recommendation has also been restated in recent research (Le, 2016; Vo, 2019), which centered on the process of ICT uptake and integration in English language teacher education programs. Existing studies (Peeraer & Petegem, 2011; Dang et al. (2012) have primarily focused on analyzing impeding factors for successful integration of ICT into teaching and learning practices, among which, the lack of teacher training is a major reason.

Although formal training courses for in-service teachers have been annually conducted as a part of NFLP 2020, scant attention has been drawn to understanding the trainees' perceptions of their competencies development through the ICT training course. Very few empirical studies have been found in assessing the relevance and utility of these courses through understanding the participants' learning experiences as well as their attitude towards technology use. This shortcoming can create a gap between what the course developer expected to be effective and what the teachers really perceive to be effective for them. As such, there has been a shortage of empirically reflective evidence to fill the gap between top-down course design from experts' points of view and bottom-up practice from participants' perspectives based on the characteristics of the local context.

In brief, although CALL teacher education remains in the foreground among other research topics in the field of CALL (Guichon & Hauck, 2011), its global portrait is still incomplete. In fact, the under-researched situation in the area of CALL teacher education with few empirical studies documented is not only the case in Vietnam but also in the Southeast Asian region (Gönen & Aşık, 2019). To fill this void, this study is an attempt to delve into participating teachers' self-perceptions of CALL competencies development and their attitudes towards technology use after their participation in the ICT training course. Additionally, we would like to examine whether teachers' attitudes could be a predictor of their

self-perceived competencies development. The research outcomes could offer useful insights into the appropriateness of the current ICT training courses and be of practical use as a source of reference for curriculum designers and relevant authorities in optimizing the effectiveness of formal teacher education programs in various similar contexts.

LITERATURE REVIEW

Teachers' CALL Competencies

Research on CALL competencies has been escalating in recent years, which has yielded a variety of definitions in this research arena. Competency is generally defined as a set of related elements of personal characteristics such as knowledge, skills, attitudes that an individual has or needs to obtain, which enables them to perform a specific task within the context (Sampson & Fytros, 2008). In a narrower sense, CALL competencies refer to language teachers' ability to select appropriate technology, together with solid pedagogical strategies, to meet their teaching objectives (Tai, 2015). As such, basic technical skills, namely being able to use both computer software and hardware (Desjardins, Lacasse & Bélair, 2001; Hampel & Stickler, 2005; Hubbard & Levy, 2006) are the prerequisites for obtaining CALL competencies.

Next, higher-level skills and abilities are being able to evaluate the process of CALL integration. They consist of the abilities to document work effectively and efficiently by employing ICT tools (Desjardins, Lacasse & Bélair, 2001), evaluate the affordances of technological tools (Hampel, 2006), handle the constraints of technology and software and using their advantages (Hampel & Stickler, 2005), evaluate and self-reflect on their practice to make preparations for efficient technology integration (Bangou, 2006). In addition, CALL competencies are not limited to teacher-computer interaction, but language teachers should be able to interact with individuals or groups by using technology (Desjardins, Lacasse, and Bélair, 2001), build an online learning community and facilitate online communicative competence in language teaching (Hampel & Stickler, 2005). Generally, Hubbard and Levy (2006) state that teachers need to acquire both pedagogical and technical knowledge and skills and know how to use CALL optimally to enhance learners' language abilities.

Successive studies have gradually added further elaborations on

teachers' CALL competencies. Together with obtaining a range of technological applications, teachers need to analyse learners' needs, task demands and expected learning outcomes in order to use appropriate technologies (Guichon & Hauck, 2011). In an attempt to synthesize these competencies, Guichon and Hauck (2011) formulated a comprehensive concept of CALL teachers' competencies, referred to as a repertoire of techno-pedagogical competencies. This encompasses teachers' capacities to:

- "assess the potential and limits of technologies for language and culture learning;
- carry out a needs analysis to introduce adequate technologies at appropriate moments in a pedagogical sequence;
- handle basic tools and applications, and solve simple technical problems;
- design appropriate tasks;
- design for interactions within and outside the classroom in view of the technologies' affordances;
- rethink the contract with learners and colleagues;
- manage time and optimize the integration of technologies". (p. 191)

These abilities were also detailed in later influential research (Son, 2015; Son, 2018). Specifically, Son (2018) defined CALL competencies as a collection of literacies and skills associated with CALL. As such, he asserted that basic computer literacy and digital literacy should be seen as a foundation of CALL practice. From this perspective, *digital literacy* is a basic element of *CALL competencies* when referring to language teaching practice.

From a global perspective, the aforementioned concept of Guichon and Hauck (2011) captured the core elements of CALL competencies described in previously reviewed research as well as in more current ones (Son, 2015; Son, 2018). Nevertheless, in the Vietnamese context, very few empirical studies into understanding teachers' CALL competencies have been found so far. Therefore, the concept of CALL competencies in Guichon and Hauck (2011) was chosen as the basis for this study. More importantly, these listed competencies are in close alignment with the major objectives of the CALL competencies development course for in-service EL teachers described below.

ICT Course for Developing In-Service Teachers' CALL Competencies in Vietnam

The CALL competencies development course (officially named as the ICT training course) is one of the essential components of annual professional development programs for in-service teachers across the country under the framework of National Foreign Language Project 2020 (NFLP), which has been extended to 2025. Other courses involve innovative pedagogical practices, testing and assessment or action research.

The ICT course's training content was developed on the foundation of major objectives, particularized into standards in the ICT Competencies Framework for English Language Teachers under NFLP 2020 (NFLP, 2020), as presented in the following table:

Table 1

Objectives and Standards of Developing CALL Competencies for English Language Teachers

Objective(s)	Standard(s)
Objective 1: Obtaining fundamental and general ICT knowledge and skills appropriate for career objectives	**S1.** Obtaining basic ICT knowledge and skills to meet the technological demands in English Language Teaching. **S2.** Understanding technological affordances to select the appropriate technologies for language teaching contexts, and using these basic technologies skillfully.
Objective 2: Combining pedagogical and ICT knowledge and skills to improve language teaching and learning quality	**S1.** Combining pedagogical knowledge with technological use **S2.** Designing and managing learning activities using technology to achieve training programmes' objectives
Objective 3: Employing ICT to enhance communicative and collaborative effectiveness in teaching	**S1.** Using technologies to maintain effective communication and collaboration with colleagues, learners and relevant managing parties **S2.** Frequently considering and assessing the relationship between teaching and technological development to make suitable pedagogical decisions regarding the use of technology for language teaching and communication

The ICT course is conducted by English language lecturers with rich experience in applying ICT in their teaching practices and research, accompanied by the support of IT technicians. This combination is to ensure that the course's participants acquire both ICT and pedagogical knowledge and skills and receive the best assistance.

Previous Studies into Teachers' CALL Competencies Development

A number of studies have been implemented to explore teachers' experiences in CALL development programs across international

contexts (Cengiz, Seferoğlu, & Kaçar, 2017; Jeong, 2017; Kozlova & Priven, 2015; Liu & Kleinsasser, 2015; Wang, Chen, & Levy, 2010). The prospective and in-service teachers in such studies were trained in different modes with the use of various technological tools and platforms such as a twelve-week training course for Chinese in-service language teachers in an online synchronous learning environment (Wang et al., 2010), a one-year online project-based instruction program in Taiwan (Liu & Kleinsasser, 2015), a ten-week training course to teach in 3D Virtual Worlds through situated learning in Canada (Kozlova & Priven, 2015), general computer skills via the use of the Learning Management Platform in a fifteen-week blended learning course in Korea (Jeong, 2017), or using platforms such as Edmodo, WizIQ or Wordpress in a four-week online course in Turkey (Cengiz et al., 2017).

Regardless of the modes and length of training, the participants commonly perceived their professional growth and confidence in using technology upon course completion. Several suggestions are proposed for the development of future CALL competencies' training programmes. This encompasses promoting teachers' personal development regarding their emotions, feelings and reactions (Wang et al., 2010) together with enhancing their teaching abilities with technologies or putting greater emphasis on online teaching skills (Kozlova & Priven, 2015), which helps teachers become confident and competent in an online environment. The importance of situating the training into the local teaching context is also stressed so that teachers could apply the CALL knowledge gained into their classroom use and make it relevant to their teaching curriculum, the textbooks and also the available resources at their schools (Cengiz et al., 2017).

With respect to professional training in competencies to use technology for in-service teachers in Vietnam, only two studies that are most relevant to this research's foci have been found. Dang et al. (2012) conducted a mixed-method research project to gain in-depth understanding of their perspectives of the ICT training they received at their own university. The findings revealed a positive correlation between the amount of training and the level of ICT confidence. In other words, the more training teachers have, the more confident and competent they become. In a more recent study on ICT training for pre-service teachers in ICT development courses at a university in Vietnam, Vo (2019) found that trainees expressed their satisfaction and positive perceptions of the trainers and the training content. This finding was consistent with the previous studies' results in global contexts (Cengiz et al., 2017; Jeong, 2017; Liu & Kleinsasser, 2015;

Kozlova & Priven, 2015; Wang et al., 2010) . In addition, the student-teachers also desired to have more opportunities to apply the knowledge into real-world classrooms.

Nonetheless, the common issues reported in both studies lie with the instructors. As their ICT instructors were not English educators, and they were not equipped with adequate knowledge of foreign language pedagogies, respondents pointed out that the training course was too technically-based. Accordingly, there were very few pedagogical implications in the foreign language classroom introduced. This reduced the course's effectiveness and failed to meet the courses' dual goals: preparing participants with technological and language teaching knowledge.

The reviewed studies in the local context targeted participants in ICT training courses organised by universities in Vietnam. No study has been found regarding trainees' perceptions and experiences in professional development programs under NFLP 2020 so far though the Project has been implemented for years, which is a gap that this research attempts to fill.

Learners' Attitudes

Attitude is an important concept to understand human behaviour and is defined as a mental state that includes beliefs and feelings (Latchanna & Dagnew, 2009). Regarding the relationship between attitude and behaviour, one of the most influential frameworks used in attitudinal studies is the theory of reasoned action (TRA) (Peeraer, Tran, & Tran, 2009), which was initially proposed by Fishbein and Ajzen (1975). According to the TRA, a behaviour or an action is either directly or indirectly influenced by a person's attitude (Ajzen & Fishbein, 1980).

From the educational psychology perspective, attitude refers to a pattern of beliefs developed over time in a given socio-cultural context (Liu, 2014). These beliefs play a crucial role in the learning process. Regardless of the research foci and methods, there is general consensus that there is a bidirectional relationship between learners' attitude and learning outcomes (Bain, McCallum, Bell, Cochran, & Sawyer, 2010; Kuhlemeier, Van Den Bergh, & Melse, 1996; Mantle-Bromley, 1995). In the classroom context, attitudes develop within a frame of reference such as languages, teachers, classes, and books (Oroujlou & Vahedi, 2011). In other words, motivated and de-motivated students hold varying perceptions about their teacher, class, and curriculum. Since attitudes are situational, it can be generalized instead of being tracked as a state-like factor (Oroujlou & Vahedi,

2011).

When it comes to the field of second language teaching, attitude is traditionally tied with "language attitude", which is defined as 'any affective, cognitive or behavioural index of evaluative reactions towards different language varieties and their speaker' (Ryan & Giles, 1982, p. 7). There has been much evidence showing that attitude is an influencing factor affecting learners' learning outcomes. In fact, good attitudes and feelings are needed to raise the students' efficiency in language learning. However, this factor is normally ignored until it presents a problem (Oroujlou & Vahedi, 2011). While conventional research in language teaching and learning normally examines the correlation between learners' attitudes towards language learning and their achievements, we would like to switch the focus to teachers' attitudes towards technology and the use of computers in language classrooms. This shift is due to the fact that CALL is drawing more attention and becoming a new trend in language education as well as language teacher education worldwide, which has been evident from a body of scholarly work (Gönen & Aşık, 2019; Livingston & Flores, 2017; Marandi, 2019). In addition, the subjects in this study are EFL in-service teachers participating in an ICT training course because they are the agents who decide whether and how to use ICT in their teaching, and they are the affective factor that can enact change in technology integration (Liu & Kleinsasser, 2015).

Attitude Towards the Use of CALL

Research in CALL has well acknowledged learners' and practitioners' attitudes and perceptions as influential factors in the successful integration of computers in classrooms. A lot of studies on CALL teachers from various perspectives have been documented, namely teachers' application of CALL (Chao, 2015; Son, 2014; Wesely & Plummer, 2017); teachers' perception towards the use of computers or CALL in the classroom (Ajzen & Fishbein, 1980; Baskaran & Shafeeq, 2015; Kessler, 2006; Pinner, 2012; Rafiee & Purfallah, 2014). Interestingly, academic work in recent years has paid more attention to CALL teacher education, where the research foci are both pre-service and in-service teachers (Liu & Kleinsasser, 2015; Schmid, 2017; Thomson, 2017)

Specifically, in terms of in-service teachers' perceptions of CALL preparation and use, the results revealed that the surveyed participants were generally dissatisfied with their CALL training experience (Kessler, 2006), but their limited knowledge of technology contrasted with their positive attitudes toward computers (Aydın, 2013). Even in

the same context, while students generally enjoy the presence of technology in their study, teachers' perceptions and subsequent behaviour in using CALL vary (Wiebe & Kabata, 2010). Regarding CALL preparation programs for teacher candidates, Kessler (2010) reported that pre-service teachers felt anxious about CALL in the first place, but then they began to recognize the promise of CALL when they were more familiar with it and had the opportunity to discuss CALL in depth. Ebsworth, Kim, and Klein (2010) investigated the expectations and experiences of pre-service teachers and in-service teachers who previously took a technology-enhanced language learning course in New York. Results showed teachers' expectations from the course differed between the two groups particularly in Internet resource evaluation, digital student records, and videos and software usage. Generally, regardless of the various results found in previous studies, research commonly showed that teachers' preparation of CALL is worth investigating alongside with the efficiency of its practice. Moreover, their perception of CALL plays a vital role in their learning outcomes.

Considering the significance of CALL teacher education research in various contexts, the requirements for English teachers pertinent to CALL competencies from newly implemented policies by MOET (MOET, 2014) in Vietnam, the crucial roles of computers in language classrooms, and the influential effects of participants' attitudes towards learning outcomes, this research aims at examining English teachers' self-perceptions of their CALL competencies development, their attitude towards the use of technology in language classrooms, and subsequently exploring how their attitude correlates with their confidence in using computers.

This study, therefore, aims to answer the following questions:

1. Are there any differences in teachers' perceptions of their CALL competencies development after their attendance in the ICT training course?
2. What are learners' attitudes towards the use of technology in language classrooms? Is attitude a predictor of their perceptions of CALL competencies development?

METHODOLOGY

Participants

Participants of this study were nearly 100 junior-high-school

teachers from a provincial region of Vietnam, aged mostly from 30 to 50 years old. Some of them were teaching in remote or/and mountainous areas, thereby having limited access to technology and computers. Most of them did not have adequate preparation for CALL competencies and ICT utilization in a pedagogical manner when they were student teachers. This feature is shared by teachers across the globe (McGarr & Mcdonagh, 2019). Those teachers were sent to a training course in ICT in English Language Teaching (ICT-in-ELT) under the framework of National Language Project 2020. ICT-in-ELT is a blended learning course which has two components. The first component is a one-week intensive training with face-to-face meetings, in which participants are instructed on how to use educational software and tools for constructing a model of their own e-learning website and creating and managing learning activities on this website. After one week, participants attend the second online component when they are expected to be actively engaged in online discussion and to achieve their final target of creating an online course, which is compatible with the grade level that the participants are teaching for their future use.

Prior to this course, two thirds of respondents had never learnt about the term ICT, and only 10 of them had experienced ICT-related activities. The prerequisite criterion for those teachers was that they had to pass the B2 level of the Common European Framework of Reference for Languages (CEFR) test. Therefore, they can be regarded as independent English users and can easily understand the items in the survey.

Context of This Study

This study was conducted during an ICT training course as described above. In line with the policy's goals and the documented theoretical frameworks, this course was designed to equip language teachers with both basic and advanced computer and digital skills. The content and procedure of the course are illustrated as follows:

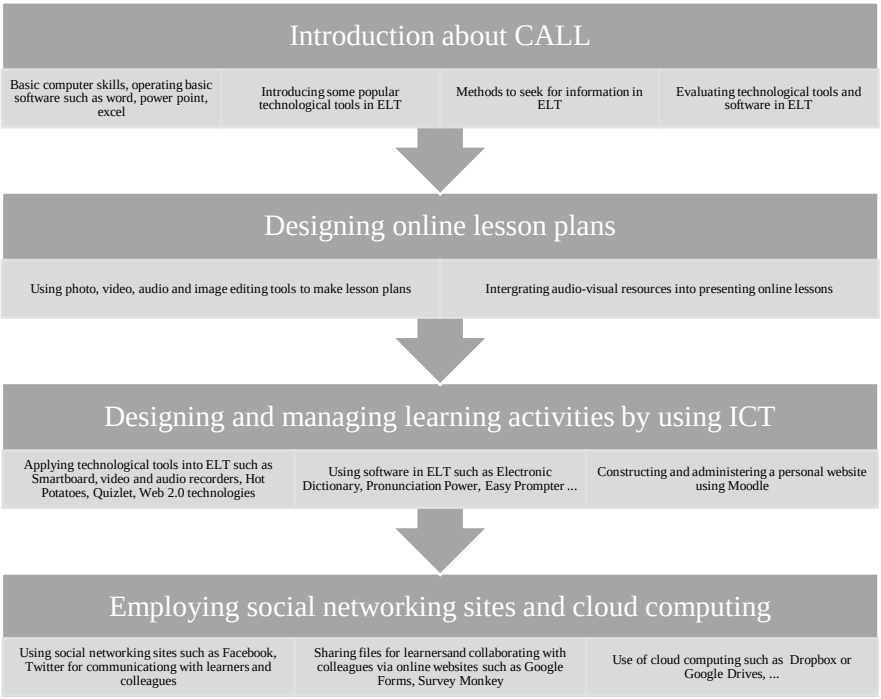

Figure 1. Curriculum of the ICT training course

Data Collection

The participants were asked to respond to the attitude and pre-competence questionnaires at the beginning of the course, then a post-competence questionnaire at the end of the course. The attitude questionnaire was adapted from Rafiee and Purfallah (2014) and included two main sections: participants' background and ICT experience and their attitudes towards the use of technology in the classroom. To explore teachers' attitudes towards the use and the efficacy of computers in a language classroom, we utilized a 9-item survey, with a 4-point Likert scale ranging from 'totally disagree' to 'totally agree'. This questionnaire consisted of both positive statements (6 items) and negatively worded ones (3 items with reverse scoring) to reduce acquiescence bias (Cronbach & Shavelson, 2004; Gul, Qasem, & Bhat, 2015). The items mainly focused on their feelings towards the use of computers in language teaching and the effectiveness of technology on students' learning outcomes. This

questionnaire was adapted to the current study due to its reliability, understandability, and the appropriateness to the research question as well as the context of our study.

The pre- and post- CALL competencies questionnaires were adapted from Rafiee and Purfallah (2014) and Son (2015). They entail seven major categories corresponding to sub-domains of techno-pedagogical competences defined by Guichon and Hauck (2011), namely category A (assessing the potential and limits of technologies for language and culture learning), category B (carrying out a needs analysis to introduce adequate technologies at appropriate moments in a pedagogical sequence), category C (handling basic tools and applications, and solving simple technical problems), category D (designing appropriate tasks), category E (designing for interactions within and outside the classroom in view of the technologies' affordances), category F (rethinking the contract with learners and colleagues) and category G (managing time and optimizing the integration of technologies).

In conjunction with the questionnaires, data was additionally collected from classroom observation conducted by the first author, who was also the instructor of the ICT training courses. She jotted down notes when the participants were practicing with the computers. During this process, the instructor (also the first author) and some technical assistants went around the classroom to scaffold participants, interact with them and record some significant phenomena such as learners' explicit attitudes, behaviours, articulated opinions and concerns. This classroom observation was used to triangulate the quantitative data from the questionnaires.

Reliability of the Questionnaires

Based on Gass and Mackey's guide on how to construct a questionnaire (Mackey & Gass, 2012, p. 78), we invited two colleagues to respond to the questionnaires to ensure that the time for questionnaire completion did not exceed 30 minutes and that there were no ambiguous items or confusing wording included. Additionally, since all the course participants have met the B2 level, they would experience no difficulty in understanding the survey items.

Cronbach's alpha was then used to determine the internal consistency of the adapted questionnaires. The results showed a high level of internal consistency with three α values greater than 0.7 as stated in Table 2.

Table 2

Reliability of Questionnaires

	Cronbach's Alpha (α)	No. of items
Attitude	.817	9
Pre-competences	.962	49
Construct A	.605	4
Construct B	.772	4
Construct C	.929	23
Construct D	.891	3
Construct E	.670	2
Construct F	.850	3
Construct G	.889	10
Post-competences	.969	49
Construct A	.689	4
Construct B	.723	4
Construct C	.941	23
Construct D	.837	3
Construct E	.553	2
Construct F	.800	3
Construct G	.913	10

Data Analysis

Due to some incomplete responses, the total number of participants included in this study was 84. The collected data were analysed using IBM SPSS Statistics Software, version 26. Regarding research question 1, descriptive statistics and a paired-sample t-test were used to compare learners' self-assessed competencies at the beginning versus at the end of the course. Concerning research question 2, statistics from the attitude questionnaire were analysed descriptively to examine participants' overall attitudes towards various aspects of computer utilization in their language classroom. Afterwards, we ran the partial correlation coefficient test to determine whether the initial attitudes of the participants correlated with their self-perceived development in CALL competencies at the end of the course.

RESULTS

Research Question 1: Are there any differences in teachers' perceptions of their CALL competencies development after their attendance in the ICT training course?

At the beginning of the course, participants expressed their confidence in most areas of CALL competencies as identified in Table 3. They perceived their greatest abilities in assessing technological affordances and constraints for the learning of language and culture (construct A) (M =2.83, SD = 0.32), followed by construct B – dealing with fundamental tools and applications as well as uncomplicated technical problems (M =2.81, SD = 0.34). The domains that they showed less confidence in related to their capacity to devise interactive activities for in and out of classroom use in cognizance of technologies' affordance (construct E) (M = 2.51, SD = 0.49), to reassess and consolidate communication and interaction with learners and colleagues (construct F) (M = 2.52, SD = 0.50), and to monitor time and facilitate effectiveness of technologies integration (construct G) (M = 2.53, SD = 0.41).

Table 3

Pre- and Post- Descriptive Statistics for Teachers' Perceptions of their CALL Competencies Development

Constructs	Pre-test		Post-test	
	Mean	SD	Mean	SD
A. Assessing technological affordances	2.83	0.32	3.01	0.31
B. Implementing a needs analysis	2.78	0.37	2.97	0.32
C. Handling basic tools and solving simple technical problems	2.81	0.34	2.99	0.36
D. Designing appropriate tasks	2.60	0.46	2.93	0.42
E. Designing for inside and outside classroom interaction	2.51	0.49	2.80	0.50
F. Rethinking contract with learners and colleagues	2.52	0.50	2.80	0.45
G. Managing time and optimizing technological integration	2.53	0.41	2.78	0.41
Total	2.70	0.33	2.92	0.34

A paired-sample t-test was then conducted to compare teachers' perceptions of their CALL competencies development before and after their course attendance. Generally, participants perceived their improvement in CALL competencies upon course completion ($M = 2.92$, $SD = 0.34$) when compared with pre-course participation ($M = 2.70$, $SD = 0.33$); $t(83) = 4.59$, $p < 0.05$, $d = 0.50$. This result also suggests that the teachers assessed their self-development in CALL competencies at a moderate level.

Paired-sample t-tests were further employed to analyse respondents' perceptions of their improvement for each category in their CALL competencies upon course compeletion. Learners believed that they progressed most in learning how to design appropriate tasks (construct D) $t(83) = 5.20$, $p < 0.05$, $d = 0.56$. This was followed by their self-perceived development in areas of managing time and optimizing the integration of technologies (construct G) $t(83) = 4.39$ $p < 0.05$, $d = 0.47$, in rethinking the contract

with learners and colleagues (construct F) $t(83) = 4.28$, $p < 0.05$, $d = 0.46$ and in designing for interactions within and outside the classroom in view of the technologies' affordances (construct E) $t(83) = 4.11$, $p < 0.05$, $d = 0.44$. Participants perceived less enhancement in aspects of assessing the potential and limits of technologies for language and culture learning *(*construct A*)* $t(83) = 3.54$, $p < 0.05$, $d = 0.38$ and handling basic tools and applications, and solving simple technical problems (construct C) $t(83) = 3.22$, $p < 0.05$, $d = 0.35$.

Table 4

Results of Paired-Sample t-Test

Construct	t	Gain Mean	*p*	*d*
A. Asessing technological affordances	3.544	.18155	.001**	0.38
B. Implementing a needs analysis	3.884	.19345	.000**	0.42
C. Handling basic tools and solving simple technical problems	3.225	.17226	.002**	0.35
D. Designing appropriate tasks	5.208	.32937	.000**	0.56
E. Designing for inside and outside classroom interaction	4.110	.29762	.000**	0.44
F. Rethinking contract with learners and colleagues	4.285	.27778	.000**	0.46
G. Managing time and optimizing technological integration	4.392	.25542	.000**	0.47

Note. * Significant at $p<.01$, ** Significant at $p<.001$

Research Question 2: What are learners' attitudes towards the use of technology in language classrooms? Is attitude a predictor of their perceptions of CALL competencies development?

Initially, although 54% of the participants had yet to encounter the term "ICT", they were still interested in exploring the term to different extents, with 67.6% of them choosing the "interested" and "very interested" options.

Table 5

Learners' Attitudes by Items

Items' content	Mean	SD
General enjoyment with computer	3.36	.57
Enjoyment of computer use in ELT	3.37	.65
Effects on time- and effort-saving	3.32	.60
Using computers to replace manual work	3.21	.79
The need of computer in ELT classroom	3.19	.81
Computer's benefits in enhancing ELT's effectiveness	3.32	.64
Computer's benefits in EL education's improvement	3.51	.59
Computer's advantages over traditional classroom's ones	3.31	.54
Computer's benefits in improving students' learning outcomes	3.33	.83

Across the board, participants seemed to perceive the benefits of information-communication technology (ICT), and they held positive attitudes toward the integration of CALL in ELT, in terms of lesson preparation, pedagogical practice, and students' improvement. Ratings for their general attitudes towards the use of computers in the classroom were quite positive, which was revealed by the result from descriptive statistics (Table 5). This finding is in alignment with some previous studies (Kim, 2008; Park & Son, 2009; Tezci, 2010).

Tapping into the positively worded items, the results from the descriptive statistics showed that participants had a very positive attitude towards CALL integration in their classroom at the beginning of the course. Specifically, as reflected by responses in items 1-3,

most of the participants found using computers "enjoyable", and they realized that computers could help save much time and effort in both lesson preparation and teaching. Particularly, the proportion of "agree" and "strongly agree" responses to the first three items were 95.24%, 92.86% and 95.24%, respectively. In addition, items 6-8 fortified their recognitions of the benefits of computers in teaching efficiency, especially for English teaching. In this set of questions, we also inserted some statements which were negatively worded, namely items 4, 5 and 9, to make sure that teachers responded to the questionnaires with care. As explained in the methodology section, the scores of these questions were reversely scored in the data analysis, which, again unfolded the agreement with other items and reinforced the need of computers in the classroom. In other words, respondents appreciated the great values of technology and recognized its contribution to the improvement of students' learning outcomes more than the traditional teaching methods. This phenomenon was exhibited by the fairly high mean values of these items, as can be seen in Table 5.

Thereafter, we examined the interplay between learners' initial attitudes towards the utilization of technology and their perceptions of CALL competencies development after the course. Preliminary analyses were performed to ensure no violation of assumptions of normal distribution and linearity. Afterwards, a Pearson product-moment correlation coefficient was computed to analyse the correlation between learners' attitude and the gain means derived from the pre- and post-questionnaires on CALL competencies. The result showed no significant correlation between the two variables ($r = -0.099$, $n = 84$, $p = 0.369$), which means that learners' positive attitudes did not guarantee their confidence in dealing with computers upon course completion.

DISCUSSION

Teachers' self-perceptions of their CALL competencies development upon completion of the ICT training course

On the whole, teachers exhibited increasing confidence and perceived greater enhancement in their CALL competences after their course attendance. This result is in alignment with previous studies into the benefits of formal CALL training for in-service teachers in elevating their confidence (Cengiz et al., 2017; Jeong, 2017) and promoting their self-efficacy, competences and their capabilities to match the affordance of technology with their teaching goals (Liu &

Kleinsasser, 2015). This has further testified to the significance of CALL development programs in facilitating the meaningful integration of ICT into classrooms since confidence is considered as the top factor inhibiting the uptake of ICT in the classroom (Becta, 2004).

A closer scrutiny of the data revealed interesting findings about separate domains of CALL competencies development. Prior to course attendance, the participants showed the greatest confidence in understanding the advantages and disadvantages of some technologies and in properly utilizing these technologies in their teaching context. They also believed that they acquired necessary mastery in some common and basic ICT applications, namely office programs (Word, Power Point, Excel), photos and video editing and so on. When it came to more advanced skills and applications of ICT such as website-related skills, collaborative teaching with their colleagues, or creating and building their own learning websites, most of them showed a certain amount of reluctance.

Interestingly, teachers recorded a greater improvement in the higher-level ICT skills and applications upon course completion. They witnessed their most significant growth in employing technologies in designing tasks appropriate for their teaching purposes and learners' abilities. They also progressed in their competencies to integrate these technologies into the classroom in an optimal way, to create interactive activities both inside and outside the classroom and to use these technologies for cooperative teaching with their colleagues. This has important implications for CALL teacher education, in which teachers' abilities to maintain meaningful communication offered by available technologies and to accommodate these technologies in meeting learners' needs, task demands, and desirable learning outcomes should be developed (Guichon & Hauck, 2011; Hampel, 2006).

The above finding has also shown positive outcomes in terms of enhancing teachers' awareness of sustainable adoption of their CALL competencies in their future teaching practice, given the fact that advanced ICT application in stimulating students' learning processes remained low in the Vietnamese context (Peeraer & Petegem, 2011). This further confirmed the meaningfulness and feasibility of this ICT training curriculum since it has been found that concrete ideas relating to pedagogy for effective integration of ICT in teaching practice are either missing or abstract in some teacher education programs (Peeraer et al., 2009).

Given teachers' perceptions of their improvement, the level of enhancement was only at a moderate level. This is explicable owing

to the time constraint of the training course (one week), whereby teachers might be unable to internalize new knowledge that might be challenging for them (Albright & Kramer-Dahl, 2009; Teo, 2014).

Teachers Attitudes Towards ICT Implementation and Its Relationship with Their CALL Competencies Development

In general, most teachers of English in the ICT training course recognized the vital roles of computers and technology in language teaching, regardless of their age, educational background, academic achievement, or years of teaching. Remarkably, even though the most prominent age group was learners from 40-49 years old, data analysis still recorded a highly positive attitude and perception towards technology. This is also in line with the classroom observation of the researcher. She witnessed that participants from this age group were the most dynamic and progressive ones.

Interestingly, this finding contrasted with Tan's (2006) discussion on the constraints in a secondary education setting, which mentioned a conflict in most systems when time and space is to be devoted to new areas of learning. This result was also contrary to the myth of teachers' technophobia as discussed in Azarfam and Jabbari (2012). Basically, the official request on CALL implementation adds extra workload to teachers' usual duties. In other words, it consumes additional time and effort to master related skills and prepare for electronic lessons. Despite those obvious obstacles, those teachers still exhibited positive feelings towards the presence of technologies in their classrooms, they tried hard to acquire them. It is worth considering because it was this positive attitude that energized teachers to get themselves familiar with new computer skills and technological techniques, which resulted in their higher level of confidence at the end of the course, although no significance was found between participants' attitudes and their development. As abovementioned, one possible reason was the short duration of the course. In the end-of-course evaluation, all of them requested an extension to the course length to get themselves more familiar with the new knowledge.

As it was only a one-week training workshop, we were unable to examine their actual technological skill gained, but only their levels of confidence were measured. However, greater confidence in operating tasks as recorded in the post-questionnaire can be seen as a positive effect on their achievements. Empirical evidence showed that confidence facilitates enthusiasm, motivation, and higher resistance when confronting difficulties (Bong, 2002; Zimmerman & Kitsantas,

2005). Thus, those participants are expected to be more willing to apply gained knowledge in their classroom.

Suggestions for Improvements

Taking all of the above-mentioned difficulties and constraints on ICT implementations, to better enhance its integration in classroom, there is a need to integrate CALL/ ICT competencies into pedagogical training and practices, making it more comprehensible and appropriate to both pre-service and in-service teachers. Kessler (2010) suggests that "CALL teacher preparation should be grounded on sound pedagogical practices rather than specific forms of technology" (p. 387). This is supported by results of this study: teachers could confidently operate readily built software and use it in their pedagogical activities, yet found it challenging to build up teaching tools or material from scratch. Similarly, Garrett (2009) stresses that teacher training needs to offer a strong basis for CALL and says, "Without substantive grounding in SLA theory and in the pedagogical context and rationale for technology use, familiarity with the technology will allow only superficial application and no real integration" (p. 733). Son (2002) suggests that "teacher training for CALL needs to provide opportunities for teachers to obtain necessary skills for the use of CALL materials in the classroom and help teachers' CALL competencies grow through exploring CALL theory and practice and enhancing teachers' roles in the classroom" (p. 249). Keeping that in mind, we suggest that more educational programmes should be made available for teachers to access, which must be user-friendly to encourage teachers to devote their time and effort to.

Despite teachers' positive attitudes towards the roles of computers in the language classroom, their initial level of confidence in exercising computer skills was rather low. When triangulating with their prior experience in CALL, this phenomenon was due to some objective difficulties met in their teaching practice. More than half of them (54.4%) had never heard the term ICT before, nor had they been given a proper training course on CALL/ICT. One third of the respondents did not even have free access to a computer at school. These obstacles are mutually shared by other teachers as reflected in Park and Son (2009). The results pointed out some barriers to teachers including limited CALL knowledge and skills of teachers, limited time, insufficient computer facilities, curricular restrictions and social pressure. Considering those findings, we suggest that sufficient facilities should be made available for teachers to apply and optimize their CALL practice before and after a formal training course.

Furthermore, the length of the course should be expanded to offer them enough time to acquire CALL-related pedagogical knowledge and skills.

CONCLUSIONS

This study is amongst the first trials to holistically explore language teachers' attitudes towards CALL implementation, examine their perceptual changes upon the completion of a formal ICT training course, and suggest types of ICT skills which are more appropriate for them. In short, although some challenges were met due to the shortage of facilities and prior professional knowledge, participants of this study still presented favourable views towards CALL, and they gained a higher level of confidence in CALL practice.

Though we successfully found some interesting results and suggestions to improve language teachers' education, our research was just limited to exploring participants' development based on their perceptions, which was quite subjective. Since we have yet to examine the actual ICT skill gains of the participants, we suggest a more comprehensive investigation, which may employ a test or analysis on their skill operation to triangulate this result more accurately. Moreover, follow-up interviews with some representative candidates should be included to explore their attitudes more qualitatively.

REFERENCES

ACTFL. (2013). Program standards for the preparation of foreign language teachers. Retrieved from https://www.actfl.org/sites/default/files/caep/ACTFLCAEPStandards2013_v2015.pdf

Ajzen, I., & Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, N.J.: Prentice-hall.

Albright, J., & Kramer-Dahl, A. (2009). The legacy of instrumentality in policy and pedagogy in the teaching of English: The case of Singapore. *Research Papers in Education, 24*(2), 201–222.

Arnold, N., & Ducate, L. (2015). Contextualized views of practices and competencies in CALL teacher education research. *Language Learning and Technology, 19*(1), 1–9.

Aydin, S. (2013). Teachers' perceptions about the use of computers in EFL teaching and learning: the case of Turkey. *Computer Assisted Language Learning*, *26*(3), 214–233.

Azarfam, A. A. Y., & Jabbari, Y. (2012). Dealing with teachers' technophobia in classroom. *Advances in Asian Social Science, 2*(2), 452–455.

Bain, S. K., McCallum, R. S., Bell, S. M., Cochran, J. L., & Sawyer, S. C. (2010). Foreign language learning aptitudes, attitudes, attributions, and achievement of postsecondary students identified as gifted. *Journal of Advanced Academics, 22*(1), 130–156.

Bangou, F. (2006). Intégration des Tice et apprentissage de l'enseignement: Une approche systémique. *Alsic, 9*, 145–160.

Baskaran, L., & Shafeeq, C. P. (2015). ESL teachers' perception of CALL integration in ELT. *International Journal on Studies in English Language and Literature (IJSELL), 3*(5), 63–74.

BECTA. (2004). A review of the research literature on barriers to the uptake of ICT by teachers. Retrieved from https://dera.ioe.ac.uk/1603/1/becta_2004_barrierstouptake_litrev.pdf

Bong, M. (2002). Predictive utility of subject-, task-, and problem-specific self-efficacy judgments for immediate and delayed academic performances. *The Journal of Experimental Education, 70*(2), 133–162.

Cengiz, B. C., Seferoğlu, G., & Kaçar, I. G. (2017). ELF teachers' perceptions about an online CALL training. A case from Turkey. *The EUROCALL Review, 25*(2), 29–37.

Chao, C. C. (2015). Rethinking transfer: Learning from CALL teacher education as consequential transition. *Language Learning & Technology, 19*(1), 102–118.

Cronbach, L. J., & Shavelson, R. J. (2004). My current thoughts on coefficient alpha and successor procedures. *Educational and Psychological Measurement, 64*(3), 391–418.

Dang, X. T., Nicholas, H., & Lewis, R. (2012). *ICT training and ICT use among Vietnamese foreign language teachers.* Paper presented at the Firth International Conference on Ubiquitous Learning, Illinois, USA. Retrieved from https://secure.cgpublisher.com/conferences/234/proposals/234

Desjardins, F. J., Lacasse, R., & Belair, L. M. (2001). Toward a definition of four orders of competency for the use of information and communication technology (ICT) in education. *In Proceedings of the IASTED International Conference. Computers and Advanced Technology in Education,* (pp. 213–217). Banff: ACTA Press.

Ebsworth, M. E., Kim, A. J., & Klein, T. J. (2010). Projections: From a graduate TELL class to the practical world of L2 teachers. *CALICO Journal, 27*(2), 349–375.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*. California: Addison-Wesley Publishing Company.

Garrett, N. (2009). Computer-assisted language learning trends and issues revisited: Integrating innovation. *The Modern Language Journal, 93*(s1), 719–740.

Gönen, S. I. p. K., & Aşık, A. (2019). A review of studies on CALL teacher education: Trends and issues. In G. Y. Ekşi, L. Guerra, D. Werbińska, & Y. Bayyurt (Eds.), *Research trends in English language teacher education and English language teaching* (pp. 343–362). Turkey: University of Évora.

Guichon, N., & Hauck, M. (2011). Editorial: Teacher education research in CALL and CMC: More in demand than ever. *ReCALL, 23*(3), 187–199.

Gul, S. B. A., Qasem, M. A. A., & Bhat, M. A. (2015). Effect of items direction (positive or negative) on the reliability in Likert scale. *Education India Journal 4*(4), 187–200.

Hampel, R. (2006). Rethinking task design for the digital age: A framework for language teaching and learning in a synchronous online environment. *ReCALL, 18*(1), 105–121.

Hampel, R. & Stickler, U. (2005) New skills for new classrooms: Training tutors to teach languages online. *Computer Assisted Language Learning*, *18*(4), 311–326.

Healey, D., Hanson-Smith, E., Hubbard, P., Ioannou-Georgiou, S., Kessler, G., & Ware, P. (2011). *TESOL technology standards: Description, implementation, integration.* Alexandria, VA: TESOL Publications.

Hubbard, P., & Levy, M. (2006). *Teacher education in CALL*. Amsterdam, The Netherlands: John Benjamins.

Jeong, K. O. (2017). Preparing EFL student teachers with new technologies in the Korean context. *Computer Assisted Language Learning*, *30*(6), 488–509.

Kelly, M., Grenfell, M., Allan, R., Kriza, C., & McEvoy, W. (2004). European profile forlanguage teacher education: Final report. Retrieved from http://ec.europa.eu/education/languages/pdf/doc477_en.pdf

Kessler, G. (2006). Assessing CALL teacher training: What are we doing and what could we do better? In P. Hubbard & M. Levy (Eds.), *Teacher education in CALL* (pp. 23–42). Amsterdam, The Netherlands: John Benjamins.

Kessler, G. (2010). When they talk about CALL: Discourse in a required CALL class. *CALICO Journal, 27*(2), 376–392.

Kim, H. K. (2008). Beyond motivation: ESL/EFL teachers' perceptions of the role of computers. *CALICO Journal, 25*(2), 241–259.

Kozlova, I., & Priven, D. (2015). ESL teacher training in 3D virtual worlds.

Language Learning and Technology, 19(1), 83–101.

Kuhlemeier, H., Van Den Bergh, H., & Melse, L. (1996). Attitudes and achievements in the first year of German language instruction in Dutch secondary education. *The Modern Language Journal, 80*(4), 494–508.

Latchanna, G., & Dagnew, A. (2009). Attitude of teachers towards the use of active learning methods. *E-journal of All India Association for Educational Research, 21*(1).

Le, M. X. (2016). *Lecturers' adoption and integration of information communication technology in English teacher education at two universities in the Mekong Delta, Viet Nam* (Doctoral dissertation). Retrieved from http://hdl.handle.net/2123/14995

Liu, M. H., & Kleinsasser, R. C. (2015). Exploring EFL teachers' CALL knowledge and competencies: In-service program perspectives. *Language Learning & Technology, 19*(1), 119–138.

Liu, Y. (2014). Motivation and attitude: Two important non-intelligence factors to arouse students' potentialities in learning English. *Creative Education, 5*, 1249–1253.

Livingston, K., & Flores, M. A. (2017). Trends in teacher education: A review of papers published in the European journal of teacher education over 40 years. *European Journal of Teacher Education 40*(5), 551–560.

Mackey, A., & Gass, M. S. (2012). *Research methods in second language acquisition: A practical guide.* West Sussex, UK: Blackwell Publishing.

Mantle-Bromley, C. (1995). Positive attitudes and realistic beliefs: Links to proficiency. *The Modern Language Journal, 79*(3), 372–386.

Marandi, S. S. (2019). Preparing for a digital future: CALL teacher education in Iran. In H. Reinders, C. Coombe, A. Littlejohn, & D. Tafazoli (Eds.), *Innovation in language learning and teaching: The case of the middle east and north Africa* (pp. 223–240). Cham: Palgrave Macmillan.

McGarr, O., & Mcdonagh, A. (2019). *Digital competence in teacher education output 1 of the Erasmus + funded developing student teachers' digital competence (DICTE) project*. Retrieved from https://dicte.oslomet.no/wp-content/uploads/2019/03/DICTE-Digital-Competence-in-Teacher-Ed.-literature-

MOET. (2014). *Document No. 792/BGDĐT-NGCBQLGD-Competency framework for language teachers in general education.* Retrieved from https://thuvienphapluat.vn/cong-van/lao-dong-tien-luong/Cong-van-792-BGDDT-NGCBQLGD-nam-2014-Yeu-cau-co-ban-nang-luc-giao-vien-tieng-Anh-pho-thong-221908.aspx

NFLP 2020. (2013). *A curriculum of training teachers on competencies to apply information communications technology into language teaching*. Course material.

Oroujlou, N., & Vahedi, M. (2011). Motivation, attitude, and language learning. *Procedia - Social and Behavioral Sciences, 29*, 994–1000.

Park, C. N., & Son, J.-B. (2009). Implementing computer-assisted language learning in the EFL classroom: Teachers' perceptions and perspectives. *International Journal of Pedagogies & Learning, 5*(2), 80–101.

Peeraer, J., & Petegem, P. V. (2011). How to address integration of ICT in teaching practice? Research on factors influencing the use of ICT in education. In A. Méndez-Vilas (Ed.), *Education in a technological world: Communicating current and emerging research and technological efforts* (pp. 237–244). Badajoz, Spain: Formatex Research Centre.

Peeraer, J., Tran, N., & Tran, T. (2009). *Policy analysis integration of ICT in higher education in Vietnam*. Paper presented at the international workshop on policies for teachers and educational leaders in innovative education process, Hanoi, Vietnam.

Pinner, R. S. (2012). Teachers' attitudes to and motivations for using CALL in and around the language classroom. *Procedia-Social and Behavioral Sciences, 34*, 188–192.

Rafiee, S. J., & Purfallah, S. A. (2014). Perceptions of junior high school teachers toward computer assisted language learning (CALL) within the context of Azarbayjan Provinces. *Procedia-Social and Behavioral Sciences, 98*, 1445–1453.

Ryan, E. B., & Giles, H. (1982). *Attitudes towards language variation*. London: Edward Arnold.

Sampson, D., & Fytros, D. (2008). Competence models in technology-enhanced competence-based learning. In H. H. Adelsberger, Kinshuk, J. M. Pawlowski, & D. G. Sampson (Eds.), *Handbook on information technologies for education and training (2nd ed.)* (pp. 155–178). Berlin, Heidelberg: Springer.

Schmid, E. C. (2017). *Teacher education in computer-assisted language learning: A sociocultural and linguistic perspective.* London: Bloomsbury Academic.

Son, J.-B. (2002). Computers, learners and teachers: Teamwork in the CALL classroom. *English Language Teaching, 14*(2), 239–252.

Son, J.-B. (2014). Moving beyond basics: From CALL coursework to classroom practice and professional development. In J.-B. Son (Ed.), *Computer-assisted language learning: Learners, teachers and tools* (pp. 122–149). Newcastle upon Tyne, UK: Cambridge Scholars Publishing.

Son, J.-B. (2015). Digital literacy. Retrieved from http://drjbson.com/projects/dl/

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

Tai, S. J. D. (2015). From TPACK-in-action workshops to classrooms: CALL competency developed and integrated. *Language Learning & Technology, 19*(1), 139–164.

Tan, C. (2006). Creating thinking schools through 'Knowledge and Inquiry': The curriculum challenges for Singapore. *The Curriculum Journal, 17*(1), 89–105.

Teo, P. (2014). Making the familiar strange and the strange familiar: A project for teaching critical reading and writing. *Language and Education, 28*(6), 539–551.

Tezci, E. (2010). Attitudes and knowledge level of teachers in ICT use: The case of Turkish teachers. *International Journal of Human Sciences, 7*(2), 19–44.

Thomson, R. (2017). Measurement of accentedness, intelligibility, and comprehensibility. In O. Kang, & A. Ginther (Eds.), Assessment in second language pronunciation (pp. 11–29). New York: Routledge.

Vo, P. T. N. (2019). *An investigation of ICT policy implementation in an EFL teacher education program in Vietnam* (Doctoral dissertation). Retrieved from https://ro.ecu.edu.au/theses/2250

Wang, Y., Chen, N. S., & Levy, M. (2010). Teacher training in a synchronous cyber face-to-face classroom: Characterizing and supporting the online teachers' learning process. *Computer Assisted Language Learning*, *23*(4), 277–293.

Wesely, P. M., & Plummer, E. (2017). Situated learning for foreign language teachers in one-to-one computing initiatives. *CALICO Journal, 34*(2), 178–195.

Wiebe, G., & Kabata, K. (2010). Students' and instructors' attitudes toward the use of CALL in foreign language teaching and learning. *Computer Assisted Language Learning*, *23*(3), 221–234.

Zimmerman, B., & Kitsantas, A. (2005). Homework practices and academic achievement: The mediating role of self-efficacy and perceived responsibility beliefs. *Contemporary Educational Psychology, 30*(4), 397–417.

ACKNOWLEDGMENT

We are immensely grateful to Professor Yeu-ting Liu, Department of English, National Taiwan Normal University for his comments on an earlier version of the manuscript. We would like to show our gratitude to Professor Jeong-Bae Son, University of Southern Queensland, Australia for sharing his wisdom with us. We would also like to thank the anonymous reviewers of the *Taiwan Journal of TESOL* for their insights. Any errors are our own and should not tarnish the reputations of these esteemed persons.

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PUBLISHING RECORD

Manuscript received: November 4, 2020; Revision received: April 27, 2021; Manuscript accepted: April 29, 2021.

APPENDICES

Appendix A. Questionnaire on ICT attitudes

Please answer the following questions

I. ICT EXPERIENCES

1. Have you encountered the term ICT?
   Yes No
2. How do you rate your interest in ICT?

a. Not interested at all
b. Fairly interested
c. Interested
d. Strongly interested

3. Please choose one level of agreement for each statement based on how much you agree with the point of view in the item.

1. Strongly disagree
2. Disagree
3. Agree
4. Strongly agree

a. Using computers is enjoyable
b. I like using computers in teaching English
c. Computers save time and effort in EFL lessons
d. I would rather do things by hand than with a computer
e. I do not think I would ever need a computer in my classroom
f. Computers can enhance effectiveness of my teaching
g. Computers can improve education of English language
h. Teaching with computers offer real advantages over traditional methods of instruction
i. Computer technology cannot improve the quality of students' learning

Appendix B. Questionnaires on ICT/CALL competences

Please choose the number that best describes your level of confidence in using technology for teaching purpose, with:
1 - extremely unconfident
2 - unconfident
3 - confident
4 - extremely confident

A. Assess the potential and limits of technologies for language and culture learning

1. I can use interactive technological learning tools (interactive whiteboard/LCD panel, tablet, digital course book, etc.)
2. I can select suitable technologies for my teaching.
3. I can understand the advantages of using different technologies in my teaching context.
4. I can understand the disadvantages of using some technologies in my teaching context.

B. Carry out a needs analysis to introduce adequate technologies at appropriate moments in a pedagogical sequence

1. I can use appropriate technology according to different levels of students that I taught.
2. I can use appropriate technology according to the availability of classroom facilities.
3. I can decide the technologies that are suitable to different teaching purposes.
4. I can use technology to make lesson plans according to the outcomes stated in the curriculum.

C. Handle basic tools and applications, and solve simple technical problems

1. I can understand the basic functions of computer hardware components.
2. I can change computer screen brightness and contrast.
3. I can minimize, maximize and move windows on the computer screen.
4. I can capture computer screen.
5. I can write files onto a CD, a DVD or a USB drive.

6. I can use a 'search' command to locate a file.
7. I can use keyboard shortcuts (e.g. copy, cut, paste, save)
8. I can download and install new software on a computer.
9. I can read and understand error messages on a computer.
10. I can scan disks for viruses.
11. I can edit digital photos on my computer.
12. I can record and edit digital sounds on a computer.
13. I can record and edit digital videos on a computer.
14. I can operate a word processing program. (e.g. Word)
15. I can operate a presentation program. (e.g. Powerpoint)
16. I can use spreadsheets. (e.g. Excel)
17. I can use emails
18. I can use social networking sites (e.g. Facebook)
19. I have an online community (e.g. discussion forum, chatroom) I regularly visit.
20. I can use the Internet to access different types of information
21. I can use the web search engines effectively (e.g. Google)
22. I can search for information on the Internet for teaching purposes.
23. I can use digital dictionary.

D. Design appropriate tasks

1. I can use technology to design tasks for different teaching purposes.
2. I can use technology to design appropriate tasks for various abilities of students.
3. I can use appropriate technologies for designing tasks in different language learning skills.

E. Design for interactions within and outside the classroom in view of the technologies' affordance

1. I can use technologies to create out-of-class interactive activities for my students.
2. I can create online learning environments through popular social networking sites (e.g. Viber, Messenger, Skype, etc.)

F. Rethink the contract with learners and colleagues

1. I can use technologies to carry out cooperative teaching and learning.
2. I can guide my colleagues in integrating technologies into teaching.

3. I can use technologies to do collaborative tasks with my colleagues (e.g. Google docs)

G. Manage time and optimize the integration of technologies

1. I can manage time effectively when integrating technologies into my teaching.
2. I can manage classroom effectively while using different technologies.
3. I can use various digital teaching resources (e.g. educational softwares, mobile apps)
4. I can create a personal website.
5. I can update and manage my webpage.
6. I can use video sharing sites
7. I can use photo sharing sites.
8. I can create pictures.
9. I can create videos.
10. I can use technologies in testing and assessment (online quizzes, electronic portfolio, online test…)