Edu PSU | Journal of Education, Prince of Songkla University, Pattani Campus
Vol.31 No.1 : January - April 2020, pp. 38-59

Beliefs, Benefits, and Challenges of Using Educational Technologies in English Language Teaching: Voices from the Secondary School Teachers in Western Region of Thailand

Intira Kueasnou
M.A. (English), Lecturer
English Department, Faculty of Education
Muban Chombueng Rajabhat University, Ratchaburi.
Remart Dumlao
M.A. (Applied Linguistics), Lecturer
English Department, Faculty of Education
Muban Chombueng Rajabhat University, Ratchaburi.

Received : June 10, 2019 / **Revised :** March 6, 2020 / **Accepted :** March 30, 2020

Abstract

This study explored the voices of 879 secondary teachers in the Western Region of Thailand with regards to their beliefs, perceived benefits, and challenges in using educational technology in their language teaching. The methods used to collect the data were modified questionnaires and focus group discussions. Based on the findings, teacher-participants reported that they had positive beliefs towards using educational technology, and they perceived the benefits of it to their teaching practices and student's learning process. Some issues and challenges that they noted included lack of facilities, lack of pedagogical, conceptual, and practical knowledge in using Educational Technology, and lack of support from the administration hindered them in using EdTech - based - activities. The implication is for the administration, policymakers, researchers, and curriculum designers to consider the findings of this study and address the needs of these teachers to create a community of 21st - century teachers and learners.

Keywords: Beliefs, Benefits, Challenge, Educational Technology, Language Teaching

Introduction

Earlier work in the broader literature of learner and teacher education has emphasized the crucial role of educational technology not only in learning and motivation but also in producing concussive learning that fits to the interest of learners (Bonk & King, 2012; Manca & Ranieri, 2013; Park, Nam, and Cha, 2013; O'Malley, 2013; Sams & Bergmann, 2013). It is widely acknowledged that teachers' educational beliefs are strong indicators of their planning, instructional decisions, and classroom practices, particularly in modernizing of educational instruction, where teachers demonstrate desire by finding instruction that suits to the interest of learners and by taking an important issue that might hinder the success of learning and teaching. Lazar (2015) determines the most pervasive influence on classroom discussions was the teacher's beliefs about teaching and learning. In recent years, considerable time and effort have gone into developing and implementing these suggested language education reforms, particularly on the reformation of the usefulness of technology in the educational setting. However, many of these reform reports have ignored the beliefs of classroom teachers. Studies warn of the inherent problems associated with ignoring classroom teachers' beliefs about reform. Cheung and Leung (2013) mentioned that to fully claim an effective change in particular educational institutions, beliefs, challenges and perceived benefits of teachers should be taken into account, as these aspects could tell success and failure of a particular context. This then makes the investigation of teachers' beliefs a necessary and valuable avenue of educational inquiry.

The issue of English in Thailand has been a controversial and much - disputed subject in the field of language learning and teaching. As Wiriyachitra (2002) discusses, English language teaching in Thailand has failed to prepare Thai learners of English for the fast - changing world due to many considerations, i.e. proficiency, educational policy, among others. Accordingly, Thailand has gained low English proficiency with a score of 48.54, gaining its spot as rank No. 64 out of 88 countries / regions in the world (Dumrongkiat, 2018). With this alarming data of proficiency index, the Ministry of Information and Communication Technology (Ministry of ICT, 2018) introduces the integration of technology platforms in teaching and learning. The ministry highlights that the issue of technology integration in an educational setting has placed as of the ministry's mandate. The plan supports a modern approach to uplifting, creating, and enhancing Information and Communications Technologies (ICT) education amongst teachers and students to facilitate active learning. Similarly, sometime in 2012, the Thai government launched the project "One Tablet PC Per Child" to improve education by addressing inequality and uneven standards of education quality for all citizens of the Kingdom. Specifically, it was noted that some students have more opportunities to use and learn about technology than others (OECD, 2005). Thailand has been trying to utilize the effectiveness of Educational Technology (hereto EdTech) in improving the language learning of all Thai learners. However, few studies have investigated the beliefs, benefits, and challenges of Thai teachers when they are using EdTech in their language teaching.

More and more schools are enticed to promulgate this mandate. As an effect, most public schools try to use technology as a supplementary tool to enhance classroom

interaction (Winley & Lau, 2012). However, these rapid changes are having a serious effect on teacher's beliefs and competence in ICT. In the study of Akarawang, Kidrakran, and Nuangchalerm (2015) with 377 teachers from 35 schools and 12 school directors, supervisors and professional teachers. The results found that teachers are not competent enough to integrate ICT in their classroom in general, teaching in particular. In their study, they recommended that teachers should have adequate knowledge of achieving better practical skills and understanding of ICT. Similarly, Viriyapong and Harfield (2013) indicated that there are benefits of ICT programs in Thailand; however, there are also problems that the teacher needs to face, and that is implementation. This account seeks now to understand how public teachers perceive themselves in using educational technology in their teaching and also the challenges they are facing while using educational technology.

Terminologies

Before proceeding further, it is worth dwelling a little on the wording that the researcher is using to refer to the central unit of analysis, namely, Educational Technology (EdTech), Educational Application (EdApp), and Information Communication Technology (ICT). The researcher uses these terms EdTech, EdApp, and ICT (which are generally refers to technology) with the emphasis on any materials or instruments manipulated by technology or machine. The term is often used in any books, research, documentation, and even in the academic field. For instance, Januszewski and Molenda (2008) define the term educational technology as any or technology available for use in teaching and learning including computers, multi - media, the internet, or any other electronic devices or interactive devices. This means that any ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources are considered EdTech (Januszewski & Molenda 2013; Seels & Richey, 2012). Backlund and Hendrix (2013), in their study, describe EdApp as any computer software which is made for any educational purpose. It encompasses different ranges from language learning software to classroom management software to reference software. Throughout this paper, the terms Educational Technology (EdTech), Educational Application (EdApp), and Information Communication Technology (ICT) used interchangeably, as it all refers to the usage of technology in an educational context (Howland, Jonassen, & Marra, 2012).

Related Literature

Prior research explored and apprehended various dimensions of Educational Technology in the context of language learning. Scholars explored EdTech with regards to teachers' perception, mobility, and beliefs (Buabeng - Andoh, 2012; Nchunge, Sakwa, & Mwangi, 2012; Raman & Mohamed, 2013; Goktas & Demirel, 2012), teachers' self - efficacy and methods in using EdTech (Fanni, Rega, & Cantoni, 2013; Robertson & Al-Zahrani, 2012), constructivism and the technology of instruction (Duffy & Jonassen, 2013; Mengorio & Dumlao, 2019; Howland et al., 2013; Kabilan et al., 2010), teaching and learning behaviors (Sang, Valcke, Van Braak, & Tondeur, 2010; Golonka, Bowles, Frank, Richardson, & Freynik., 2014; Ross, Morrison, & Lowther, 2010), critical thinking (Tamim, Bernard, Borokhovski, & Abrami, 2010; Cheung & Slavin, 2012), and translation (Cook,

2010; Zhang, 2016; Hwang, Shih, Ma, Shadiev, & Che, 2016). These studies have conceptualized EdTech and the beliefs, self - efficacy, perception, and challenges of teachers in using educational technology in their teaching, although some of them particularly study the impact and effect of EdTech in language learning and solely to the beliefs, benefits, and challenges of while using educational technology in language teaching.

Earlier work has found that teachers have been perceived benefits and beliefs in using EdTech to their students, as EdTech embeds motivation that could captivate learner's attention. For instance, Prestridge (2012) explores teacher beliefs that influence the ways Information and Communications Technologies (ICT) are used in learning contexts. The paper takes a closer look at the types of beliefs that influence ICT practices in classrooms and the alignment of these beliefs to current pedagogical reform in Australia. Findings revealed that specific links between ICT beliefs that are informing teachers' practices. ICT beliefs and practices are aligned to the reform agenda for digital pedagogies. Similarly, Fluck and Dowden (2013) examined pre-service teachers' beliefs about their stakeholder role in terms of influencing ICT innovation and adoption. It was found out that their beliefs about the transformative use of ICT in schooling were divergent. Teachers' pedagogical beliefs and their use of digital media in classrooms, Petko (2012), surveyed 357 Swiss secondary school teachers. In her study, it was revealed that there were significant positive correlations between will, skill, and tool variables and the combined frequency and diversity of technology use in teaching. It was highlight that computer and internet applications are more often used by teachers in the classroom when : (1) when the teachers consider themselves to be more competent in using ICT for teaching; (2) when there is more computers are readily available; (3) when the teacher is more convinced that computers improve student learning; and (4) the teacher more often employs constructivist forms of teaching and learning. Other studies were conducted by Sherman and Howard (2012) and Kim, Kim, Lee, Spector, and DeMeester (2013), where they found out that teachers' belief in EdTech integration is really important, as their belief helps them to facilitate the learning process through the aid of technology.

Specifically, with this increasing awareness and interest, the technology quickly was recognized as a powerful vehicle for curricular restructuring and offered educators innovative ways to enhance student learning; however, there are some challenges in terms of implementation. For instance, Gallardo del Puerto and Gamboa (2009) present the results of a web - based questionnaire administered to 166-second language teachers and designed to obtain information about their use and needs of information and communication technologies (ICTs) as related to language learning (LL). Analyses revealed that, although teachers believe that second language acquisition is primarily driven by social interaction, they seldom use computers as a means to foster collaboration or interaction. In Iran, Salehi and Salehi (2012) investigated the teachers' perceptions of the barriers and challenges preventing teachers to integrate ICT in the classroom of 30 high school English teachers. The findings indicated that although teachers had a strong desire to use ICT in the classroom; they were encountered with some barriers. Insufficient technical supports at schools and

little access to the Internet and ICT were considered as the major barriers preventing teachers to integrate ICT into the curriculum. While in Malaysia, Yunus (2007) investigates the present use of ICT among ESL technical school teachers in teaching, factors that affect the use of ICT and perceptions of their skills in ICT. It was found out that ESL teachers were facing problems when it comes to EdTech practical knowledge, though most of them agreed to have training in ICT.

Previous studies have reported technology integration at schools and a factor affecting such integration has drawn the attention of many researchers and has been of high interest to them. Many studies and projects have been conducted to explore teachers' use of technology and factors hindering such use (Afshari, Bakar, Luan, Samah, & Fooi 2009; Baek, Jung, J., & Kim, 2008; Chen, 2010; Mumtaz, 2000). For instance, Teo (2008) surveyed pre - service teachers' attitudes toward computers used in Singapore. A sample of 139 pre-service teachers was assessed for their computer attitudes using a questionnaire with four factors, namely affect (liking), perceived usefulness perceived control, and behavioral intention to use the computer. He found that teachers were more positive about their attitude towards computers and intention to use a computer than their perceptions of the usefulness of the computer and their control of the computer. Also, Drent and Meelissen (2008) conducted a study about factors that influence the innovative use of ICT by teacher educators in the Netherlands. A sample of 210 teachers was used for the study. Their study revealed that a student - oriented pedagogical approach, positive attitude towards computers, computer experience, and personal entrepreneurship of the teacher educator have a direct positive influence on the innovative use of ICT by the teacher.

As reviewed here, the growing research on benefits, challenges, and beliefs of teachers in using EdTech provided quantitative evidence to illuminate learner's preparation and growth of learning and teaching. However, there is a paucity of research on the benefits, challenges, and beliefs of Thai teachers in Thailand. The exceptions are the studies by Siritongthaworn, Krairit, Dimmitt, and Pauet (2006) and Tetiwat and Huff, (2003). To briefly review these studies, Siritongthaworn et al. (2006) examine approaches to Learning technology usage in universities in Thailand, and to report on a preliminary investigation into factors that influence EL implementation at the Thai tertiary level. Findings revealed three factors namely, the organization, the instructor and the Internet environment. Tetiwat and Huff (2003), on the other hand, investigated the factors that influence Thai educators in accepting online education and highlight how Thai culture and values affect these influencing factors. The findings indicate that the five most influential factors are control beliefs regarding the availability of technology, cost of computer technology and Internet access, and accessibility to technology and behavioral beliefs regarding compatibility, and relative advantage. Knowing the significant contribution of teachers' beliefs, challenges and perceived benefits in using EdTech in language teaching, in this paper the researchers argue that knowing the benefits, beliefs, and challenges of teachers are essential resources to reform particular educational practices towards quality education. Cheung and Leung (2013) mentioned that effective change and program implementation depended more upon the beliefs, challenges and perceived

benefits of teachers in a particular context.

Methodology

This present study focuses on teachers' beliefs, benefits, and challenges of using educational technology in language teaching. In this study, mixed methods research was adopted. The underlying reason why researchers chose mixed method was that it provides strengths that offset the weaknesses of both quantitative and qualitative research (Jick, 1979). Therefore, by using both types of research, the strengths of each approach can make up for the weaknesses of the other (Bryman, 2008). Additionally, this study was conducted in a natural setting, public secondary schools in the Western region in Thailand, and made plentiful use of understanding through verbal narratives and flexible designs as Creswell, Hanson, Clark Plano, and Morales (2007) assert it. It is quantitative - qualitative because it involved the use of frequency count and percentage in analyzing the survey questionnaire of the participating teacher-respondents. However, high statistical instruments were not used in the study. Then, analysis proceeded with the computation and identification of the responses found in the survey questionnaire.

Participants

Before commencing the study, the researchers identified participants through a referral from colleagues, former students, and personal knowledge. A total of eight hundred seventy - nine participants with the age ranging from 25 to 49 were contacted through Line and Facebook. Upon approval, the researchers had informed the teachers about the purpose of the research. Furthermore, it was made clear that their participation is voluntary and all the information obtained from the study would be treated with the utmost confidentiality. This study was conducted at public secondary schools in the western region of Thailand (Ratchaburi = 271, Kanchanaburi = 202, Petchaburi = 120, Prachuap Khiri Khan = 105). Additionally, all of the participants in this study had experience using technology in their classes. It shows from the table that these teachers have a preferred teaching methodology and seems varied also when it comes to class size they teach. Although in this study, the researcher did not seek to investigate the methodology they use while using educational technology, rather their beliefs, benefits, and challenges in using educational technology in teaching.

Research Tool

Questionnaire

For this study, a questionnaire from Almekhlafi and Almeqdadi (2010) and Lee, Cerreto, and Lee (2010) were modified, adapted, and use. The questionnaire consisted of two parts; the first part consisted of the demographic profile of the respondents; while part two contains about their beliefs, benefits, and challenges faced by the participants in using educational technology in their teaching. There were 15 items in the questionnaire that refer to the beliefs, benefits of language teachers in using educational technology, and 11 items for the challenges in using educational technology. All the items in the questionnaire, on the other hand, followed a 4-point Likert scale format of totally agree, agree, disagree, and totally disagree. The questionnaire was distributed from August 2018 to December 2018. The questionnaire was floated and sent through Google form and eventually, participants were requested to send it also through Google form.

It was retrieved immediately after the participants completed it. Responses were then tabulated and analyzed.

Group interview

After the respondents completed the survey questionnaire, focus group interview was conducted with the 14 teachers who agreed to participate in the group discussion. The interview was conducted during the year - end teacher celebration in December 2015 at one of the private hotel in Bangkok, Thailand. These interviews aimed to collect detailed data on technology integration methods, problems hindering such integration, and incentives that increase this integration in the class. Hence, the group discussion lasted over 2-3 hours

Data Analysis

The results obtained from the questionnaire were tabulated through the use of percentage and frequency count. These percentages were combined to interpret and describe the findings. Interviews, on the other hand, were audio - recorded through the use of a mobile phone. Although the questions were asked in English, some teachers answered in the Thai language. Thus, the audio texts were transcribed and translated into English. All the data were then subjected to content analysis (Mayring, 2004) and categorized according to the themes developed from the analysis. The transcripts were read carefully and repetitively to identify these themes and were categorized and arranged according to the research questions posed for this.

Results

Quantitative Results

Results from the survey questionnaire with regards to participants' beliefs in using educational technology in their language teaching and also the challenges they are facing while utilizing educational technology in their classroom. To quantify the result of the survey questionnaire, the percentages of totally agree and agree were combined against the percentages of totally disagree and disagree.

Table 2 Participants' beliefs in using educational technology.

Statements	Result	
	Totally Agree/Agree (n=879)	Totally Disagree/Disagree
1. It is difficult because some students know more about computers than many teachers do.	24%	76%
2. Using the educational application is of little value in the classroom because they are too difficult to use	39%	61%
3. Using education application help to me to assist my instruction	49%	51%

Table 2 Participants' beliefs in using educational technology.

Statements	Result	
	Totally Agree/Agree (n=879)	Totally Disagree/Disagree
4. Promotes the development of students' interpersonal skills (e.g., ability to relate or work with others).	49%	51%
5. Demands that too much time be spent on technical problems	62%	38%
6. Using educational application are valuable tools that can be used to improve the quality of education.	77%	23%
7. Promotes the development of communication skills (e.g., writing and presentation skills)	87%	13%
8. Using educational applications reduces my interaction with my learners.	90%	10%
9. Using educational application helps learners to cooperate more on the activity	90%	10%
10. Using the educational application will positively impact my teaching and students' learning.	91%	9%
11. Using educational application students are more enthusiastic about the subject	92%	8%
12. Using educational applications could help me as an educational application expert.	97%	3%
13. Using educational application allows teachers to be learning facilitators instead of information providers.	97%	3%
14. Using educational application could provide an environment that appeals to a variety of learning styles of my students.	99%	1%
15. Using educational application enables teachers to check students output immediately	99%	1%

It is apparent from this table that the majority of the secondary teachers believed that using educational technology positively impacts their teaching and students learning. They also emphasized that educational application could help them as an educational application expert. In this view, they also believed that educational technology allows teachers to be learning facilitators instead of information providers, enables teachers to check students' output immediately, and motivates students to be more enthusiastic about the subject. However, using educational technology they believed that educational technology reduces teacher's interaction with their learners. The single most striking observation to emerge from the data was that 49% of them believed educational technology does not promote the development of students' interpersonal skills (e.g., ability to relate or work with others). Value concern using educational technology, 61 % of them totally disagreed that using EdTec has little value in the classroom because they are too difficult to use. This is consistent with their stand that 76 % of them demonstrate difficulty in using EdTech as some students know more about computers than them. What makes the researcher puzzles was that 51 % of them total disagree that using education application help them to assist their instruction. This is perhaps the demand that too much time be spent on technical problems as 62 % of them perceived this way.

Given the fact that EdTech helps teachers in facilitating classroom and teaching, it can be noted that participant's experiences also challenge while implementing EdTech in their classroom and also in their teaching.

Table 3 Participants' challenges in using educational technology

Statements	Result	
	Totally Agree/Agree	Totally disagree/disagree
1. No financial support from the school to implement educational application	53%	47%
2. Poor wireless connection/ internet access	56%	44%
3. The curriculum is not aligned with educational application	65%	35%
4. Not enough training on educational technology and teachers' guidelines on how to use educational application	75%	25%
5. There is a lack of recognition to conducted educational technology activities	75%	25%

Table 3 Participants' challenges in using educational technology

Statements	Result	
	Totally Agree/Agree	Totally disagree/disagree
6. There are too much teaching workload affects teachers in preparing an educational application	75%	25%
7. Educational technology is not suitable for the learning context	77%	23%
8. No much application program	85%	15%
9. No facilities of educational technology	86%	14%
10. Will increase the amount of stress and anxiety teacher experience	87%	13%

From the data in Table 2, it is apparent that the secondary teachers show strong agreement and disagreement on some items in the questionnaire about the challenges they faced in utilizing EdTech in their teaching. Most of the participants agreed on the challenges they have been facing when it comes to facilities and application programs. Gülbahar, Jacobs, and König (2015) posits that facilities and application programs are important peripheries in educational technology mandate, as without this- everything seems to be nothing. They also agreed that most of them do not have much training on how to handle educational technology in their teaching. This table is quite revealing in several ways. For instance, 90 % of the teacher - participants agreed that there are none teachers' guidelines on how to use educational application. As for the first phase of the questionnaire, the researchers asked the participants if they were using EdTech in their teaching, and they have responded yes. This result may be explained that 65 % of the participants agreed that those curriculums are not aligned with the educational application. Most of the respondents agreed that there is a lack of recognition to conducted educational technology activities. They also agreed that too much teaching workload affects teachers in preparing educational technology activities. Furthermore, 87 % of the teacher-participants agreed that using educational technology increases the amount of stress and anxiety teacher experience; while another 77% agreed that educational technology is not suitable to the learning context.

Qualitative Findings

To further explore teacher beliefs, benefits, and challenges of using educational technology in language teaching measured by the questionnaire, a focus group of 14 respondents who were put in a group of two with seven-member were convened to better understand both the beliefs of the utilizing educational technology and the challenges that have been facing.

Respondents discussed their views, including the issues, challenges, and possible solutions. Three main themes were noted: Advantages in using EdTech; Challenges in implementing EdTech; and Professional development in EdTech Integration. For data presentation, only the initials of their last names and their ages were included in the quotations below.

Advantages in using EdTech

All of the nine (14) participants held positive beliefs in using EdTech in their classroom. Although their responses varied in some ways, it still demonstrates the impact in both teachers and learners. One of the teacher - participants mentioned,

> *"Actually, educational technology helps me to easily check my student's output. I am working in a public school and we have so many things to do in just one day. So using technology aids me in both teaching and working stuff. For instance, the Excel, I just put their grades and everything follows' [PJ, 28]*

Two participants supported this idea,

> *"Using technology makes me more confident about my teaching materials as well as to my teaching process. In preparing materials, for example, every time I present an unknown topic to my students I do searching in google and trying to find pictures that may help me to explain the subject matters. At the end of the lesson, my students were able to at least understand what I am trying to explain" [L, 31]*

> *"Using educational application makes my class lively, as I am teaching M1, where most of the learners are addicted to technology, So I got that opportunity to catch their interest in my subject since my English, particularly grammar is quite boring to teach and also to learn for some Thai students, especially for low learners" [R, 27]*

Challenges in implementing EdTech

Teacher - participants revealed some challenges influencing the implementation of EdTech in their teaching practices. In their account, they explicitly mentioned that these challenges seemed to hinder them not only to their desire to implement but also to the lesson proper. For example, one participant said that using EdTech may contribute to the understanding of her learners, i.e., animals from other countries, soundtracks, among others. Thus these factors were identified below:

a. Challenges to facilities

Most of the teacher-participants revealed that the facility in EdTech implementation was the main problem. One male teacher maintained that;

> *"I so trigger to implement EdTech in my class, however, my school is lacking for facilities, and sometimes we have to make an appointment from the teacher - in - charge. I remember there was a time that my topic has to do with media and of course I wanted to show to my students how to use these media platforms. But since there were no enough facilities (e.g. projector, audio) I was not able to show. Doing this is also kind of " [S, 27]*

> *"One of the challenges in my school regarding technology was the facilities itself. There are no enough facilities*

such as projector, well there are projects, but some do not work. I tried to tell this to our director but seemed no action at all. " [F, 32]

"Sometimes, I want to use, but other teachers were using it, so no time to implement my knowledge in EdTech" [T,25]

However, one teacher said that her school has enough facilities since the new director believes that having these facilities could enhance learners' skills;

"I am so glad, that my school has a good facility to utilize, but some of my old colleagues are afraid to use because they are not aware on how to use it" [A, 32]

b. Lack of knowledge in EdTech

Although ten of the participants perceived that their students were motivated to learn English using EdTech, two revealed that are not well knowledgeable when it comes to trends in EdTect,

"I know that EdTech is quite interesting to some of my students, but admittedly I do not have much knowledge on how to use the application in my classroom. I am much willing to use, but I have small or I mean 1 % knowledge of technology" [L, 29]

"I want to use the application, like Kahoot, but sometime I do now know how to make it more interesting to my student, I have tried once, but I feel they easily got bored" [P,32]

c. Lack of support from the administration

While some enjoying the full support of their heads, but for three teacher - participants, they have not received modernization support to their heads. Three of them mentioned that;

"I requested my boss, three years ago to purchase a new computer for my students, but she just said yes, and have not to wait until now" [S, 34]

"I use the computer but they are all olds, I asked my head several times to request the director to buy a new one, since most of the computer did not work" [H,29]

This was supported by another female teacher [B, 33 years] who said,

"Well, lack of recognitions to conduct educational technology activities, I introduced a new concept before about ICT, but my boss did not support me to implement such activity in some of my classes without reason"

Professional development in EdTech Integration

Nine participants during interviews voiced their needs to have a professional development program in using EdTech integration. They said that they needed support from their administration to enhance their skills in EdTech for them to implement what is supposed to implement

"We should need hand - to - hand training on how to implement those applications in our teaching. I know that to improve teaching in the 21st century, we need to be competent first in or on how to use those things in our teaching" [O, 31]

"Well, the government should see how to improve education by using

technology. I am not well aware of some dimensions of ICT. For instance, I do not even know how to make a good slide that could easily captivate the interest of my learners. It's kind of weird thing, but it is true" [W, 32]

Two participants shared the same thoughts by saying that:

"School should send teachers in training, that is why, our competent and knowledge will be enhanced" [G, 38]

"Support is not only needed, but our head should also give incentives for those teachers who can introduce a new concept of teaching using education technology. In this way, it would help and encourage other teachers to do so". [K, 39]

Discussion

This study reports on the beliefs, benefits, and challenges using the educational technology of secondary English teachers in Thailand. From the study, several key points can be taken from the results and data findings. First, Thai teachers held a positive belief in using EdTech in their teaching. For example, some participants said that through technology it enables them to facilitate the learning more conducive and interesting. This finding corroborates the ideas of Butler-Pascoe and Wiburg (2013), who suggested that when technology is being utilized in the classroom, students seem to be active rather than passive. Although the literature reported that using much educational technology inside the classroom could isolate other competencies (Schmid, 2008; Lai & Kritsonis, 2006; Schmid, 2006), teacher - participants maintained its usefulness in language teaching. Findings also show that teacher-participants believed that educational technology allows teachers to be learning facilitators instead of information providers, enables teachers to check students' output immediately, and motivates students to be more enthusiastic about the subject. This finding is in agreement with Shih's (2011) and Stockwell's (2013) findings which showed that technology assists college students in learning English writing and it motivates the learner to participate and eventually finish their task immediately. However, Lai and Kritsonis (2006) argue that computers cannot handle unexpected situations. Second language learners' learning situations are various and ever-changing. Due to the limitations of the computer's artificial intelligence, computer technology is unable to deal with learners' unexpected learning problems and respond to learners' questions immediately as teachers do. Therefore, the output of the learners should be qualified rigidly and carefully. However, it must be noted the quality and quantity of learners output using EdTech. While it is true that EdTech may help teachers to have a relaxing mode of teaching, it does mean that the teacher will throw all things to the computer. This kind of study must be carried out in the future to investigate whether or not there is an effect of using much or relying on EdTech itself.

Second, teacher-participants revealed that using EdTech students are more enthusiastic about the subject. This finding confirms the association between teachers' instruction and learners' motivation. This result may be explained by the fact that learners are being more and even more enticed to social media, i.e. Facebook, Instagram, among others. This might be considered as contributing to why

teachers would choose to adopt technology in their language teaching environments. In very broad terms, teachers may choose to use technology due to pressure from external sources or they may be self-motivated to use it in an attempt to add something to their language learning environment (see Stockwell, 2013 for a discussion). Teachers, however, revealed that using EdTech reduces interaction between them. Kreijns, Kirschner, and Jochems (2013) demonstrate that in this setting, given the fact that it motivates learners, it also isolates interaction between students and teachers, particularly if the activities are too enjoyable, learners may forget that there is a teacher in the room. Comer and Lenaghan (2013), however, argue that this is depending "on how teachers facilitate the learning" (p.268). Findings also revealed that through educational technology activities, learners tend to be more cooperative in completing an activity. These results are consistent with those of other studies, including the studies of Teo (2016) and Almekhlafi and Almeqdadi (2010) where they found that learners feel cooperative in completing a certain activity through EdTech, specifically if it is done through competition task.

In contrast to earlier findings, however, there are shreds of evidence that Thai teachers faced hindrances in using EdTech in their teaching. Most of them agreed that using EdTech demands too much time to be spent on technical problems. The findings of the current study are consistent with those of Howard (2013) who mentioned that access to EdTech infrastructure and resources in the classroom is a necessary condition for the integration of EdTech in education. Effective adoption and integration of EdTech into teaching in schools depends mainly on the availability and accessibility of ICT resources such as hardware, software, etc. If teachers cannot access EdTech resources, then they will not use them. Therefore, access to computers, updated software and hardware are key elements to successful adoption and integration of technology. This also accords with our earlier observations, which showed that that access to technological resources is one of the effective ways to teachers' pedagogical use of EdTech in teaching (see Ross, Morrison, & Lowther,2010; Usluel, Askar, & Bas, 2008). Therefore, these difficulties could hinder the success of learning and teaching using EdTech. However, Mok (2014) argues that teachers should be well-equipped on how to handle these unexpected circumstances, thus teachers do not only stick on their theoretical knowledge about EdTech, rather incorporate also the practical knowledge of EdTech.

Moreover, teacher-participants noted some factors influencing their implementation in ICT such as the facilities, poor connection, no much application program, and no financial supports from the school to implement an educational application. These factors affect teachers' motivation from using computers because of fear of equipment failure since no one would give them technical support in case there is a technical problem. Becta (2004) agrees that "if there is a lack of technical support available in a school, then it is likely that technical maintenance will not be carried out regularly, resulting in a higher risk of technical breakdowns" (p.16). In Thailand, Thai education system and assesses the importance of ICT in education; the meaning of technology; attempts to appraise the impact of computers, teacher/lecturer and student attitudes to technology in education, thus there is a continuous campaign on improving facilities to fully facilitate

and implement Edtech in all levels of education (Khampusaen, 2012; Sapianchai & James, 2005; Whattananarong, 2004). Similarly, Siritongthaworn et al. (2006) examine the educational learning usage in universities in Thailand and its factors that influence EL implementation at the Thai tertiary level. Findings show that one of the factors that hinder success learning and teaching using educational technology platforms was environmental facilities.

Furthermore, they also agreed that too much teaching workload affects teachers in preparing EdTech activities. Many studies have revealed that the workloads of teachers influence their acceptance of technology in classrooms (see Samarawickrema & Stacey, 2007), where they found that increased workload coupled with teaching with technology was critical to the participants of the study. Similarly, Sánchez and Alemán (2011) surveyed teachers' opinion survey on the use of ICT tools in one higher education in Europe. Findings revealed that the workload of teachers may affect their interests in preparing EdTech based activity. Another study, Neyland (2011) conducted both quantitative and qualitative research on factors influencing the integration of online learning in high schools in Sydney of 26 compute coordinators. These findings differ from the study of Selwood and Pilkington (2005), where they investigated the use of ICT in the certain workplace; they found that using ICT, it would lessen their burden in teaching. In the same way, teacher-participants also agreed that EdTech increases the amount of stress and anxiety teacher experience. Some authors have speculated that preparing EdTech base activities may bring stress and anxiety to teachers. Evidently, there are significant effects of student teaching experiences on participants' judgment of their self - efficacy about technology integration (Al - Awidi & Alghazo, 2012). Another study was conducted by Eristi et al. (2012) aimed at determining teachers views and their suggestions about the process of technology integration into educational environments and about the problems experienced in the process.

Finally, in the interview questions of the research participants, they discussed three main themes, namely, advantages in using EdTech; challenges in implementing EdTech; and professional development in EdTech Integration. Evidently, there are many advantages of using EdTech in teaching, as using instructional methods designed to encourage or require students to work together on learning tasks, allowing social learning. This finding corroborates the ideas of Blasco - Arcas, Buil, Hernández - Ortega, and Sese (2013) who suggested that technology - based activities that may produce interactivity, active collaborative learning, and engagement in learning. Teacher-participants stated that EdTech is helpful in their daily task as a teacher, EdTech use deploys multiple evidence-based strategies concurrently (e.g. adaptive content, frequent testing, immediate feedback, etc.). EdTech, Livingstone (2012), states that this can give students practice on core content and skills while the teacher can work with others, conduct assessments, or perform other tasks. Given the fact that EdTech brings advantages to learning and teaching, teacher-participants, however, mentioned their challenges while implementing EdTech based instruction in their teachings such as challenges to facilities, lack of knowledge in EdTech, and lack of support from the administration. This also accords with our earlier observations, which showed that facilities or infrastructures have an effect on EdTech implementation in

general, language and teaching process in particular. Though infrastructure support is imperative, school technology leadership Ng Foo Seong and Ho (2012), highlight "is a stronger predictor of teachers' use of computer technology in teaching" (p.23). This finding corroborates the ideas of Mbatia (2014) suggests that a leader who implements technology plans and also shares a common vision with the teachers stimulate them to use technology in their lessons. Ng Foo Seong and Ho (2014) suggest that for effective utilization of EdTech by teachers or lecturers, there is the need for strong leadership to drive a well - designed technology plans in schools.

Apart from the findings above, teacher - participants mentioned in the interview that one of the challenges was their lack of knowledge in EdTech. As Prestridge (2012) mentions teachers' EdTech competence and awareness is the major predictor of integrating EdTech in teaching. This result may be explained by the fact that the beliefs of teachers and lacked knowledge and skills towards the integration of EdTech into teaching and learning processes would hinder them in implementing EdTech. As the teacher participants profile above, 5-6 participant-teachers are teaching for almost 26-30 years, which means that they may prefer to use the traditional way of teaching. Cope and Ward (2002) highlights that technical competence influenced teacher's use of ICT in teaching. Lastly, teacher-participants narrated that they need professional development in the field of EdTech, Bauer, and Kenton (2005), who argue that teachers' professional development is a key factor in the successful integration of computers into classroom teaching. Several studies have revealed that whether beginner or experienced, EdTech - related training programs develop teachers' competences in computer use (Livingstone, 2012; Lazar, 2015; Cheung & Leung, 2013), influence teachers' attitudes towards computers (Sang et al., 2010; Golonka et al., 2014) as well as assisting teachers reorganize the task of technology and how new technology tools are significant in student learning (Godwin - Jones, 2014).

Generally, the teacher - participants highlight their beliefs, benefits, and also their challenges in using and implementing EdTech in their teaching. Although some issues were revealed during the group discussions, still they were positive in improving their EdTech competence, as they are seeking professional development. The acknowledgment of some challenges and issues with their suggested solutions in the implementation of EdTech in their institution and of the teacher participants' perceived interest in widening their theoretical, conceptual, and pedagogical knowledge about EdTech. More specifically, this study shows that EdTech training, teachers' enhancement program, and more research and discovery on the use of EdTech in language teaching should be given more emphasis by the directors of the schools and support from the government and the Ministry of Education, not just in Thailand but all countries in ASEAN region. Future studies can be done to investigate the perceptions of the program. Also, researchers may focus on other variables aside from perceptions, issues, and challenges such as these are narrow areas of research. Further study on the level of confidence of the teachers as well as their language proficiency should be conducted at the end of the second year of the training program to identify the progress that the teachers make in the training program and to see whether their perceptions

of the training program would be changed

Conclusion

This study was aimed at investigating secondary teachers' beliefs, benefits, and challenges of using educational technology in language teaching in Thailand context. Findings revealed that teachers held advantages on the use of EdTech in enhancing teaching and learning in language teaching. Despite these advantages, participants also faced some challenges such as lack of pedagogical and piratical knowledge about EdTech, administration support, and professional development. Research has revealed that these factors are related to each other.

Pedagogical and piratical knowledge about EdTech, teachers' beliefs, attitudes and knowledge influence their use of ICT in learning and teaching. Research has shown that teachers' attitudes towards technology influence their acceptance of the usefulness of technology and its integration into teaching (Prestridge, 2012). If teachers' beliefs are positive toward the use of educational technologies then they can easily provide useful insight about the adoption and integration of ICT into teaching and learning processes. Administration support, on the other hand, factors such as funding, facilities, and training influence teachers' integration and adaptation of technologies into their teaching practices. Teachers' professional development is a key factor in the successful integration of computers into classroom teaching. EdTech- related training programs develop teachers' competences in computer use (Livingstone, 2012; Lazar, 2015; Cheung & Leung, 2013), influence teachers' attitudes towards computers (Golonka et al., 2014; Sang et al., 2010) as well as assisting teachers reorganize the task of technology and how new technology tools are significant in student learning (Godwin-Jones, 2011). However, the findings were only limited and could not represent the beliefs, benefits, and challenges of all secondary teachers. Other studies may focus on modifying EdTech in the local area, program enhancements for both new and experienced teachers, and adaptation and integration on EdTech materials in all levels of education.

References

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

Akarawang, C., Kidrakran, P., & Nuangchalerm, P. (2015). Enhancing ICT Competency for Teachers in the Thailand Basic Education System. *International Education Studies, 8*(6), 1-8.

Al - Awidi, H. M., & Alghazo, I. M. (2012). The effect of student teaching experience on preservice elementary teachers' self-efficacy beliefs for technology integration in the UAE. *Educational Technology Research and Development, 60*(5), 923-941.

Almekhlafi, A. G., & Almeqdadi, F. A. (2010). Teachers' perceptions of technology integration in the United Arab Emirates school classrooms. *Journal of Educational Technology & Society, 13*(1), 165-175.

Backlund, P., & Hendrix, M. (2013, September). *Educational games - are they worth the effort? A literature survey of the effectiveness of serious games.* In 2013 5th international conference on games and virtual worlds for serious applications (VS - GAMES) (pp. 1-8). IEEE.

Baek, Y., Jung, J., & Kim, B. (2008). What makes teachers use technology in the classroom? Exploring the factors affecting the facilitation of technology with a Korean sample. *Computers & Education, 50*(1), 224-234.

Bauer, J., & Kenton, J. (2005). *Toward technology integration in the schools: Why it isn't happening. Journal of Technology and Teacher Education, 13*, 519–546.

Becta. (2004). A review of the research literature on barriers to the uptake of ICT by teachers. Retrieved June 10, 2010, from http://partners.becta.org.uk/page_documents/research/barriers.pdf

Blasco - Arcas, L., Buil, I., Hernández-Ortega, B., & Sese, F. J. (2013). Using clickers in class. The role of interactivity, active collaborative learning, and engagement in learning performance. *Computers & Education, 62*, 102-110.

Bonk, C. J., & King, K. S. (2012). *Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools.* Routledge.

Bryman, A. (2008). Why do researchers integrate/combine/mesh/blend/mix/merge/fuse quantitative and qualitative research. *Advances in Mixed Methods Research,* 87-100.

Buabeng - Andoh, C. (2012). An exploration of teachers' skills, perceptions, and practices of ICT in teaching and learning in the Ghanaian second - cycle schools. *Contemporary Educational Technology, 3*(1), 36-49.

Butler - Pascoe, M. E., & Wiburg, K. M. (2003). *Technology and teaching English language learners.* Boston, MA.

Chen, R. J. (2010). Investigating models for preservice teachers' use of technology to support student-centered learning. *Computers & Education, 55*(1), 32-42.

Cheung, A. C., & Slavin, R. E. (2012). How features of educational technology applications affect student reading outcomes: A meta - analysis. *Educational Research Review, 7*(3), 198-215.

Cheung, R. H. P., & Leung, C. H. (2013). Preschool teachers' beliefs of creative pedagogy : Important for fostering creativity. *Creativity Research Journal, 25*(4), 397-407.

Comer, D. R., & Lenaghan, J. A. (2013). Enhancing discussions in the asynchronous online classroom : The lack of face - to - face interaction does not lessen the lesson. *Journal of Management Education, 37*(2), 261-294.

Cook, G. (2010). *Translation in language teaching: An argument for reassessment.* Oxford University Press.

Cope, C., & Ward, P. (2002). Integrating learning technology into classrooms: The importance of teachers' perceptions. *Educational Technology & Society, 5*(1), 67-74.

Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative research designs : Selection and implementation. *The counseling psychologist, 35*(2), 236-264.

Drent, M., & Meelissen, M. (2008). Which factors obstruct or stimulate teacher educators to use ICT innovatively?. *Computers & Education, 51*(1), 187-199.

Duffy, T. M., & Jonassen, D. H. (2013). *Constructivism and the technology of instruction: A conversation.* Routledge.

Dumrongkiat, M.. *Thai English proficiency drops.* Retrieved November 5, 2018, from https://www.bangkokpost.com/thailand/general/1570042/thai - english - proficiency - drops

Eristi, S. D., Kurt, A. A., & Dindar, M. (2012). Teachers' Views about Effective Use of Technology in classrooms. *Online Submission, 3*(2), 30-41

Fanni, F., Rega, I., & Cantoni, L. (2013). Using Self-Efficacy to measure primary school teachers' perception of ICT. *International Journal of Education and Development Using ICT, 9*(1), 100-111.

Fluck, A., & Dowden, T. (2013). On the cusp of change : examining preservice teachers' beliefs about ICT and envisioning the digital classroom of the future. *Journal of Computer Assisted Learning, 29*(1), 43-52.

Gallardo del Puerto, F., & Gamboa, E. (2009). The evaluation of computer - mediated technology by second language teachers: Collaboration and interaction in CALL. *Educational Media International, 46*(2), 137-152.

Gülbahar, Y., Jacobs, C., & König, A. (2015). Mobile learning in higher education: Current status and future possibilities. In *International Handbook of E - Learning.* Routledge.

Godwin - Jones, R. (2011). Mobile apps for language learning. *Language Learning & Technology, 15*(2), 2-11.

Goktas, Y., & Demirel, T. (2012). Blog-enhanced ICT courses : Examining their effects on prospective teachers' ICT competencies and perceptions. *Computers & Education, 58*(3), 908-917.

Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: a review of technology types and their effectiveness. *Computer assisted language learning, 27*(1), 70-105.

Howard, S. K. (2013). Risk-aversion : Understanding teachers' resistance to technology integration. *Technology, Pedagogy, and Education, 22*(3), 357-372.

Howland, J. L., Jonassen, D. H., & Marra, R. M. (2012). *Meaningful learning with technology.* Upper Saddle River, NJ : Pearson.

Hwang, W. Y., Shih, T. K., Ma, Z. H., Shadiev, R., & Chen, S. Y. (2016). Evaluating listening and speaking skills in a mobile game - based learning environment with situational contexts. *Computer Assisted Language Learning, 29*(4), 639-657.

Januszewski, A., & Molenda, M. (Eds.). (2013). *Educational technology : A definition with commentary.* Routledge.

Jick, T. D. (1979). Mixing qualitative and quantitative methods : Triangulation in action. *Administrative Science Quarterly, 24*(4), 602-611.

Kabilan, M. K., Ahmad, N., & Abidin, M. J. Z. (2010). Facebook : An online environment for learning English in institutions of higher education?. *The Internet and higher education, 13*(4), 179-187.

Khampusaen, D. (2012). Successful eLearning in Universities' EFL Classrooms : What do Teachers and Students Need?. The 9th International Conference on eLearning for Knowledge - Based Society : Past, Present, and Future of eLearning and Social Networking, Thailand.

Kim, C., Kim, M. K., Lee, C., Spector, J. M., & DeMeester, K. (2013). Teacher beliefs and technology integration. *Teaching and teacher education, 29*, 76-85.

Kreijns, K., Kirschner, P. A., & Jochems, W. (2003). Identifying the pitfalls for social interaction in computer - supported collaborative learning environments : a review of the research. *Computers in human behavior, 19*(3), 335-353.

Lai, C. C., & Kritsonis, W. A. (2006). The advantages and disadvantages of computer technology in second language acquisition. *Online Submission, 3*(1), 24-78.

Lazar, S. (2015). The importance of educational technology in teaching. International Journal of Cognitive Research in Science, *Engineering and Education, 3*(1), 15-49.

Lee, J., Cerreto, F. A., & Lee, J. (2010). Theory of planned behavior and teachers' decisions regarding the use of educational technology. *Journal of Educational Technology & Society, 13*(1), 152-164.

Livingstone, S. (2012). Critical reflections on the benefits of ICT in education. *Oxford Review of education, 38*(1), 9-24.

Manca, S., & Ranieri, M. (2013). Is it a tool suitable for learning? A critical review of the literature on Facebook as a technology - enhanced learning environment. *Journal of Computer Assisted Learning, 29*(6), 487-504.

Mayring, P. (2004). Qualitative content analysis. *A companion to Qualitative Research, 1*, 159-176.

Mbatia, M. (2014). *Factors influencing school principals' integration of ICT in the administration of public secondary schools in Githunguri sub county, Kiambu county, Kenya.* Unpublished Masters project, University of Nairobi.

Ministry of ICT.(2018). *ICT for Education Master Plan 2015-2019.* Bangkok: Ministry of ICT.

Mengorio, T. M., & Dumlao, R. (2019). The Effect of Integrating Mobile Application in Language Learning: An Experimental Study. *JET (Journal of English Teaching), 5*(1), 50-62

Mok, H. N. (2014). Teaching tip : The flipped classroom. *Journal of Information Systems Education, 25*(1), 7.

Mumtaz, S. (2000). Factors affecting teachers' use of information and communications technology : a review of the literature. *Journal of Information Technology for Teacher Education, 9*(3), 319-342.

Nchunge, D. M., Sakwa, M., & Mwangi, W. (2012). User's Perception on ICT adoption for Education Support in Schools: A Survey of Secondary School Teachers in Thika District Kenya. *International Journal of Humanities and Social Science, 2*(10), 17-29.

Neyland, E. (2011). Integrating online learning in NSW secondary schools : Three schools' perspectives on ICT adoption. *Australasian Journal of Educational Technology, 27*(1), 12-34.

Ng Foo Seong, D., & Ho, J. M. (2012). How leadership for an ICT reform is distributed within a school. *International Journal of Educational Management, 26*(6), 529-549.

O'Malley, C. (Ed.). (2012). Computer supported collaborative learning. *Springer Science & Business Media,* 128 (17).

OECD. (2005). *ICT in Tertiary Education : Where Do We Stand?.* Paris : OECD Publications.

Park, S. Y., Nam, M. W., & Cha, S. B. (2012). University students' behavioral intention to use mobile learning: Evaluating the technology acceptance model. *British Journal of Educational Technology, 43*(4), 592-605.

Petko, D. (2012). Teachers' pedagogical beliefs and their use of digital media in classrooms : Sharpening the focus of the 'will, skill, tool'model and integrating teachers' constructivist orientations. *Computers & Education, 58*(4), 1351-1359.

Prestridge, S. (2012). The beliefs behind the teacher that influences their ICT practices. *Computers & Education, 58*(1), 449-458.

Raman, A., & Mohamed, A. H. (2013). Issues of ICT Usage among Malaysian Secondary School *English Teachers. English Language Teaching, 6*(9), 74-82.

Robertson, M., & Al-Zahrani, A. (2012). Self-efficacy and ICT integration into initial teacher education in Saudi Arabia: Matching policy with practice. *Australasian Journal of Educational Technology, 28*(7).

Ross, S. M., Morrison, G. R., & Lowther, D. L. (2010). Educational technology research past and present : Balancing rigor and relevance to impact school learning. *Contemporary Educational Technology, 1*(1), 17-35.

Salehi, H., & Salehi, Z. (2012). Challenges for using ICT in education : teachers' insights. *International Journal of e - Education, e - Business, e - Management and e - Learning, 2*(1), 40.

Samarawickrema, G., & Stacey, E. (2007). Adopting Web - Based Learning and Teaching : A case study in higher education. *Distance education, 28*(3), 313-333.

Sams, A., & Bergmann, J. (2013). Flip your students' learning. *Educational leadership, 70*(6), 16-20.

Sánchez, J. J. C., & Alemán, E. C. (2011). Teachers' opinion survey on the use of ICT tools to support attendance - based teaching. *Computers & Education, 56*(3), 911-915.

Sang, G., Valcke, M., Van Braak, J., & Tondeur, J. (2010). Student teachers' thinking processes and ICT integration: Predictors of prospective teaching behaviors with educational technology. *Computers & Education, 54*(1), 103-112.

Sapianchai, P., & James, P. T. (2005). *ICT in Thai Education Ideological and Structural Determinants that Support its Development,* Introduction, and Use.

Schmid, E. C. (2006). Investigating the use of interactive whiteboard technology in the English language classroom through the lens of a critical theory of technology. *Computer Assisted Language Learning, 19*(1), 47-62.

_____. (2008). Potential pedagogical benefits and drawbacks of multimedia use in the English language classroom equipped with interactive whiteboard technology. *Computers & Education, 51*(4), 1553-1568.

Seels, B. B., & Richey, R. C. (2012). Instructional technology : *The definition and domains of the field.* IAP.

Selwood, I., & Pilkington, R. (2005). Teacher workload: using ICT to release time to t*each. Educational Review, 57*(2), 163-174.

Shih, R. C. (2011). Can Web 2.0 technology assist college students in learning English writing? Integrating Facebook and peer assessment with blended learning. *Australasian Journal of Educational Technology, 27*(5).

Siritongthaworn, S., Krairit, D., Dimmitt, N. J., & Paul, H. (2006). The study of e-learning technology implementation : A preliminary investigation of universities in Thailand. *Education and Information Technologies, 11*(2), 137-160.

Stockwell, G. (2013). *Technology and motivation in English - language teaching and learning. In International perspectives on motivation.* Palgrave Macmillan, London.

Tamim, R. M., Bernard, R. M., Borokhovski, E., Abrami, P. C., & Schmid, R. F. (2011). What forty years of research says about the impact of technology on learning : A second - order meta - analysis and validation study. *Review of Educational research, 81*(1), 4-28.

Teo, T. (2016). Modelling Facebook usage among university students in Thailand : the role of emotional attachment in an extended technology acceptance model. *Interactive Learning Environments*, *24*(4), 745-757.

Teo, T. (2008). Pre - service teachers' attitudes towards computer use : A Singapore survey. *Australasian Journal of Educational Technology, 24*(4).

Tetiwat, O., & Huff, S. L. (2003). Factors influencing the acceptance of web - based online education for Thai educators : the impact of Thai culture and values. *In E - commerce and cultural values, 3*(13) 235-265).

Viriyapong, R., & Harfield, A. (2013). Facing the challenges of the One - Tablet - Per - Child policy in Thai primary school education. *Education, 4*(9), 23-32.

Usluel, Y. K., Askar, P., & Bas, T. (2008). A structural equation model for ICT usage in higher education. *Educational Technology & Society, 11*(2), 262-273.

Whattananarong, K. (2004, September). An experiment in the use of mobile phones for testing at King Mongkut's Institute of Technology North Bangkok, Thailand. In Proc. International Conference on Making Education Reform Happen : Learning from the Asian Experience & Comparative Perspectives, Bangkok, Thailand.

Winley, G. K., & Lau, S. K. (2012). The adoption and use of ICT in Thailand and Vietnam. *The Electronic Journal of Information Systems in Developing Countries, 54*(1), 1-29.

Wiriyachitra, A. (2002). English language teaching and learning in Thailand in this decade. *Thai TESOL Focus, 15*(1), 4-9.

Yunus, M. M. (2007). Malaysian ESL teachers' use of ICT in their classrooms : expectations and realities. *ReCALL, 19*(1), 79-95.

Zhang, S. (2016). Mobile English learning : An empirical study on an APP, English fun dubbing. International *Journal of Emerging Technologies in Learning (iJET), 11*(12), 4-8.