INFORMATION AND COMMUNICATION TECHNOLOGIES IN LEARNING ENGLISH AS A FOREIGN LANGUAGE (EFL): ATTITUDES OF EFL LEARNERS IN VIETNAM

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ABSTRACT

Given breakthroughs in information and communication technologies (ICTs), language learners are increasingly presented with opportunities to advance their proficiency in a target language (herein English as a foreign language or EFL). The attitudes of learners toward the use of ICTs (ICT attitudes) can be predictive of their adoption of ICTs for EFL learning. There has been little research into the ICT attitudes of Vietnamese EFL learners, particularly those who learn English, but are not English majors. A number of qualitative studies have identified some initial links between the use of a particular technological innovation and the growth of learner autonomy and self-efficacy in language learners; however, further empirical investigations into the impacts of learner autonomy and self-efficacy on ICT attitudes in EFL learning are needed. The present study set out to examine the attitudes of 970 Vietnamese EFL learners and investigate further the degree to which these attitudes can be explained by their self-efficacy and autonomy. A two-phased sequential explanatory mixed methods research design was used to address the proposed research aims. The findings show that (1) the majority of learners were positive about the use of ICTs in EFL learning although ICTs were scarcely incorporated into the English curriculum, (2) learners perceived information technology more favorably compared to communication and networking technology, and (3) learners' receptive English skills (listening and reading) tended to benefit more from the use of ICTs. General linear model procedures yielded the following results: (1) approximately 51% of the variance in ICT attitudes could be

explained by self-efficacy and learner autonomy, and (2) the effects of two learner autonomy predictors (socially oriented motivation, and importance of within-group relationships) on ICT attitudes varied depending on gender and comfort levels using a computer and the Internet. These findings contribute to a better understanding of learners' ICT attitudes, and the relationships of ICT attitudes with self-efficacy and learner autonomy.

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CHAPTER 1. INTRODUCTION

Looking through the lenses of social learning and ecological theories, the effectiveness of traditional English as a Foreign Language (EFL) classrooms in Vietnam comes into question. EFL learning is restricted to a physical classroom context where learners' social interaction is also minimal. Social learning theory does not separate language learning from a social context — in contrast, it emphasizes the fundamental roles that social interaction opportunities give to learners during their language development process. As noted by various scholars, social interaction enables language learning to take place (Nelson, 1985): "language is social" (Clark, 2003, p. 19), and "learning a word is [also viewed as] a social act" (Bloom, 2000, p. 55). In the same vein, ecological perspectives place language learning under the influence of various environmental variables. As synthesized by Arnfast, Jergensen, and Holmen (2010), language learning goes beyond individual capability but also necessarily includes power relations, linguistic norms, and social interactions. Conventional EFL learning contexts are limited by a lack of authentic language inputs leading to the fact that learners in such contexts have very few social interactions in their target language, English. Many researchers including Campbell (2004), Singh (2010), and Fageeh (2011) believed that these are the primary reasons explaining learners' limited proficiency in EFL. An example would be that after class, learners tend to opt for the use of their mother tongue when communicating with others (Campbell, 2004).

A number of studies have documented the benefits of information and communication technologies (ICTs) in learning English as a foreign language. ICT integration would create an increase in authentic English language inputs and opportunities for EFL learners to participate in EFL sociocultural contexts. According to Singh (2010), integrating ICTs into EFL learning is a way to address some limitations of traditional EFL learning settings, which would result in improved

English linguistic and pragmatic competence in learners. To be successful in EFL learning, learners are expected to perform additional practice and independent work outside of the classroom; this is possible (Gahungu, 2009) thanks to the diverse types of language inputs (e.g., audiovisual news) enabled by different forms of technology, e.g., computers, TV, and CDs/DVDs for language learning (Bahrani, Tam, & Zuraidah, 2014). Using a social networking site such as Livemocha (an online language learning community) could also empower learners to do language exchange on a daily basis with speakers of their target language in a written and/or spoken form outside of the traditional learning context (Lloyd, 2012). Other technology tools such as emails, chat rooms, and videos, offer many pedagogical benefits to learners: encouraging learners' motivation and autonomy, creating opportunities for learners to participate in target socio-cultural contexts, and increasing interactive communication in, and exposure to, the target language (Singh, 2010). Previous research results found that the use of ICTs also fosters learners' autonomy (Kaur & Sidhu, 2010; Singh & Embi, 2007) and improves learners' self-efficacy in EFL learning (Zheng et al., 2009). In language learning, self-efficacy (Cotterall, 1999; Mills et al., 2007; Raoofi et al., 2012) and autonomy (Dafei, 2007; Gahungu, 2009; Little, 2000, 2007; Wang, 2011) are important variables that can explain learners' limited proficiency in a target language.

Vietnamese graduates of colleges and universities have spent a minimum of seven years learning EFL at schools, but their oral English skills are still limited, according to the former Executive Director of the National Foreign Languages 2020 (NFL2020) project (Nguyen & Dudzik, 2013). The government has recently made reform efforts in the improvement of the quality of teaching and learning English and other foreign languages through the promulgation of Decision 1400/QĐ-TTg on the approval of the NFL2020. As stated in the Decision, the installment of multimedia language labs for schools across the country will not be completed until the end of the year 2020, indicating that formal ICT integration into EFL learning contexts in Vietnam is in its infancy. Research found that learners expected teachers to use ICTs

in the classroom more regularly (Dang & Nguyen, 2014); while in fact, teachers did not know how to effectively apply available technologies into EFL teaching practice (Nguyen, Warren, & Fehring, 2014). Low-ICT usage in the classroom affected learners' adoption of ICTs for EFL learning outside of classroom contexts (Dang & Nguyen, 2014).

Intrigued by the ecological and social learning perspectives of language learning, and the affordances of technology for EFL learning, I attempted to understand limited proficiency in EFL among Vietnamese learners through their attitudes toward the use of ICTs in low-ICT learning contexts in Vietnam. A person's attitude toward technology can be predictive of his/her adoption of technology. Research has shown that the attitude can be influenced by various factors, as shown in the work of Davis et al. (1989) on technology acceptance model, Rogers (2003) on innovation diffusion theory, and Bhattacherjee and Sanford's (2006) on ELM-based influence model of technology acceptance. In general, an individual's attitude toward technology acceptance can be influenced by any of the following: his/her perceived ease of use or perceived usefulness (Davis et al., 1989); perceived usefulness and source credibility (Bhattacherjee & Sanford, 2006); principles-knowledge or vision of why and how to use a technology tool for a specific purpose (Rogers, 2003); or behavioral beliefs and outcome evaluations (Ajzen, 1985). However, the impact of learners' self-efficacy and autonomy in EFL learning on their attitudes toward ICT use for EFL learning does not seem to have been investigated.

In this study, I chose to examine the attitudes of Vietnamese non-English major learners over that of Vietnamese English-major learners in the belief that there are some differences in motivation, anxiety in EFL learning, and attitudes toward technology usage between these two groups. In EFL learning, Quadir (2011) found that both groups differed in their motivation and anxiety levels in learning EFL. Non-English majors had a lower level of intrinsic motivation and a higher level of anxiety in EFL learning (Quadir, 2011). Learners' motivation in learning English can gradually be promoted by incorporating ICTs into the English lessons and increasing

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the practicality of learners' experience in EFL learning (Liu, 2009). According to Rashed (2008), learners' anxiety in learning their target language engendered their negative attitude toward the use of ICTs.

Statement of the Problem

A review of the literature reveals that a number of research studies documented benefits of ICTs to the development of EFL or a target language. However, ICTs are barely used to support teachers in teaching English to students majoring in disciplines (e.g. chemistry, biology, mathematics, architecture) other than English language (e.g. teaching English) in Vietnam. Little research expounded on the attitude of learners, particularly Vietnamese non-English majors toward the use of ICTs in EFL learning outside of traditional, low-ICT educational contexts. A number of studies have further identified some initial connections between the use of ICTs and the growth of learner autonomy and self-efficacy in language learners; however, what is not yet clear is if there is a statistically significant relationship of learners' ICT attitudes with their perceived self-efficacy, and autonomy as language learners in EFL learning. This study set out to examine the attitudes of 970 Vietnamese non-English major students toward the use of ICTs in EFL learning and further investigate the relationship of learners' ICT attitudes with their perceived self-efficacy and autonomy as language learners.

Research Questions

This study seeks to answer the following research questions:

1. What are the attitudes of Vietnamese non-English major students toward the use of ICTs (ICT attitudes) in EFL learning?
2. What is the relationship between ICT attitudes and learner autonomy in EFL learning?

3. What is the relationship between ICT attitudes and self-efficacy in EFL learning?

Significance of the Study

It is hoped that this study will contribute to a deeper understanding of the attitudes of Vietnamese non-English major learners toward the use of ICTs in EFL learning in a low-ICT learning context. One's attitude reflects himself or herself and impels him or her into action. As noted by various scholars (e.g. Rogers, 2003; Davis et al., 1989; Bhattacherjee & Sanford, 2006), learners' attitudes can be predictive of their future acceptance of technology. It is important to measure existing attitudes before any attempt is made to change them (Communication for Governance & Accountability Program, n.d.). A deep understanding of variability in learners' attitudes toward the use of ICTs orients the process of integrating ICTs into the curriculum or teaching. Furthermore, taking these attitudes into consideration will possibly yield greater success in ICT integration efforts.

Clarifying the degree to which learners' attitudes toward the use of ICTs in EFL learning can be explained by their self-efficacy and autonomy as language learners is also important and another goal of the study. Determining the relationship of learners' attitudes with their self-efficacy and autonomy expands our comprehension of attitude change in a low-ICT EFL learning context. EFL learners who perceive themselves as efficacious or autonomous tend to possess a positive attitude toward the use of ICTs.

Conceptual Framework

The conceptual framework of this study is informed by various literature sources featuring the use of ICTs, self-efficacy, and learner autonomy in language learning. Table 1 summarizes the conceptualization of the three variables used in the present study: ICT attitudes, learner autonomy, and self-efficacy in EFL learning.

There has been some evidence suggesting the possibility of the relationships between ICT attitudes and learner autonomy, and between ICT attitudes and self-efficacy in EFL learning. Some researchers (e.g. Godwin-Jones, 2011; Godwin-Jones, 2011; Akbari, Pilot, & Simons, 2015) identified the benefits of ICTs in fostering learners' autonomy. Others (e.g. Hashemyolia, Ayub, & Moharrer, 2015); Zheng, Young, Brewer, & Wagner, 2009) found that utilizing ICTs would help improve learners' self-efficacy. In addition, it is more likely that when a particular technological tool is integrated into instruction, the majority of the learners adopt favorable or positive attitudes toward the use of that tool as evidenced by the study of Liu (2009), and of Dang and Nguyen (2014).

Table 1

Conceptualization of ICT Attitudes, Self-efficacy, and Learner Autonomy

Variables	Description	Literature Sources
ICT attitudes	Learners' perspectives of using ICTs (information technology, telecommunication technology, and networking technology) for EFL learning	• European Commission & Ellinogermaniki Agogi (ECEA, 2007) • Nicol's (2003) ICT categorization
Learner autonomy	Learners' abilities to take charge of own learning: self-regulating their EFL learning activities based on the previously set directions (reactive autonomy) or/and own ones (proactive autonomy).	• Holec's (1981) concept of learner autonomy • Littlewood's (1999) learner autonomy in East Asia
Self-efficacy	Learners' beliefs in their capabilities to master communication skills in English as a foreign language	• Bandura's (1997) self-efficacy • Mills' (2009) self-efficacy in 5C's Standards • The Council of European (2000)'s 3 levels of foreign language proficiency

Summary of Methodology

The purpose of the present study is to research the attitude of Vietnamese non-English major students in Vietnam toward the use of ICTs in EFL learning and determine the extent to which student's ICT attitudes can be explained by their perceived self-efficacy and autonomy as language learners. The study uses a mixed methods research approach, allowing collection, analysis, and mixing of both quantitative and qualitative data in a single study. This method helps obtain a better understanding of the research problem, as opposed to either method alone (Creswell & Plano Clark, 2010).

Description of Research Design

This study adopts a two-phase sequential explanatory research design, one of the mixed methods research design types. The method prioritizes the quantitative data collection in the first phase (Creswell & Plano Clark, 2010). The second, qualitative data gathering stage is guided, given the preliminary analysis of the quantitative data. The purpose of the second phase is to assist in elaborating the quantitative findings (Creswell, 2003).

Participants and Site

The present study targeted Vietnamese students from the ages of 18 and over, residing in Vietnam, learning English to reach a certain proficiency level or to partially fulfill the requirements for their program of study, and most importantly not English-majors. These learners are referred as 'non-English majors' (Quadir, 2011; Liu, 2009).

The study took place in multiple modes: face-to-face or in a classroom-based setting and at a distance, specifically on the web and over the telephone. The paper-based version of the questionnaire was handed to participants at their schools in

Vietnam, the online version was administered using Google Forms, and the semi-structured interview was conducted at a distance, over the telephone.

Instrumentation

The study used a questionnaire with 70 items (Appendix C) and follow-up interviews as a means to collect quantitative and qualitative data, respectively. The questionnaire was replicated from the work of other scholars with necessary modifications to fit the purpose and scope of the present study. The questionnaire is comprised of four sections: Section 1 with seven questions on participants' personal details; Section 2 with 20 questions on participants' ICT attitudes in EFL learning was replicated from the web-based survey developed by the European Commission and Ellinogermaniki Agogi (2007); Section 3 with 20 questions on participants' autonomy as language learners, half of which were from Littlewood (1999), and half modified from Zhang and Li (2004); and Section 4 with 23 questions on participants' perceived self-efficacy was replicated from Mills (2009). All questions from Sections 2, 3, and 4 were on a 5-point Likert scale with '1' indicating maximum disagreement by all participants and '5' indicating maximum agreement.

Questionnaire and interview questions were all translated into the participants' native language, Vietnamese. To ensure the reliability and validity of the translated version of the questions (Desimone & Le Floch, 2004), the researcher employed the back-translation and cognitive interview methods. This translation process involved the independent work of six people in three separate steps. Step 1 was the English to Vietnamese translation done by two people; Step 2 had the next two people revert the translated Vietnamese version back to English, and in Step 3 two other people engaged in cognitive interviews facilitated by the researcher, where they were asked questions and told to verbalize their answers.

The questionnaire showed good internal consistency with two exceptions. The Cronbach's Alpha coefficients for the entire survey was .93 with the values for individual sections on ICT attitudes, learner autonomy, and self-efficacy equal to .88,

.73, and .95, respectively. Though a cut-off value for an acceptable reliability coefficient is .70, as recommended by Nunnaly (1978), and Gable and Wolf (1993), there were two issues that needed the researcher's further consideration. First, two questions on self-efficacy (i.e. item 13 and 17) were not statistically correlated, given a p-value larger than .05. These two items were excluded from the list of questions. Second, the questions on learner autonomy did not discriminate well, given the Corrected Item-Total Correlation values of these questions (see Appendix E). To address the second issue, factor analysis was performed to explore the data structure of learner autonomy and the results showed that items on learner autonomy had to be divided into five factors and that item 17 should also be removed from the list of questions due to its cross loading on both factors 3 and 4 (described in Chapter 3).

Data Collection

The study collected both quantitative and qualitative data from the online and paper-based versions of the questionnaire, and the use of follow-up semi-structured interviews, respectively. The delivery of a questionnaire in both formats is referred to as a 'mixed-mode strategy' (Griffin, Fischer, & Morgan, 2001). The online version of the questionnaire was created using Google Forms; responses from the participants were automatically recorded in a corresponding Google spreadsheet. Given the two-phase sequential explanatory research design, garnering the quantitative data in the present study was prioritized to be in the first phase. It took ten weeks to finish the first phase.

Qualitative data collection began a week after the first phase ended. The preliminary analysis of the quantitative data on learners' ICT attitudes in EFL learning was conducted during this week. This preliminary analysis would guide the revision of initial interview questions (if any).

After obtaining the preliminary results, the interview questions were modified and the follow-up interviews were initiated over the telephone due to the difference in locations between the researcher and participants. Telephone interviews are viewed as

an effective and the only viable method in such a condition (Berg, 2004; Block &
Erskine, 2012). All interviews were audio-recorded for data analysis at a later time.
The second stage of qualitative data collection was conducted over a period of ten
days.

Data Analysis

The analysis of the quantitative and qualitative data in this study was done with
the use of the Statistical Package for the Social Sciences 22 (SPSS22) and MAXQDA
11 software, respectively. Descriptive statistics and frequencies were computed to
answer the first research question on the ICT attitudes of Vietnamese non-English
majors toward the use of ICTs in EFL learning. Qualitative data were used to expand
the quantitative findings on learners' ICT attitudes. Given the support of the
qualitative data analysis software MAXQDA 11, the analysis of qualitative data used
the thematic analysis technique by Merriam (2009), beginning with open coding as the
first step, followed by axial coding and then selective coding.

A more advanced statistical analysis approach, specifically the general linear
model procedures, was performed to investigate the relationship between ICT attitudes
as an outcome variable and learner autonomy factors as independent variables, and
between ICTs attitude and self-efficacy. The general linear model empowers the
researcher to "explain variability in a single outcome variable from information
provided by one or more predictors or independent variables" (Heck, 2006, p. 384).

Limitations

The findings of the present study were subject to some limitations. One of them
was about ecological generalizability; according to Fraenkel et al. (2012) this refers to
the extent to which the research results can be generalized to other settings or
conditions. Despite the fact that the present study involved quite a large number of

research participants, the generalizability was limited. The study was restricted to Vietnamese non-English majors in Vietnam.

Another limitation of the study that affected the gathering of data and the comprehensive analysis of the findings came from the use of telephone interviews as a strategy to communicate with research participants at a distance, the instrument, and the statistical analysis approach. The major drawback of conducting one-on-one interviews over the telephone with participants was lack of nonverbal cues, specifically facial expressions and body language. This prevented the collection of richer qualitative data from research participants. With regards to the instrument and the use of the analytic approach, I believe that (1) the questionnaire could be further tested for its validity, so more reliable data could be collected, and (2) more comprehensive analysis could be reached if a more advanced analysis techniques were adopted.

Organization of the Study

The overall structure of this study takes the form of five chapters. Chapter 1 briefly describes the research problem of the attitudes of Vietnamese non-English major students toward the use of ICTs in EFL learning and the relationship of the attitudes with learners' self-efficacy and autonomy as language learners. Explanation of the research problem is followed by purpose of the study, significance of the study, conceptual framework, summary of methodology, and limitations of the study.

Chapter 2 provides the conceptual basis for the study. Specifically, it reviews various literature sources with respect to the research problem, under the following major themes: ICT access landscape; ICT use in education, particularly in English-language education; learners' attitudes toward the use of ICTs in EFL learning; connections between the use of ICTs and learners' autonomy and self-efficacy in EFL learning; and the relationships of learners' attitude toward the use of ICTs with learners' autonomy and self-efficacy in EFL learning. The chapter ends with an elaboration of the conceptual framework briefly introduced in Chapter 1.

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Chapter 3 is concerned with the methodology employed for the study. The chapter begins with a description of a two-phase sequential explanatory research approach and continues with a presentation on the research design, participants and context, ethical considerations, instrumentation, data collection, data analysis methods, and research results reporting format.

Chapter 4 reports the quantitative and qualitative results in three sections. Section 1 presents the descriptive statistics of learners' attitudes toward the use of ICTs in EFL learning, followed by Section 2 elaborating some of the quantitative results using the qualitative data from follow-up interviews. Section 3 reports the inferential statistics results on the relationship between learners' attitudes toward the use of ICTs and self-efficacy and learner autonomy factors.

Chapter 5 discusses the study's major findings, contributions to theory, implications for practice, and limitations and recommendations for future research.

Finally, the appendices contain approval from the Institutional Review Board (see Appendix A), consent letters (see Appendix B), questionnaire (see Appendix C), one-on-one semi-structured interview questions (see Appendix D) and detailed research results organized in tables.

CHAPTER 2. LITERATURE REVIEW

This chapter synthesizes the literature with respect to the research problem and serves as the conceptual framework for the study. As mentioned in Chapter 1, most Vietnamese high school, college, and university graduates have limited oral communication skills in English though they have spent a minimum of seven years at school learning English as a foreign language. Social learning and ecological perspectives emphasize that the lack of opportunities for social interactions in which learners' target language is used could account for learners' limited proficiency in the target language (herein EFL). Breakthroughs in ICTs have provided learners opportunities for authentic language learning and use, as well as having fostered learners' autonomy and self-efficacy in EFL learning. To better understand the context of the research problem and of the study as a whole, the remainder of the chapter reviews the following: ICT access and literacy in Vietnam, ICTs and learners' foreign language development, ICTs and self-efficacy in language learning, ICTs and learner autonomy in language learning, limited English proficiency, and attitudes toward the use of ICTs in language learning.

ICT Access and Literacy in Vietnam

ICTs consist of "hardware, software, networks, and media for collection, storage, processing, transmission, and presentation for information (voice, data, text, images)" (The World Bank Group, 2002, p. 3). Nicol (2003) grouped ICTs into three categories: (1) information technology refers to "the creation, storage and processing of data including hardware, system software, and software applications" (The World Bank Group, 2002, p. 3); (2) telecommunications, e.g. the broadcasting of radio and television; and (3) networking technologies, e.g. the Internet but extended to mobile phone technology, Voice over IP (VoIP) technology, and satellite communications.

In Vietnam, access to Internet has seen steady growth in recent years; however it has not yet reached 50% of the population. In 2013, 36% of Vietnam's population was registered Internet users increasing to 39% in 2014, and 45% in 2015 (Vietnam E-Commerce and Information Technology Agency or VECITA, 2015). The report in 2014 by VECITA also revealed that 34% of registered Internet users accessed the Internet through their mobile devices, largely laptops (75%) and mobile phones (65%). The report also showed that 87% of the 36% of registered Internet users in 2013 in Vietnam accessed the Internet daily, growing to 93% of the 39% in 2014. Many people used the Internet to participate in forums and social networking sites (81%), to check their email (73%), to watch online movies and listen to music (64%), and to search for information everyday (63%), according to VECITA (2015).

Access to the Internet and computers for Vietnamese citizens in rural areas has been promoted through collaborative efforts of the Vietnamese government, the Bill & Melinda Gates Foundation, and funds from the Microsoft Corporation (Ministry of Information and Communications, 2011). According to the Ministry of Information and Communications (MIC), by the year 2016, broadband Internet-connected computers will be made available for public use at 400 public libraries and 1,500 post offices across 40 provinces of Vietnam; this is part of the project "Improvement of Computer Usage and Public Internet Access Ability in Vietnam," implemented by MIC. The project costs 50.5 million US dollars of which more than half (33.6 million) is from the Bill & Melinda Gates Foundation and Microsoft Corporation. The project will provide rural communities opportunities to explore advantages offered by ICTs and will reduce the digital divide between people in rural areas and those in urban ones, as well as reduce poverty (MIC, 2011; Bill & Melinda Gates Foundations, n.d.).

Vietnam's education system is focused on ICT literacy for its citizens. It is to provide students, workers and citizens a basic knowledge of ICTs and skills in making productive use of it (The Mid-Pacific ICT Center, para. 4). In Vietnam, ICT literacy is taught in general education, beginning in primary school (Giáo Dục Online, 2014).

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Outside the formal educational setting, ICT literacy is also emphasized among people in rural areas; this can be seen through the implementation of the project "Improvement Usage and Public Internet Access Ability in Vietnam." This project's goal is to ensure that people in rural areas have an opportunity to learn how to use computers and access the Internet at public libraries and post offices (MIC, 2011).

ICTs and Learners' Foreign Language Development

Existing research into the use of ICTs in foreign-language learning has affirmed that ICTs offer unconventional opportunities for learners to develop their foreign language skills, enabling "some continuity between formal and informal language learning contexts" (Lloyd, 2012, para. 41) or expanding the classroom context (UNESCO Institute for Information Technologies in Education, 2004). ICTs contribute to the creation of a more interactive language classroom, motivating learners, and providing a more authentic language context (Warschauer & Healey, 1998).

The arrival of Web 2.0 technology has afforded learners access to real-time interactions between learners and speakers of a target language (Godwin-Jones, 2006; Kumar & Tammelin, 2008; Stevenson & Liu, 2010). Specifically, many language-learning websites utilize Web 2.0 social networking features (e.g. Livemocha, Palabea, and Babbel) to construct online language-learning communities through which learners perform language exchange practice with capable learners or speakers of their target language and can thereby learn about the cultures of their target languages. Oftentimes such learning opportunities can only be obtained when learners are in a foreign country (Stevenson & Liu, 2010). Many researchers including Ho (2002), Campbell (2004), Singh (2004), and Fageeh (2011) underscored the importance of having access to authentic use of the target language to develop learners' pragmatic language competence.

ICTs and Self-efficacy in Language Learning

Self-efficacy concept

Self-efficacy refers to people's beliefs about their own capabilities to succeed in given activities (Bandura, 1997). These beliefs affect their thinking, motivation, feeling, behavior, and almost everything they do. They can also be built through performance accomplishments, vicarious experiences, verbal persuasion, and physiological states (Bandura, 1977 & 1994).

Performance accomplishments are based on personal mastery experiences and are seen as the most influential source of efficacy expectations or "convictions that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p. 193). Successes or repeated failures would raise or lower mastery expectations, respectively; and their effects would be more powerful if mishaps occurred early at the beginning stage of an event. Repeated successes help build strong efficacy expectations that at a later time can defeat occasional failures and subsequently strengthen self-motivated persistence. Bandura's suggested modes of induction for increased self-efficacy include participant modeling with guided performance, performance desensitization, performance exposure, and self-instructed performance.

Vicarious experiences are also known as modeling (Bandura, 1977) and seen as the second most effective source of efficacy expectations (Chowdhury, Endres, & Lanis, 2002). People's self-efficacy can be created by their inferences from social comparison, meaning that one self-assesses one's own capabilities in relation to others' (Bandura, 1977). According to Bandura (1977), efficacy expectations induced by vicarious experience tend to be weaker than those by personal accomplishments. Two modes of induction for increased self-efficacy suggested by Bandura (1977) consist of live modeling and symbolic modeling.

Social persuasion is the third source of efficacy expectations. According to Bandura (1994), one's self-efficacy is influenced by others' verbal judgments or

feedback from others that one is capable of completing given activities. Like vicarious experience, efficacy expectations induced by social persuasion are also weaker than those from performance accomplishment (Bandura, 1994). Disappointing results of one's efforts quickly disconfirm unrealistic boosts in efficacy. Lowering one's self-efficacy with negative appraisals is easier than increasing one's self-efficacy through positive encouragement (Pajares, 2002; Bandura, 1994).

Self-efficacy is also influenced by perceptions of an individual's physiological states (Bandura, 1977), the final and least important constituent source of efficacy expectations (Chowdhury, Endres, & Lanis, 2002). One's physical and emotional wellbeing are indicative of one's strengths and vulnerability (Bandura, 1977). Physical debility (e.g. fatigue, pain), anxiety, stress, fear and negative mood states may be detrimental to one's self-efficacy beliefs (Bandura, 1994; Pajares, 2002).

Self-efficacy and the growth of foreign-language proficiency

Self-efficacy is predictive of learners' performance. Raoofi, Tan and Chan (2012) reviewed 32 empirical studies (27 covered English language) of self-efficacy in learning a foreign language, which resulted in two main findings. First, three of 32 studies determined the relationship between self-efficacy and overall performance by final course grades. Second, five studies detected the relationship between self-efficacy and proficiency in specific foreign language skills (i.e. listening skills by four studies and reading skills by two studies). These two receptive skills are measured by objective tests, easily conducted on large populations, and therefore examined by a greater number of studies. On the other hand, research into the relationship between self-efficacy and expressive skills is limited due to how expressive skills (i.e. speaking and writing) are measured (Raoofi, Tan, & Chan, 2012). According to these authors, speaking and writing are measured by subjective tests, and raters subjectively affect the evaluation. Consequently there has been little research into the relationship between self-efficacy and the expressive skills.

Self-efficacy is a crucial variable in students' success in learning a language (Cotterall, 1999). The more self-efficacious the learners are, the more successful they will be. Learners with high self-efficacy engage more in learning tasks and achieve higher scores than those with low self-efficacy (Raoofi, Tan, & Chan, 2012). High and low self-efficacy students interpret their failures differently as well. Oftentimes, high self-efficacy learners view their failures as a result of insufficient efforts made to the tasks; whereas low self-efficacy learners look at their failures as deficient abilities (Bandura, 1984).

ICT use and an increase in self-efficacy

Existing research into the use of ICTs in foreign-language learning found increased self-efficacy in learners. Hashemyolia, Ayub, and Moharrer (2015) examined the effectiveness of multimedia language courseware on two groups of Malay EFL learners. Both groups were taught in a face-to-face setting, but multimedia language courseware was introduced to the experiment group. Part of the results showed a significant difference in learners' self-efficacy in learning English grammar; the experiment group's self-efficacy ($M = 4.13$, $SD = .53$) was significantly higher than that of the control group ($M = 3.54$, $SD = .98$), as evidenced by $t = 2.91$ with $p = .005$ and Eta-squared = .012 revealing a moderate difference.

The use of a virtual world or computer-based environment improved learners' self-efficacy beliefs. Henderson, Huang, Grant, and Henderson (2009) conducted a quantitative study on 100 university students enrolled in Chinese language and culture studies at Monash University, Australia. The study found that collaborative language activities afforded by Second Life (an immersive virtual world) helped increase students' self-efficacy beliefs in using Chinese in a variety of real-life contexts. These learners were given virtual opportunities to read, write, and collaborate with peers in Chinese. These enactive mastery experiences promoted self-efficacy in the learners.

Other researchers, such as Zheng, Young, Brewer, and Wagner (2009) found similar research results on the affordance of virtual worlds to learners' development of

self-efficacy. Zheng et al. (2009) statistically examined the effects of Quest Atlantis (a 3D game-like virtual world) on non-native English speakers' attitude and self-efficacy toward English-language learning. Zheng et al. found a difference in those measures between two groups of learners who used Quest Atlantis (QA Group) and who did not (Non-QA Group). Specifically, self-efficacy of learners in the QA Group was improved. Specifically, learners' participation in a virtual world like QA helped improve their attitude, as well as, self-efficacy in learning English as a foreign language.

ICTs and Learner Autonomy in Language Learning

Learner Autonomy Concept

A review of the literature on learner autonomy has shown that this concept has been misunderstood (Asik, 2010). Learner autonomy has been mistakenly defined as a synonym for self-access learning, self-instruction, individualized learning, self-directed learning, or independent learning (Asik, 2010; Little, 2002). Little (2002, p. 81) further identified five misunderstood aspects of learner autonomy: 1) not limited to learning without teacher, 2) not entailing an abdication of responsibility on the part of the teacher, 3) not something that teachers do to learners, 4) not a single, easily described behavior, and 5) not a steady state achieved by learners. Emphasizing the inevitability of the interdependence among people as social beings, Little (2002) viewed learner autonomy as a matter of the learner's "psychological relation to the process and content of learning" and specifically as the learner's "capability for detachment, critical reflection, decision-making, and independent action" (p. 81).

Learner autonomy is considered part of the orthodoxy of language education (Benson, 2009) and a very complicated (Little, 2003) and multi-faceted construct (Smith & Ushioda, 2009) with varied definitions. Asik (2010) defined it as learners' "taking more control over and having more responsibility for their own language learning process" (p. 141), whereas Benson (2001) referred to "capacity to take

control of one's own learning" (p. 47). Little (1991) and Littlewood (1996) added their own understandings to learner autonomy. Particularly, Little (1991) described it as learners' capacity for detachment, critical reflection, decision-making, and independent action. According to Littlewood (1996), this concept denotes learners' "ability and willingness to make choices independently" (p. 427). Littlewood (1996) further commented that the concept of learner autonomy having many definitions does not mean that it has been fully understood.

The definition of learner autonomy, which is deemed to be foundational, universally accepted (Little, 2007) and the most cited in the field of language learning (Chan, 2003; Dang, 2012; Benson, 2009), was the one coined by Holec (1981), the father of learner autonomy. Holec (1981) defined learner autonomy as learners' ability to take charge of their own learning; it means that learners are expected to have and hold the responsibility for all decisions concerning all aspects of learning, i.e.:

- Determining objectives
- Defining contents and progressions
- Selecting methods and techniques to be used
- Monitoring the procedure of proper speaking acquisition (rhythm, time, place, etc.)
- Evaluating what has been acquired (Holec, 1981)

In language learning, learner autonomy should be looked at two levels, i.e. reactive and proactive due to the possible mutually supportive relationship between autonomy and relatedness (Littlewood, 1999). Learner autonomy defined by Holec (1981) refers to proactive autonomy and is commonly discussed in the West, emphasizing learners' individuality, and capability of self-regulating their learning activities as well as the direction of those activities. Reactive autonomy, on the other hand, concerns learners' capability to self-regulate their learning activities based on the previously set direction of the activities (Littlewood, 1999). More specifically, learners with reactive autonomy follow directions set by teachers and then on their own, organizing their learning resources to reach their goals. It is believed that there are three sources of influence on learners' approaches to learning: the collectivist orientation of their societies, learners' acceptance of the relationship based on power

and authority, and the belief about effort and innate ability as equal contributing factors to success (Littlewood, 1999).

Vietnamese Learners' Autonomy

In the educational context of Vietnam, Vietnamese students are restricted from expressing themselves due to situational problems and the use of teacher-centered supported by the popular educational philosophy which emphasizes absorbing and memorizing knowledge (Dang, 2010). The large class, rigorous test-oriented system, and heavy learning workload are common situational problems that are challenges to the adoption of a communicative language teaching method and student-centered approach (Dang, 2010; Nguyen, Fehring, & Warren, 2015). Traditionally, teachers are viewed as the purveyors of knowledge, whereas students are receivers (Nguyen, 2011). In class, teachers dictate or write on the board for students to copy down in their notebooks (Nguyen & Ho, 2012; Dang, 2010). To account for this traditional way of teaching and learning, Nguyen (2011) refers to Vietnam's long-standing reliance on Confucian philosophy, which demands the beliefs of relational hierarchy in the traditional classroom (Nguyen, 2012; Nguyen, 2011). The foundational relationship has enabled the Vietnamese learning environment to become teacher-centered and the communication between the teacher and the learner one-way. Normally, questioning, arguing or discussing with teachers, parents or older people about a particular issue in Vietnamese culture is often considered to be rude and disrespectful. The social position of teachers is considered to be even higher than that of students' parents (Nguyen, 2011).

Vietnamese learners are in fact not completely passive or dependent on teachers, but their autonomy is restricted by socio-cultural factors (Nguyen, 2011; Dang, 2010). Asian learners are autonomous in their learning by nature (Trinh, 2005; Nguyen, 2011). Nguyen (2009) examined learner autonomy at the tertiary level in Vietnam among Vietnamese English majors and found that Vietnamese learners were self-regulated in reorganizing their resources to achieve their learning objectives and

goals initially set by teachers. In discussing learner autonomy in educational contexts, Littlewood (1999) suggested looking at it on two levels: reactive and proactive due to different educational traditions. East Asian learners' autonomy is at the reactive level whereas Western learners behave in a much more proactive fashion (Littlewood, 1999).

Learners' cultural background can be an obstacle when attempting to promote learner autonomy (Palfreyman & Smith (2003). The existence of collectivism in Asian contexts and the concept of Confucianism-influenced hierarchy in relationships between teachers and students are identified as two significant cultural factors hindering the promotion of learner autonomy (Littlewood, 1999). Conducting a study on the practical applications of postmodern theory for promoting learner autonomy in a foundation study program at RMIT International University in Vietnam, Curtis (2004) recognized that shifting the learning from rote memorization at RMIT requires a lot of effort because RMIT students come from a Confucian cultural and educational background.

Learner Autonomy and the Growth of Foreign-language Proficiency

According to Little (2007), "the development of learner autonomy and the growth of proficiency in a target language are mutually supporting and integrated with each other" (p. 14). The more self-regulated or autonomous in language learning the learners are, the better language learner and user they become (Little, 2000). Research has shown that learner autonomy and English proficiency are significantly positively and linearly inter-correlated. Fostering learner autonomy would then help improve students' English proficiency (Dafei, 2007; Zhang & Li, 2004). However, Dafei (2009) further pointed out that high or low English proficiency is not always commensurate with a high or low level of learner autonomy. The correlation between language proficiency and learner autonomy is not a simple causal relationship.

ICT Use and the Enhancement of Learner Autonomy

The use of ICT enhances the development of learner autonomy. Conversely, effective use of ICT is under the influence of learner autonomy (Boulton, Chateau, Pereiro & Azzma-Hannachi, 2008). Through a qualitative field experiment, Akbari, Pilot, and Simons (2015) were able to examine the differences in autonomy, competence, and relatedness (i.e. association with others through pro-social relationships) between two groups of Iranian non-English major students with 20 students each. The experimental group learned English on a Facebook page while the control group did in a face-to-face, classroom setting without the use of Facebook. The researchers found a significant difference between the two groups. The experimental group, with the affordance of Facebook, gained better outcomes, and felt more autonomous, competent, and connected in EFL learning, as compared to the control group. Kessler (2009) stated that one obvious affordance of technology is that it enables opportunities for learners to use their target language in authentic contexts. Learners are encouraged to strive for their autonomy in language learning. The use of online learning resources together with other ICT tools such as chat rooms and email promoted greater autonomy in language learners and increased their interests in using the target language and learning about the target language culture (Godwin-Jones, 2011).

Other researchers found that the use of a learning management system (LMS) enhanced autonomy in learning EFL. Kaur and Sidhu (2010) investigated learner autonomy of 30 English as a second language or ESL students of a distance-learning program in Malaysia and found that the use of asynchronous online interactions via email and the use of an LMS helped foster autonomy as language learners in these students. Particularly, their level of autonomy was above average on a scale from 1 to 4 in four domains: planning, organizing, monitoring, and evaluating their learning tasks. According to Kaur and Sidhu (2010), the findings affirmed the affordances of e-mails and learning management systems to the enhancement of the learning process and the empowerment of autonomous lifelong learning in learners. The results of Kaur

and Sidhu's (2010) study are in line with those of Dang and Robertson's (2010). Dang and Robertson (2010) examined the impacts of the Moodle LMS on the growth of autonomy in 562 Vietnamese EFL undergraduate students from four universities in Vietnam. The study also recognized positive effects of the use of Moodle on some aspects of autonomy in students, such as initiating, monitoring, and evaluating learning process.

Learners' Limited English Proficiency

Most Vietnamese students in Vietnam finish college or university with limited English proficiency despite having spent a minimum of seven years learning English at schools (Nguyen, 2013). This is confirmed by fact that oral communicative competence of Vietnamese graduates in disciplines other than English does not meet the expectation of the labor force (Nguyen & Nguyen, 2016).

There are many factors, which explain the inefficacy of EFL teaching and ultimately learning, in higher education in Vietnam. Nguyen, Fehring, and Warren's (2015) study revealed four main factors influencing students' learning outcomes.

The first factor is students' attitudes toward English. In this study, students across all disciplines did not uniformly adopt positive attitudes toward English. Students' attitudes toward English can affect their motivation and efforts invested in the process of learning English. For example, mechanical engineering and civil construction engineering students did not find it helpful to learn English at school nor did they feel it beneficial for their future employment.

The second factor is students' lack of opportunity and motivation to learn speaking and communication skills. Given insufficient instructional time and with a class of 50 to 55 students, it was infeasible for instructors to teach speaking and communication skills. Furthermore, the lack of assessments for speaking skills discouraged students from focusing on these skills.

The third factor concerns weak technical support from the school that created a low-ICT EFL learning environment. Teachers reported that some technical issues were not resolved until the end of the school year. Such issues prevented teachers from incorporating technologies into EFL classroom.

The fourth and final factor is low teaching quality due to unprofessional recruitment of part-time teachers. There was a lack of transparency in the recruitment process whereby incompetent part-time teachers were employed based on nepotism.

In language learning, knowing linguistic features such grammar rules and vocabulary is not enough. It is essential for a learner to get sociolinguistic knowledge of the target language, meaning that he or she should also learn how to use a language in its social and communicative contexts (Ho, 2002). As mentioned in Nguyen et al. (2015), Vietnamese non-English major students are taught grammar, vocabulary, reading, writing, and listening skills. However, assessing learners' communicative competence is not a focus in the curriculum. A review of the literature revealed that EFL teaching and EFL curriculums in Vietnam did not give sufficient attention to sociolinguistic features students' only language inputs were from classroom teachers and textbooks, indicating that students had little exposure to the cultural contexts of the target language (Ho, 2002). Vietnamese learners of English tend to behave in accordance with their native cultures when communicating with native speakers of English. Consequently, having only linguistic knowledge does not ensure that a student has practical competence in English (Ho, 2002).

In larger language learning contexts, social learning and ecological perspectives emphasize the fundamental roles of social opportunities in learners' development of the target language. Language learning is in essence "a non-linear and relational activity, co-constructed between learners and their learning environment" (Kramsch, 2002. p. 5). Successful learning therefore can be seen in how learners interact with people around them in order to overcome problems that cannot be solved by the learners themselves. Learners can therefore move to the next stage of development in Vygotsky's zone of proximal development (Harrison & Thomas,

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2009). Researchers such as Campbell (2004), Singh (2004), and Fageeh (2011) identified lack of access to the target language as a hindrance to learners' development of language proficiency.

Existing research on language learning has found that there are other factors that are predictive of learners' language learning outcomes; these include learner autonomy, which is a core concept of self-determination theory, as well as self-efficacy that is a concept of social cognitive theory. Learner autonomy and the growth of proficiency in a target language are mutually supporting and integrated with each other (Little, 2007). Little (2000), Dafei (2007), and Zhang and Li (2004) shared the views that the more autonomous the learner, the better language learner they will become. Likewise, in exploring the efficacy of EFL learning and teaching in Vietnam, Nguyen, Fehring, and Warren (2015) reported that insufficient autonomy in EFL learning affected students' EFL learning. As for self-efficacy, these learners tend to engage more in their learning tasks as compared to others who do not believe in their ability to successfully given tasks (Raoofi, Tan & Chan, 2012; Cotterall, 1999). According to Bandura (1984), self-efficacious learners view their failures as insufficient efforts invested in their tasks, as opposed those learners with low self-efficacy or lack of self-efficacy who tend to view failures as their own deficient abilities.

In the hopes of addressing the issue of limited English proficiency among Vietnamese students graduating from secondary and vocational schools, colleges, and universities nationwide, Vietnam has made various reform efforts on foreign language (primarily English) education. Most recently, the Vietnamese government approved the National Foreign Language 2020 (NFL2020) project with a total cost of 9.378 trillion VND (440.3 million USD). The NFL2020 aims to overhaul the teaching and learning of foreign languages within the national education system, and to advance Vietnamese people's foreign language skills leading to an increase in their abilities to engage in the globalized world (Nguyen, 2013). Specifically, by the year 2020, "most Vietnamese students graduating from secondary and vocational schools, colleges, and

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universities will be able to use a foreign language in their daily communication," according to the former Executive Director Nguyen Ngoc Hung of the NFL2020 (2013, p. 62). One of the NFL2020's tasks is to subsidize schools so they can afford technology for foreign language teaching and learning (Decision 1400/QĐ-TTg). The Vietnamese government's Decision 1400 to promulgate the implementation of the NFL2020 also made clear that significant investments in equipment in the service of foreign-language learning (i.e. the installation of foreign-language labs, audio-visual foreign language rooms, and multimedia rooms for schools nationwide) are an ongoing task of the NFL2020 project. These reforms reveal the limits of current technology in foreign language learning at schools.

Attitudes toward the Use of ICTs in Language Learning

Attitude Concept

Perloff (2010) defined attitude as "a learned, global evaluation of an object (person, place, or issue) that influences thought and action" (p. 43). This author made the point that attitudes (e.g. attitudes toward abortion or homosexuality) were not in-born, but acquired through socialization and vary from one individual or group to another via cultural and social upbringing. Attitudes are furthermore viewed as evaluations. Perloff explained, "having an attitude means that you have categorized something and made a judgment of its net value or worth. It means that you are no longer neutral about the topic" (p. 44). It is believed that attitudes invariably involve affect and emotions such as passions and hates, attractions and repulsions, and likes and dislikes; they guide individuals' actions and direct one to do what one believes.

Factors Affecting Attitudes toward ICT Usage

In the context of technology acceptance, what shapes individuals' attitudes toward using a technological innovation, has been identified by various scholars (see

Table 2). The Technology Acceptance Model by Davis, Bagozzi, and Warshaw (1989) lists two self-belief constructs (perceived ease of use and perceived usefulness) as two determinants of attitudes toward technology acceptance. The Theory of Planned Behavior by Ajzen (1991) proposed two others: explicitly social norms and perceived behavioral control. Diffusion of Innovations theory by Rogers (2003) underscored the impacts of knowledge of a technological innovation in addition to relative advantage, social norms, and expected outcomes. Bhattacherjee and Sanford (2006) attempted to apply the Elaboration Likelihood Model developed by Richard E. Petty and John Cacioppo when examining attitudes toward using a technological innovation. Petty and Cacioppo suggested two constructs, perceived usefulness and source credibility as two influential variables.

Table 2

Factors Affecting Attitudes toward Technology Acceptance

	Factors shaping attitudes	Theories and scholars
Attitude toward the behavior	• Perceived usefulness • Perceived ease of use	Technology Acceptance Model by Davis, Bagozzi, and Warshaw (1989)
	• Subjective (social) norms • Perceived behavioral control	Theory of Planned Behavior by Ajzen (1991)
	• Knowledge as a cognitive factor • Relative advantage • Social norms • Expected outcomes	Five stages of the Innovation-Decision Process, Diffusion of Innovations Theory by Rogers (2003)
	• Perceived usefulness • Source credibility	ELM-based Influence Model of IT Acceptance by Bhattacherjee and Sanford (2006)

Perceived ease of use and perceived usefulness are two cognitive beliefs that are believed to shape individuals' attitudes toward using technology. Davis et al.

(1989) defined perceived ease of use as the extent to which potential users expect difficulty-free efforts involved in using technology and perceived usefulness as the extent to which potential users expect the use of technology to benefit their task performance. Favorable or unfavorable attitudes toward technology usage result from how individuals perceived whether or not the technology is easy to use and is beneficial to them.

Perceived usefulness is also one of the two factors that Bhattacherjee and Sanford (2006) included in their hypothesized ELM-based influence model of information technology acceptance. According to Bhattacherjee and Sanford (2006, p. 811), the utilitarian consideration of perceived usefulness is affected by source credibility (i.e. "the extent to which an information source is perceived to be believable, competent, and trustworthy by information recipients") and argument quality (i.e. "the persuasive strength of arguments embedded in an informational message"). With respect to source credibility, it is more likely that potential users adopt favorable attitudes toward technology acceptance as long as they perceive the information source as being believable, competent, and trustworthy to them. Rogers' (2003) Diffusion of Innovation Theory points to having experience with a technological innovation as a particularly credible source of information for users.

Subjective (social) norms and perceived behavioral control are two factors that affect attitudes toward performing a behavior. Subjective norms refer to "the perceived social pressure to perform or not to perform the behavior" and perceived behavioral control means the perceived ease of difficulty of performing the behavior" (Ajzen, 1991, p. 188). As described in the Theory of Planned Behavior by Ajzen (1991), people's favorable or unfavorable attitudes toward performing a behavior are influenced by their beliefs about what others think they should or should not do (i.e. subjective norms) and by their perceptions of their own capability of performing a particular task (i.e. perceived behavioral control). Fishbein and Cappella (2006) viewed perceived behavioral control as self-efficacy in their integrative model of behavior.

Diffusion of Innovations Theory also emphasized the effects of social norms alongside the other influential variables: knowledge of an innovation, relative advantages, and expected outcomes in shaping individuals' attitudes toward using a technological innovation. Rogers categorized knowledge into three types: awareness-knowledge, how-to-knowledge, and principles-knowledge. Awareness knowledge refers to having information that a technological innovation exists (Rogers, 2003). Having this type of knowledge can motivate individuals to learn about the innovation and likely lead to gaining the other two types of knowledge afterwards (Sahin, 2006). How-to knowledge refers to information on how to use a technological innovation properly, and principles-knowledge refers to information on functioning principles underlying how the innovation works (Rogers, 2003). Regardless, knowledge of technological innovation is not the only variable affecting individuals' attitudes toward using the innovation. Other variables include social norms, relative advantage, and expected outcomes.

Learners tend to adopt positive attitudes toward the use of ICTs in language learning and form the majority group in existing studies even in low-ICT learning environments. Dang and Nguyen (2014) in their exploratory study of ICT use among 149 EFL university students in Vietnam found that most of the students (82.6%) showed positive attitudes toward ICT use in EFL learning. Liu's (2009) study on the ICT attitudes of 140 college non-English major students in China is another example, showing that a great number of research participants were fully aware of and generally positive about the potential of ICTs to learners' development of EFL. The attitudes of these students were greatly influenced by their perceptions of ICT attributes, i.e. relative advantage, compatibility, simplicity and observability (Liu, 2009). According to Rogers (2003), relative advantage refers to the extent to which a technological innovation can be of use to users' existing practices in a more productive, efficient, and cost-effective manner. Compatibility refers to the extent to which a technological innovation is perceived as being consistent with existing values, past experience, and needs of potential users. Simplicity can be understood as the extent to which a

technological innovation is perceived as not difficult to understand and use. Finally, observability is described as the degree to which the results of a technological innovation can be visible to others.

Existing empirical research has also explained why learners took negative attitudes toward the use of ICTs. Lack of experience in using ICTs in the classroom-based setting and difference in genders are the factors influencing the attitudes of learners. As identified by Liu's study (2009), actual use of ICTs in English classrooms remained deficient. Learners were therefore not prepared at school and not supported to utilize available ICTs for language learning in and outside of the classroom. Liu (2009) and others such as Nguyen, Fehring, and Warren (2015) recognized that the learner's gender was connected to negative attitudes toward the use of ICT in English-language learning. Liu (2009) found that male non-English major college students and those majoring in science were not as positive about ICT usage as female students and those in liberal arts disciplines; female students were more interested and confident in learning English. Liu's (2009) findings were in line with those of Nguyen, Fehring, and Warren (2015) but on a different research population and in different educational context, i.e. Vietnamese non-English major students and in Vietnam. Nguyen, Febring, and Warren's (2015) study revealed that engineering and science students perceived English fluency to be unnecessary for their fields of study and future employment.

Conceptual Framework

Various literature sources with respect to technology use in foreign language learning, learner autonomy, and self-efficacy in foreign language learning were gathered to form the conceptual framework of the present study (see Figure 1). Three variables were examined in the present study. The ICT attitude was treated as a dependent variable, defined as learner perspectives of using ICTs to enhance EFL learning. Referencing the definition of ICTs by Nicol (2003), ICTs in the present study were organized into three categories: information technology, telecommunication

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technology, and networking technology (herein social networking technologies such as Facebook and blogs). The investigation of ICT attitudes was principally guided by the work of the European Commission and Ellinogermanii Agogi or ECEA (2007). ECEA attempted to understand the role of technology in life and people's views toward the use of specific types of technology, as well as its overall benefits to language learning.
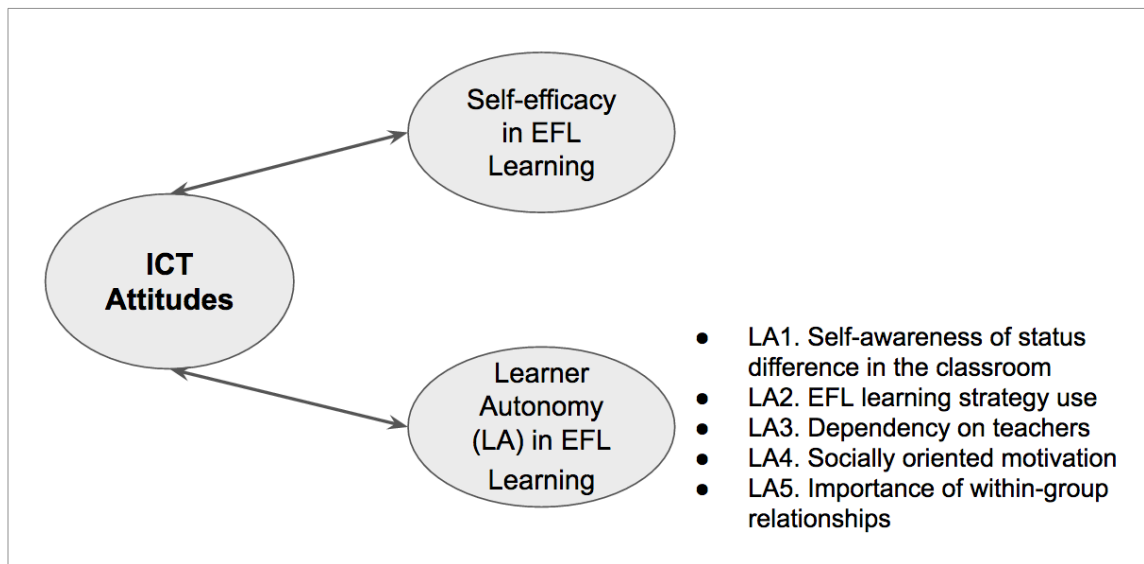
Figure 1. The Study's Conceptual Framework

Learner autonomy is described as learners' abilities to take charge of their own learning (Holec, 1981) in a way which they self-regulate their EFL learning based on: (1) previously set directions. Littlewood (1999) named it reactive autonomy; and (2) their own directions. This type of learner autonomy is called proactive autonomy, according to Littlewood (1999). Learner autonomy is a de facto Western concept and is inappropriate to consider it as a standard of evaluating learners' autonomy due to differences in educational traditions. Hence, in the context of education, learner autonomy should be looked at both a reactive level and a proactive one (Littlewood, 1999).

Self-efficacy is another independent variable in addition to learner autonomy and according to Bandura, (1997) refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). In world-languages learning, learners' self-efficacy could be examined in specific skills or content areas. For instance, Mills (2009) studied American learners' self-efficacy in five specific content areas of French as a foreign language: communication, cultures, connections, comparisons, and communities. The present study focused on examining learners' self-efficacy in the oral communication aspect of EFL. Informed by Mills (2009)'s and Bandura (1997)'s, self-efficacy was in the present study operationalized as learners' beliefs in their capabilities to organize and execute the courses of action required to master the communication aspect of EFL. Furthermore, self-efficacy in EFL was looked at three different levels of foreign language proficiency: "basic user", "independent user", and "proficiency user" as identified by the Council of European (2000, p. 23).

Informed by different literature sources, the researcher believed in the likelihood that learners' ICT attitudes could be explained by their autonomy and self-efficacy in EFL learning. Researchers identified the benefits of ICTs in fostering learners' autonomy (e.g. Godwin-Jones, 2006 & 2011; Akbari, Pilot, & Simons, 2015) and improving learners' self-efficacy (e.g. Hashemyolia, Ayub, & Moharrer, 2015; Zheng, Young, Brewer, & Wagner, 2009). In addition, it is more likely that when a particular technological tool is integrated into instruction, the majority of the learners adopt favorable or positive attitudes toward the use of that tool as evidenced by the study of Liu (2009), and of Dang and Nguyen (2014).

Chapter Conclusion

The review of the literature documents that Vietnam has continued to make efforts in increasing access to ICTs nationwide. Meanwhile, ICT literacy is highly valued and has been introduced as a subject at schools across the country. Benefits of ICTs to learners' development of a target language have continued to be added to the

research body. Even so, the integration of ICTs into foreign language learning and teaching practices remains deficient. Research shows that most Vietnamese college/university graduates majoring in subjects other than English in Vietnam have limited oral communication skills in a foreign language (primarily English). Existing empirical research shows that when it comes to the use of ICTs in English language classroom, the majority of learners including Vietnamese learners, developed favorable attitudes toward ICT usage.

Further review of the literature shows very few studies examining the use of ICTs among Vietnamese non-English major students and their attitudes toward ICT use in English-language learning. A number of other studies ascertained initial connections between the use of ICT use and learners' development of a target language, but not on their attitudes and self-efficacy and autonomy in English-language learning. Theoretically, individuals' attitudes toward using a technological innovation can be explained by various factors as identified in Davis et al.'s (1989) Technology Acceptance Model, Ajzen's (1991) Theory of Planned Behavior, Rogers' (2003) five stages of the Innovation-Decision Process, and ELM-based Influence Model of IT Acceptance by Bhattacherjee and Sanford (2006). No studies have been found to statistically look at how attitudes of non-English major learners toward the use of ICTs can be explained by self-efficacy and learner autonomy in the context of EFL learning.

CHAPTER 3. METHODOLOGY

This chapter describes the research methodology used in the study, including research design, participants and context, instrumentation, data collection, and analysis methods.

Research Design

This non-experimental study was designed using a two-phase sequential explanatory research method beginning with quantitative data collection. The purpose of the study was twofold: 1) to examine the attitude of Vietnamese learners in Vietnam toward the use of ICTs in English as a Foreign Language learning and 2) investigate the relationships between a) learners' attitude and autonomy, and b) learners' attitude and self-efficacy. Questionnaire and open-ended questions were used as instruments for quantitative and qualitative data collection, respectively.

Research Method

A two-phase sequential explanatory research design is one of the seven types of mixed-methods research approaches, prioritizing the quantitative data to be gathered in the first phase of the data collection process (Creswell & Plano Clark, 2011). According to Creswell and Plano Clark (2011), this type is considered as the most straightforward because the data collection is divided into two discrete stages with a priority for the quantitative data to be collected in the first stage. The second stage did not take place until the first stage was complete and the researcher was able to perform a preliminary analysis of the quantitative data. The "initial quantitative phase of the study may be used to characterize individuals along certain traits of interest related to the research questions" (Creswell & Plano Clark, 2011, p. 179); this

empowers the researcher to interpret some of the quantitative findings surprising him or her (Creswell, 2003).

The two-phase sequential explanatory research design may present a time-related challenge to the researcher due to its two distinct stages of data collection. The researcher has to wait for preliminary results from the first stage before proceeding with the second stage (Creswell, 2003). This research design method works better for research studies with a sufficient amount of time allotted for data collection.

Research Questions

This study sought to answer the following questions:

1. What are the attitudes of Vietnamese learners toward the use of ICTs in learning EFL?
2. What is the relationship between learners' ICT attitudes and their autonomy in learning EFL?
3. What is the relationship between learners' ICT attitudes and their self-efficacy in learning EFL?

Participants and Context

The study targeted Vietnamese EFL students residing in Vietnam, aged 18 and over, and majoring in fields of study other than English. These students are also referred to as non-English major students, e.g. in the study of Quadir (2011). Students majoring in English were not included in the study because of the differences in motivation and anxiety in learning EFL detected between English-major learners and non-English major learners. This was made evident by Quadir (2011), who did a comparative study on 184 English major university students and 171 non-English major university students in Bangladesh with respect to their motivation to learn English oral communication skills, and found a statistically significant difference in motivation and anxiety levels between these two groups. Non-English majors had a

lower level of intrinsic motivation but a higher level of anxiety in learning EFL, compared with English majors.

Phase 1 Participants (Quantitative Data)

The study involved 970 Vietnamese EFL students as participants completing the questionnaire. The ratio between male and female participants was approximately equal, with 49 percent (n = 475) for males and 51 percent (n = 495) for females (see Table 3). The majority of the participants (i.e., 85%) resided in Ho Chi Minh City, with the remainder from 10 other cities and provinces of Vietnam. Participants from the ages of 18 to 22 represent the majority, making up 79.4% of the sample. College students comprised 98.5% of the entire research sample, of which 60.1% were in the associate's degree programs and 38.4% were in the bachelor's ones.

Table 3

Demographics of Phase 1 Participants

Participants (N = 970)		Frequency	Percentage
Gender	Female	495	51
	Male	475	49
Age	18-22	770	79.4
	23-27	98	10.1
	28 and older	30	3.1
	Not specified	72	7.4
Education	Associate's degree	583	60.1
	Bachelor's degree	372	38.4
	Graduate degree	11	1.1
	Not specified	4	0.4
Study sites	Ho Chi Minh City	824	85
	Other cities	140	14.4
	Not specified	6	0.6

Most participants had no issue using or having access to a computer and the Internet in their homes for learning EFL; 80% of participants reported that they owned a personal computer (see Table 4); 83% also reported having Internet connection in

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their homes. An overwhelming number of participants (about 90%) self-reported feeling 'comfortable' to 'highly comfortable' with their skills using a computer and the Internet. Specifically, 40.6% ranked their skills at the 'high to very high' level and 49.6% at the average level. A small portion (9.4%) self-ranked their comfort level at 'low to very low' and less than one percent (0.4%, or four participants) shared that they had no computer and Internet skills.

Table 4

Computer and Internet Access and Skills

Items		Percentage	Participants
Computer Access	Yes	79.4	770
	No	20.6	200
Internet Access	Yes	82.9	804
	No	17.1	166
Technological Skills	High to very high	40.6	394
	Average	49.6	481
	Very low to low	9.4	91
	No skills	0.4	4

Phase 2 Participants (Qualitative Data)

This stage involved 11 volunteers (five males, six females) from the 970 respondents of the quantitative survey. Table 5 summarizes participant demographics; three participants were from the online questionnaire group and the remaining eight belonged to the paper-based group. One respondent was a graduate student, three completed their undergraduate education, and the remaining seven were undergraduate students. Participants' ages ranged from 19 to 27. All of them were from urban areas and had home access to computers and the Internet. Nine felt 'comfortable' to 'highly comfortable' using a computer and the Internet (specifically five participants at the average level and four participants at a 'high to very high' level); the remaining two indicated that their comfort levels were 'low' to 'very low'. At least two ICT tools were adopted for EFL learning by the participants.

Table 5

Demographics of Phase 2 Participants

Participants (n = 11)		Frequency	Percentage
From survey modes	Online	3	27.3
	Paper-based	8	73.7
Gender	Male	5	45.5
	Female	6	54.5
Age	19-23	8	72.7
	24-27	3	27.3
Education	Undergraduate	10	90.9
	Graduate	1	9.1
Study sites	Urban area	10	100
	Rural area	0	0
Access to Internet from home	Yes	10	100
	No	0	0
Access to computer from home	Yes	10	100
	No	0	0
Comfortable level of using computers and Internet	High to very high	4	36.4
	Average	5	45.4
	Low to very low	2	18.2
	No skills	0	0

Study Context and Setting

Vietnamese graduates from secondary and vocational schools, colleges, and universities are expected to be able to use a foreign language (primarily English) in their daily communication as well as in multicultural and multilingual working and learning environments. Educational leaders have been attempting to improve the quality of English language teaching and learning English to create a more efficient labor force. In reality, most Vietnamese students who have spent as much as seven years learning English at school have very limited English proficiency (Nguyen & Dudzik, 2013). This issue has become more urgent in light of the role English serves as a lingua franca of higher education, trade, and business mobility among the ten countries of the Association of Southeast Asian Nations (ASEAN) community.

The study was conducted over the Internet, face-to-face, and over telephone. The questionnaire was administered online and face-to-face. The online questionnaire was sent to primary contacts and then forwarded to potential research participants. The paper-based version of the questionnaire was handed to students in Bien Hoa City and Ho Chi Minh City. Most of them completed the paper-based questionnaire during their break at school; few students wanted to take it home. One-on-one follow-up phone interviews were conducted with 11 of the participants who had completed the questionnaire.

Ethical Considerations

Participation in the study was completely voluntary and the data collection process was initiated after the study had received approval from the Institutional Review Board of Human Studies Program at the University of Hawaii at Manoa. Potential research participants were given both a consent letter and the questionnaire in Vietnamese. Potential participants were asked to read the paper-based consent letter carefully and sign it if they agreed to participate in the study as a research participant before they proceeded with providing responses to the questionnaire. Participants were given a copy of the consent letter for their own record and were asked to return the signed consent letter with the completed questionnaire to me via their teachers who served as my contacts. For those who completed the online questionnaire, digital consent letters were provided. Participants were asked to fill in their full names to serve as an e-signature to indicate their consent.

Not all participants who completed the questionnaire in an online or paper-based format were contacted for follow-up interviews with the researchers. Only participants who provided their contact information in the consent letter indicating their willingness to continue with the study (e.g. phone number and email) were contacted for follow-up interviews. Participants were allowed to withdraw their participation at any time during the interview with their responses being excluded from the study.

Instrumentation

The questionnaire and follow-up interviews were used as a means to collect quantitative and qualitative data, respectively. Survey questions were modified from the work of previous studies to fit the purpose and scope of the study.

Measurement of the Attitude Construct

Existing research suggests using the response options for the attitude questions to be on a five-point Likert-scale from 'strongly agree', 'agree', 'neither agree nor disagree', 'disagree' to 'strongly disagree'. This is because of the complexity of the attitude construct made up by collections of beliefs about a particular object or action and because of the value of a belief measured by its strength or importance. Some beliefs are held more strongly and valued more greatly than others (Simons-Morton, McLeroy, & Wendel, 2012). The five-point or even seven-point Likert scale has become "a universal and seemingly culture-proof method for the measurement of attitudes" (Sammut, 2013, p. 54).

Questionnaire

Structure of the questionnaire (see Appendix C). The questionnaire used in this study consisted of four sections with a total of 70 questions. The first section had seven questions asking participants about their gender, age, education level, access to a computer and the Internet, comfort level with technology, and schools where they were learning English. Two questions were open-ended and five were multiple-choice. Questions in the second, third, and fourth sections were on a five-point Likert scale, with '1' indicating maximum disagreement and '5' representing maximum agreement. The second section explored the attitude of participants toward their use of technologies in learning EFL; this section contained 20 questions. The third section also had 20 questions but examined participants' autonomy as language learners. The

fourth section had 23 questions and concentrated on understanding participants'
perceived self-efficacy in learning EFL.

Replication process. The questionnaire used in this study was constructed
from existing surveys developed by (1) the European Commission and
Ellinogermaniki Agogi (ECEA, 2007) on the impact of ICT and new media on
language learning, (2) Littlewood (1999) and Zhang and Li (2004) on learner
autonomy, and (3) Mills' (2009) on self-efficacy in language learning (see Table 6).
Only Mills (2009) reported the Cronbach's Alpha coefficients of her instrument.

Table 6

Summary of Survey Replication

Constructs	Number of items used in this study	Origins of Items	Reliability (α) tested by the authors
Attitudes toward ICT use in EFL	20	Sections D and E of the web-based survey by the European Commission and Ellinogermaniki Agogi (2007)	None
Learner Autonomy in EFL	20	All 10 five-point scale items (or 10 predictions) by Littlewood's (1999) 10 out of 21 Likert-scale items by Zhang and Li's (2004)	None
Self-efficacy in EFL	23	23 out of 91 items on Communication section of the total 126 items on the other four C's: Communities, Comparison, Connections, and Connections by Mills' (2009)	α = .98 for the 91 items on Communication skills

Selections of and modifications to the questions on attitudes toward the use of
ICTs in learning EFL, learner autonomy, and self-efficacy were made in reference to
the literature in the related fields. The questionnaire developed by the European

Commission and Ellinogermaniki Agogi (2007) is available online and consists of six sections –Section A: Personal details (8 questions), Section B: Using technology in everyday life (12 questions), Section C: Languages and you (27 questions), Section D: Using technologies for language learning (37 questions), Section E: Technology-enhanced learning: For or Against? (24 questions), and Section F: Submit (asking participants to provide their email address, contact telephone number, and best time to make contact). Questions in Section D on using specific technologies for language learning and Section E on attitude toward the use of technology for language learning were most relevant to the current study; 20 of 61 questions were selected and modified for the present study's questionnaire.

Twenty questions on learner autonomy were also selected from Littlewood's (1999) and adapted from Zhang and Li's (2004). These authors attempted to define learner autonomy in East Asian and Asian contexts. Littlewood proposed ten predictions designed on a five-point scale from 'strongly disagree' to 'strongly agree', with a view to understanding autonomy among language learners in East Asian contexts. Zhang and Li's (2004) questionnaire consisted of a total of 21 questions (11 five-point scale and ten multiple-choice), aiming at comparing autonomy of Chinese students with Western European students. The researcher replicated ten predictions in Littlewood's (1999) and modified ten questions in Zhang and Li's (2004) questionnaire.

Twenty-three questions on self-efficacy of this study were selected from Mills (2009). Mills' (2009) scale consisted of 126 items evaluating self-efficacy in French as a foreign language of 46 beginner French college students at a university in the northeastern United States. These 126 items were organized into the five goal areas of the Standards for Foreign Language Learning: Communication, Cultures, Connections, Comparisons, and Communities. The assessment checklist for the Common European Framework developed by Schneider and North (2000) was used as another guide for the development of the questionnaire (Mills, 2009). Mills had 91

questions focusing on self-efficacy in the Communication area. This created the challenge of deciding which questions to include in the study.

To address this challenge, Mills' (2009) 91 questions were organized into six levels (see Table 7) in the 'Common European Framework of Reference for Languages: Learning, Teaching, Assessment' (CEFR) by the Council of European (2000). The rationale behind this was to evaluate Vietnamese students' self-efficacy based on Vietnamese national standards in foreign language learning. However, no standards have been developed yet, so Vietnam is currently using the CEFR by the Council of Europe (2000) as a foundation. The alignment of Mills' (2009) 91 items into six levels as defined in the CEFR (see Table 7) enables keeping a balance of the number of survey questions across the CEFR's six levels of foreign language proficiency (A1, A2, B1, B2, C1, and C2), and across the three constructs of the study (attitude toward the use of ICT, learner autonomy, and self-efficacy).

Table 7

Levels of Foreign Language Proficiency by CEFR

Basic User (A)	Independent User (B)	Proficient User (C)
Sub-levels (Six Levels of Foreign Language Proficiency)		
A1. Breakthrough	B1 Threshold	C1. Effective Operational Proficiency
A2. Waystage	B2. Vantage	C2. Mastery

Cronbach's Alpha coefficients. The questionnaire of this dissertation was tested for its internal consistency using the data of this current study. The Cronbach's Alpha coefficients value for the entire survey was .93 with the values for individual variables of the attitude, learner autonomy, and self-efficacy equal to .88, .73, and .95, respectively. The reliability of the 'learner autonomy' items was not as high as that of the other two. The item discrimination indices (see Appendix E) revealed that items on

learner autonomy did not discriminate as well as those on ICT attitudes and self-efficacy. The Corrected Item-Total Correlation values of the questions on learner autonomy ranged from .157 to .378, much lower than those of the attitude (from .406 to .610) and self-efficacy questions (from .324 to .762).

Apart from the Cronbach's Alpha coefficients, an internal consistency among survey questions in each construct (attitude, learner autonomy, self-efficacy) was investigated. A correlation matrix was created using SPSS Statistics and the results disclosed that all items on the attitude were statistically significantly and positively correlated. Similar results were found on the self-efficacy questions with the exception of questions 13 and 17 with the *p*-values larger than .05. As for the 20 items on learner autonomy, various correlation patterns were found alongside the fact that some items were not statistically significantly correlated. The findings led to the need for an exploration of the structure of the data on learner autonomy.

To further explore the issue of internal consistency in regard to learner autonomy items, the Principal Component Analysis (PCA) method was performed to determine the eigenvalues. The PCA results showed that five eigenvalues are higher than 1, and the Kaiser-Meyer-Olki value was equal to .815, larger than 0.6 as the cutoff point, indicating that the data was likely to factor well, based on correlation and partial correlation. As such, the Principal Axis Factoring (PAF) method with the use of oblique rotation method (i.e., Promax) was requested as a follow-up for clear outcomes. PAF uses the test theory and assumes measurement errors whereas PCA is data-driven and does not take measurement errors.

Generally, PCA and PAF both refer to the exploratory factor analysis (EFA) used for situations where "the variables to be analyzed either newly developed or have not previously been analyzed together, or when the theoretical basis for the factor analysis model (i.e., number of factors, level of correlation among factors) is weak" (Bandalos & Finney, 2010, p. 96). Likewise, Pett, Lackey, and Sullivan (2003) wrote that EFA is used "when the researcher does not know how many factors are necessary to explain the interrelationships among a set of characteristics, indicators, or items" (p.

3). Before carrying out this factor analysis, the normality of data distribution was checked. The kurtosis and skewness values from descriptive statistics fall in range from -2 to +2, revealing that the data was relatively normally distributed (Lewis-Beck, Bryman, & Liao, 2004).

The PAF results show the same Kaiser-Meyer-Olki value and five eigenvalues larger than 1, reflecting a five-factor structure for the 'learner autonomy' data. The Pattern Matrix (the left-hand side matrix in Figure 2) presents the sizes of the loadings indicating the degree of association between items and factors. All of the loadings are positive and from a low factor loading (.310, as in item 10) to a very strong loading (.780, as in item 1). Item 17 markedly correlates with both factor 3 and factor 4. This is seen as a cross loading that should be removed.

PAF Output with All Items

Pattern Matrix[a]

	Factor				
	1	2	3	4	5
Item 1					.780
Item 2					.745
Item 3					.445
Item 4	.508				
Item 5	.673				
Item 6	.722				
Item 7	.553				
Item 8			.654		
Item 9			.568		
Item 10			.310		
Item 11			.476		
Item 12		.756			
Item 13		.616			
Item 14		.516			
Item 15				.598	
Item 16				.627	
Item 17			.484	.316	
Item 18		.505			
Item 19				.494	
Item 20				.411	

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
 a. Rotation converged in 6 iterations.

PAF Output Without Item 17

Pattern Matrix[a]

	Factor				
	1	2	3	4	5
Item 1					.766
Item 2					.741
Item 3					.428
Item 4	.516				
Item 5	.691				
Item 6	.699				
Item 7	.543				
Item 8				.651	
Item 9				.648	
Item 10				.338	
Item 11				.486	
Item 12		.749			
Item 13		.611			
Item 14		.519			
Item 15			.668		
Item 16			.651		
Item 18		.495			
Item 19			.483		
Item 20			.442		

Extraction Method: Principal Axis Factoring.
Rotation Method: Promax with Kaiser Normalization.
a. Rotation converged in 6 iterations.

Figure 2. Factor Analysis Using Principal Axis Factoring (PAF)

The PAF was re-computed with an exclusion of item 17 (survey question #17). The output (the matrix on the right-hand side in Figure 2) discloses a clear five-factor structure with all positive loadings and no cross loading. The smallest size of loading is now slightly larger, .338 (item 10) compared to the earlier finding (.310 of item 10). Item 1 now has a slightly lower loading score, .766 but it is still very strong. Loadings lower than .30 could be considered small and should not be included in the factor structure. The reason for excluding loadings lower than .30 was that "when a factor loading is no larger than .30, the part of the observed variance explained by the factor (on its own) in the pertinent measure can be seen as being under 10%, indeed, $0.3^2 =$

.09 (Raykov & Marcoulindes, 2011, p. 78). Commonly, the cutoff of 0.4 is recommended, but a minimum loading of 0.3 would be appropriate to use in order to retain the important variable, according to Loewenthal (2001). In this study, I have decided to keep item 10 for the factor 4. In conclusion, the 'learner autonomy' items reflect five dimensions (also called factors) as listed in Table 8.

Table 8

Underlying Factors of Learner Autonomy

Factors	Items	Names
Factor 1:	4, 5, 6, 7	Awareness of status difference in the classroom
Factor 2:	12, 13, 14, 18	EFL-learning strategy use
Factor 3:	15, 16, 19, 20	Learner dependency on the instructor
Factor 4:	8, 9, 10, 11	Socially-oriented motivation
Factor 5:	1, 2, 3	Importance of within-group relationships

Finalized questionnaire of the present study (see Appendix C). After checking the internal consistency of the survey questions, the self-efficacy questions 13 and 17, and the learner autonomy question 17 were removed. The number of items on ICT attitudes remained the same whereas those on learner autonomy and self-efficacy were reduced to 19 and 21, respectively. The questionnaire now had a total of 67 items including seven items on participants' general information such as age, gender, education, technological skills, schools, access to the Internet at home, and possession of a computer. The updated Cronbach's Alpha for 'ICT attitudes,' 'learner autonomy,' and 'self-efficacy' is now equal to .93 (.89 for 'ICT attitudes'; .72 for 'learner autonomy'; and .95 for 'self-efficacy').

Table 9 summarizes how responses were sought from participants in order to answer the proposed research questions, specifically what was deemed important to investigate using the questionnaire.

Table 9

Summary of Survey Design (Phase 1)

Section	Item	Data Type	Description	Reliability*	Purpose
Demographic	07	Nominal	Gender, age, education, comfort levels with technology…	N/A	To obtain an understanding of learners' backgrounds
ICT attitudes	20	Scale (1-5)	– Using specific types of ICTs for ELF – Support/Against the use of ICTs for EFL education	.89	To understand the attitudes of learners toward ICT use in English learning, improving a particular EFL skill, and fostering their autonomy
Learner autonomy	19	Scale (1-5)	– Status difference in the classroom (LA1) – EFL learning strategy use (LA2) – Dependency on teache (LA3) – Socially oriented motivation (LA4) – Importance of within-group relationships (LA5)	.72	To understand the attitudes of learners toward ICT use in English learning, improving a particular EFL skill, and fostering their autonomy
Self-efficacy	21	Scale (1-5)	Communication skills (Basic User, Independent User, Proficient User)	.95	To understand how self-efficacious learners are, particularly in their use of EFL for communication in real life situations and for personal enjoyment and enrichment

*: Cronbach's Alpha Reliability

Follow-Up Interview Questions

Using two-phased sequential explanatory research design, interview questions needed justifying based on the preliminary analysis of quantitative data with respect to participants' attitudes toward the use of ICTs in EFL learning. The questions were designed to elucidate quantitative findings with regard to the attitude of research participants toward the use of ICTs in EFL learning. As stated by Creswell and Plano Clark (2010), the qualitative data collection of the two-phase sequential explanatory research was to assist in interpreting quantitative results in more depth. The list of questions for individual follow-up interviews is included in Appendix D.

Language Use for the Questionnaire and Follow-up Interviews

Vietnamese was the language used for all data collection-related documents: consent letter, questionnaire, interview questions, messages sent to potential research participants. Though research participants were EFL learners, it was not assumed that they would be able to read and understand all research-related information in English. Having all documents translated into Vietnamese minimized misunderstandings of questions and information used during the data collection process.

Reliability and Validity

To ensure a high level of accuracy of the translated version of data collection instruments, a back-translation method and cognitive interview strategy were employed.

Back translation method. Back translation refers to the process of translating a translated text back into the original text (Harkness & Schoua-Glusberg, 1998). According to these authors, this method was most commonly used in the assessment of translation work. The back-translation process involved two stages with the assistance of four people: three Vietnamese people and one Vietnamese American (this person married an American citizen and then moved to the United States).

Vietnamese is the native language of all four people. These four people are experienced in teaching English as a foreign language to Vietnamese people in Vietnam.

In the first stage of the back-translation process, the questionnaire was translated into Vietnamese. This was independently done by two of the assistants. Before finalizing the Vietnamese versions, the researcher made slight clarifications with the assistants and minor changes.

In the next round the two other assistants independently translated the final version of the questionnaire in Vietnamese back into English. This step is included for checking the accuracy of the translated versions (Harkness & Shoua-Glusberg, 1998). The two translated versions (in English) were compared with the original version of the questionnaire. Some differences in terms of the word choice were found, but with no difference in meaning between the two versions. The length of each question in the back-translated version was discovered to be longer than that of the original version due to the language use.

Cognitive interview method. After the back translation method, a cognitive interview method was used. This method enables researchers to ascertain how respondents interpret survey questions through the verbal description of their thought process (Desimone & Le Floch, 2004). The thought process involves four aspects: "(a) comprehend an item, (b) retrieve relevant information, (c) make a judgment based on the recall of knowledge, and (d) map the answer onto the reporting system" (Berends, 2006, p. 633). Desimone and Le Floch (2004) mentioned that this method would help researchers identify and address 'response errors' stemming from survey respondents' misinterpretation of the survey questions or "forgetting crucial information" (p. 1). In conclusion, the cognitive interview data informs researchers of any aspect that a survey respondent may have so that they can make necessary revisions to the survey.

For this study, I conducted individual cognitive interviews with two Vietnamese volunteers before distributing the questionnaire to the prospective research participants. This was to confirm that there was no chance of participants

misunderstanding the survey questions. Each volunteer took on this task independently, with each volunteer being asked to think out loud while answering the survey questions. I was present during these interviews and took notes of their verbal responses.

Coding validation. As part of the improvement of the reliability and validity of the study, respondent validation (Merriam, 2009) and analyst triangulation (Patton, 2002) strategies were utilized. The member checks technique was used to obtain feedback on the study's emerging findings with individual interviewees. Before ending each interview, the main points of shared information were summarized, followed by requests for confirmation of the information gathered. Interviewees were also allowed to change their original responses. A peer reviewer appraised the list of codes as emerging themes of the qualitative data. Minor changes were made to the codes based on discussion with the peer reviewer.

Data Collection

Quantitative and qualitative data were collected in two distinct stages, beginning with the gathering of quantitative data as guided by the two-phased sequential explanatory research design. The questionnaire and semi-structured interview were used to collect data for this study.

Quantitative Data

Paper-based and online versions of the same questionnaire were created and used to collect quantitative data. Meckel et al. (2005) referred to this method as a "mixed mode strategy" (p. 78). It is believed that this strategy tends to return a good response rate because it cares about the differences in respondents' attitudes toward technology and strategic thinking (Meckel, Walters, & Baugh, 2005). Researchers such as Griffin et al. (2001) and Meckel et al. (2005) found that a strategically

thinking and more technology-accepting person tended to opt for a web-based version of the questionnaire.

Despite its advantages, this strategy has been used by relatively few researchers (Schonlau, Fricker, & Elliott, 2002) due to limitations that include the reduction of non-verbal communication, e.g. facial expressions and body language (Gillham, 2005). Furthermore, the use of a mixed-mode strategy separates participants into two groups: an online group and a paper-based group, leading to the need for checking if the group variances can be treated as equal.

The data collection began with the distribution of the online version of the questionnaire in early October 2013, about two months before the researcher began her trip to Ho Chi Minh City of Vietnam for the data collection using the paper-based version of the questionnaire and in face-to-face settings. The researcher sent an Invitation to Participate in the Study emails to her primary contacts in Vietnam who were Vietnamese instructors of English and had expressed their willingness to help forward the invitation to their students. The invitation briefly listed the criteria stating who were eligible to be in the study as a research participant (i.e. Vietnamese students, aged 18 or older, currently residing in Vietnam, studying English but majoring in other disciplines other than English). The first participant responded to the online questionnaire on October 6, 2013 and the last one on December 29, 2013.

The response to the online questionnaire exceeded the researcher's expectations thanks to the willingness of some research participants who shared the link to the online questionnaire of this study with others through their network of friends. This snowball sampling was not recognized until the researcher conducted follow-up interviews with 11 of the questionnaire's respondents. Four interviewees revealed they had learned about the study and received the researcher's email with the link to the online questionnaire through their friends.

The data collection was also conducted using the paper-based version of the questionnaire and in a classroom-based setting. The researcher contacted some Vietnamese instructors of English in some colleges and universities in Ho Chi Minh

City. These instructors were in the network of the researcher's friends in Vietnam and willing to assist her in collecting data from their students majoring in disciplines other than English. These instructors helped distribute hard copies of the questionnaire together with the consent form to students and collect the signed consent and the questionnaire responses. After consulting with the instructors, the researcher agreed to let the instructors decide the time that best fitted their class schedule to distribute the data collection documents. According to the instructors, some of the questionnaire were handed to the students who came to the class early, some during the break between the classes. Some students took the questionnaire home to complete and returned it to their instructors in their next class.

Quantitative sample. A total of 1012 participants completed the survey, of which, 829 took the paper-based survey in December 2013 and the remaining 183 completed the online survey from October to December 2013. A total of 37 responses were identified to be out of the sampling frame for one or more of the following reasons: research participants must be Vietnamese learners of English as a foreign language, must reside in Vietnam, do not major in English language or an English-related fields, and must be 18 years old and older. Consequently, these 37 responses had to be excluded from the data analysis. Additionally, five participants did not complete the questionnaire. Hence, the final number of valid responses in the research sample was 970 (178 online responses and 792 paper-based ones).

Response rate. The response rate for the paper-based survey reached 73.4 percent. The response rate for the online version of the questionnaire could not be calculated due to the snowball sampling.

Group variance. The use of both online and paper-based questionnaire offered participants a choice of the format of the questionnaire. This also enabled me to reach more participants who were in different cities and provinces of Vietnam. Hypothetically this strategy might induce a certain bias by the format of the questionnaire. To determine whether group variances existed in the sample, the

Levene's test from the Independent-Samples t-test was calculated. The result showed that the F statistic is 1.685 with an associated significance level (p-value) of .195, larger than the. 05 level, denoting that the group variances can be treated as equal. In conclusion, the assumption of homogeneity of variances is not violated.

Qualitative Data

Semi-structured interviews were conducted by telephone for this study. The use of semi-structured interviews allowed researchers the opportunity to clarify a research participant's unclear or incomplete answers with probing questions (Harrell & Bradley, 2009; Woods, 2011). Researchers would therefore be able to elicit more in-depth data easily (Woods, 2011). There were two main reasons for choosing telephone over other types of technology as a means of communication. Firstly, participants' diverse locations made it impossible for in-person interviews. Secondly, some participants were unable to get access to their computers or their mobile devices with Internet connection at their preferred time and place. According to Berg (2004), and Block and Erskine (2012), telephone interviews are not only an effective method for collecting data but also the only possible one due to geographically diverse locations between researcher and participants.

For this study, research participants who had indicated their further interest in participating in follow-up interviews were contacted. Based on the preliminary analysis of the quantitative results, 17 participants were contacted for one-on-one follow-up interviews in late December 2013. However, in the end, interviews were only arranged with 11 individuals. All interviews were conducted at a time and place most convenient for each participant. With participant permission, all interviews were audio-recorded for later data analysis.

Data Analysis

In this study, the Statistical Package for the Social Sciences (SPSS) 22.0 and MAXQDA were adopted to assist the researcher in analyzing quantitative and

qualitative, respectively. Frequencies, descriptives, and univariate analysis of variance (more precisely, univariate general linear model) were used to analyze quantitative data in response to the research questions (see Table 10). Specifically, frequencies and descriptive statistics results were used to answer the first research question on participants' ICT attitudes in EFL learning.

Table 10

Research Questions and Data Analysis Techniques

Research Questions (RQ)	Survey Section	Data Type	Analysis Techniques	Descriptions
1. What are the attitudes of Vietnamese EFL learners toward the use of ICTs in EFL learning?	2	Scale	Descriptive statistics; Thematic Analysis	To find the mean score for Vietnamese EFL learners' attitudes toward ICT use
2. What is the relationship of Vietnamese EFL learners' attitudes toward the use of ICTs and their autonomy in EFL learning?	2 & 3	Scale	Univariate General Linear Model	To determine the relationship between Vietnamese EFL learners' attitudes toward ICT use and their autonomy
3. What is the relationship between the attitudes of Vietnamese EFL learners toward ICT use and self-efficacy in EFL learning?	2 & 4	Scale	Univariate General Linear Model	To determine the relationship between Vietnamese EFL learners' self-efficacy and attitudes toward ICT use

The findings were subsequently expanded, given the qualitative data from follow-up interviews with 11 individual participants. The analysis of qualitative data used the thematic analysis technique by Merriam (2009) with the support of MAXQDA qualitative data analysis software, beginning with open coding as the first step, followed by axial coding, and then selective coding. However, as the qualitative data were to elaborate some of the quantitative findings, coding was to a large extent

guided by the quantitative results. In the present study, all the audio recordings of follow-up interviews were transcribed and these transcripts in .doc format were loaded to MAXQDA for the coding purpose. Distinct concepts and categories were initially drawn from individual transcripts and automatically kept in a list of the initial codes allowing the researcher to easily make edits to and reorganize these codes as needed. During the coding process, a knowledgeable peer assisted in double-checking all coding themes.

In addition to descriptive statistics, the general linear model procedures were performed to investigate the relationships of ICT attitudes with learner autonomy and self-efficacy in response to two research questions (RQ2 and RQ3 as listed in Table 10 and in the Research Questions section of this chapter). According to Heck (2006), this approach enables researchers to explain the variability of a single dependent variable from the information provided by one or more independent variables. In the present study, 'ICT attitudes' is treated as a dependent or outcome variable; whereas self-efficacy and five predictors of learner autonomy are independent variables.

Reporting the Results

In this study, qualitative data are reported in order to expound on quantitative results, a format recommended by Creswell and Plano Clark (2011) and Fraenkel, Wallen and Hyun (2012). Quantitative and qualitative results are presented in Chapter 4, beginning with a report on the descriptive statistics of the ICT attitudes followed by qualitative results from follow-up interviews and a quantitative report on the relationship of the ICT attitudes with self-efficacy and learner autonomy. This order of reporting results is logical and consistent with the method planned for qualitative data collection.

Summary

The two-phase sequential explanatory mixed methods research design was chosen for this study, one of the six design types of mixed method approach according to Creswell, Plano Clark, Gutmann, and Hanson (2003). This design emphasized the gathering of quantitative data in the first stage through the administration of the same questionnaire in both online and paper-based formats. Follow-up interviews were also conducted for qualitative data to further explain specific quantitative findings. The questionnaire was adapted from existing surveys. To prevent any misunderstandings of the survey questions among participants, Vietnamese was used as the language of both the questionnaire and in follow-up interviews. The back-translation method, together with the think-aloud interview protocol of the cognitive interview method, was utilized in order to improve the quality of the survey. SPSS and MAXQDA were included in the data analysis process. Qualitative data were reported in a way that helped elucidate the quantitative findings, following the descriptive statistics about ICT attitudes.

CHAPTER 4. FINDINGS

The findings in this study are reported in three sections. The first section summarizes descriptive statistics results from surveying 970 participants on their attitude towards the use of information and communication technologies (ICT attitudes) in learning English as a foreign language (EFL). The second section expands the quantitative findings presented in the first section with qualitative results from one-on-one interviews with eleven participants. The last section reports the inferential statistics results describing participants' ICT attitudes in EFL learning in relation to their perceived self-efficacy and with learner autonomy.

Section 1: Descriptive Statistics on ICT Attitudes

This section begins with a presentation of overall results, followed by findings on participants' attitudes toward using specific types of ICTs in learning EFL and their perspectives of using ICTs to enhance their proficiency in EFL.

High Prevalence of Positive ICT Attitudes

Responses of participants to 20 questions exploring their attitudes toward the use of ICTs in learning EFL are summarized in Table 11. The majority of respondents possessed a positive attitude (61.1%), as compared to the number of participants who had neutral attitudes (29.1%) and those who held a negative attitude (9.8%). The overall mean score for the attitude was equal to 3.69 ($SD = .517$), above the mid-point of a 5-point scale, with 5 indicating maximum agreement by all participants and 1 referring to maximum disagreement.

Table 11

Attitudes toward the Use of ICTs in EFL

Survey Item #	1-2* (%)	3** (%)	4-5*** (%)	*M* (*SD*)
Attitudes toward ICT Use in English Learning (Overall *M* = 3.69, *SD* = .517)				
Part 1: Using ICTs for English Language Learning (*M* = 3.63, *SD* = .562)				
I think the following technologies could help me learn English better.				
1 Computer	4.9	15.2	79.9	4.08 (.912)
2 Digital music	9.3	27.3	63.4	3.70 (.919)
3 Films on DVDs	11.2	29.4	59.4	3.64 (.975)
4 Online dictionaries	5.9	19.0	75.1	3.98 (.897)
5 TV/Radio	9.5	31.5	59.0	3.61 (.899)
6 Videoconferencing, e.g. Skype	13.6	45.7	40.7	3.34 (.887)
7 Voice over Internet Protocol, e.g. Skype, Viber, Zalo	11.8	33.3	54.9	3.57 (.940)
8 Blogs	22.0	44.6	33.4	3.14 (.972)
9 Social networking sites, e.g. Facebook	14.7	27.7	57.6	3.59 (1.075)
Sub-scores (%)	**11.5**	**30.4**	**58.1**	
Part 2: ICT-enhanced English Learning: For or Against? (*M* = 3.73, *SD* = .587)				
I think that technologies could help me…				
10 Speak English better.	10.6	27.0	62.4	3.67 (.954)
11 With reading in English.	6.8	22.6	70.6	3.84 (.858)
12 Improve my listening skills.	4.7	18.8	76.5	3.99 (.841)
13 With writing in English.	10.6	35.1	54.3	3.55 (.895)
14 Plan and organize my own studies better.	12.3	38.9	48.8	3.46 (.921)
15 Take greater control of my own English learning.	12.7	37.6	49.7	3.47 (.940)
I feel…				
16 ICTs give learners access to more real-life English use.	6.7	24.5	68.8	3.83 (.871)
17 Using ICTs can motivate me more to learn English.	6.0	24.5	69.5	3.83 (.837)
18 Using ICTs to learn English can help me integrate better into the world in which I live.	10.0	31.3	58.7	3.66 (.934)
19 ICTs can make English-language education more accessible and less threatening.	6.2	27.1	66.7	3.78 (.846)
20 ICTs in English-language learning will increase in the future.	5.1	21.1	73.8	3.98 (.873)
Sub-scores (%)	**8.4**	**28.1**	**63.5**	
Overall Percentage	**9.8**	**29.1**	**61.1**	

*: disagree to strongly disagree; **: neutral; ***: agree to strongly agree

Differences in Attitudes Across ICT Categories

Part 1 (Using ICTs for English-language learning) of Table 11 presents participants' attitudes toward the usefulness of nine specific types of ICTs for EFL learning. The overall mean score was 3.63 (SD = .562) above the mid-point of a 5-point scale with '1' indicating maximum disagreement by all participants and '5' referring to maximum agreement. The majority of participants were positive about the use of different types of ICTs in EFL learning, with two exceptions: the use of blogs and videoconferencing resulted in 44.6% and 45.7% of the participants possessing a neutral attitude, respectively. Differences in participants' attitudes towards specific types of ICTs or ICT categories used for learning English were detected and are visually captured in Figure 3.

	1. Computer	2. Digital Music	3. Films on DVDs	4. Online Dictionary	5. TV/ Radio	6. Videoconferencing (e.g. Skype)	7. VoIP (e.g. viber, zalo)	8. Blogs	9. Social Networking (e.g. Facebook)
Positive	79.9	63.4	59.4	75.1	59	40.7	54.9	33.4	57.6
Neutral	15.2	27.4	29.4	19	31.5	45.7	33.3	44.6	27.7
Negative	4.9	9.3	11.2	5.9	9.5	13.6	11.8	22	14.7
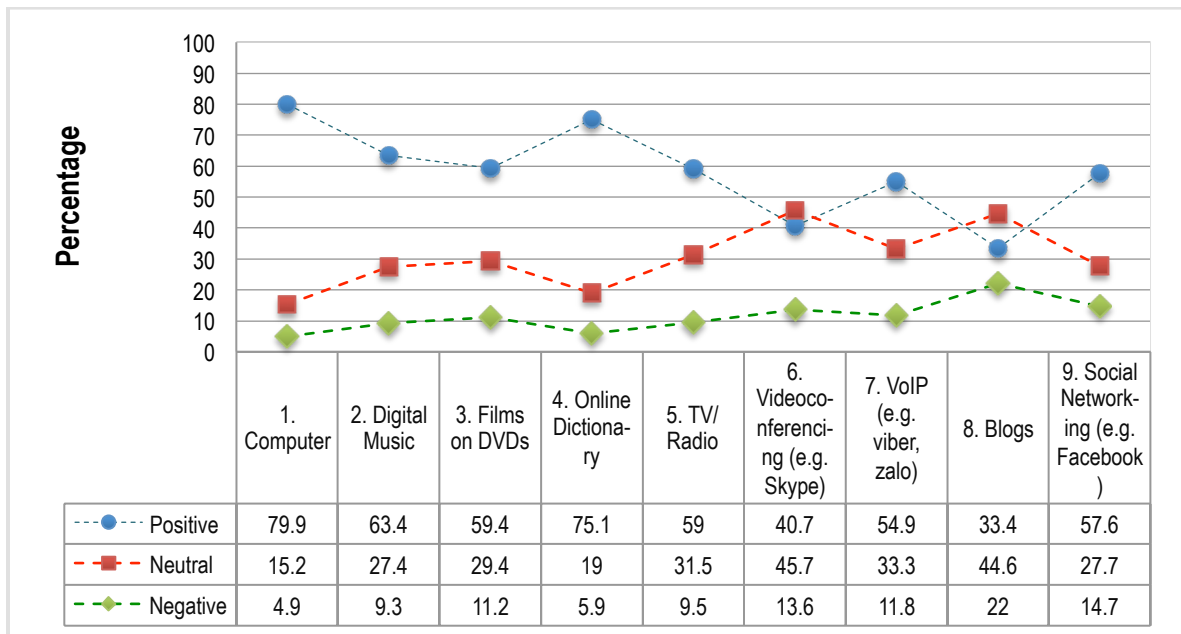
Figure 3. Participants' Attitudes Across Different Types of ICTs

The information technologies (computers, digital music, films on DVDs, and online dictionaries) received a higher percentage of participants with positive attitudes, in contrast to communication technologies (television/radio, videoconferencing,

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VoIP), and social networking technologies (blogs and social networking sites e.g., Facebook, MySpace, and Bebo). Among all participants, computers, and online dictionaries scored the top of the list with 79.9% and 75.1% of the participants, respectively; these were followed by digital music with 63.4% and films on DVDs with 59.4%. A smaller percentage of participants viewed television/radio (59%), VoIP or Voice over Internet Protocol (54.9%), and social networking sites (57.6%) as positive affordances to the development of EFL learning. Nevertheless, these numbers were considerably larger than those in the cases of videoconferencing (40.7%) and blogs (33.4%).

The number of participants with a favorable attitude toward communication technologies (items 5 to 7) surpassed the number for social networking technologies (items 8 and 9) by about 6%. This was due to the fact that the difference in participants' positive attitude among networking technologies was substantial in comparison to that between the two types of communication technology. Blogs of the networking technology group received the lowest percentage on average of participants with a positive attitude (33.4%), bringing down the score of social networking sites (57.6%). Unlike the networking technologies, the difference in participants' positive attitude across the communication technology tools was not substantial; and, while videoconferencing was at the bottom list, it was still about 6% higher when compared to the percentage of blogs.

Participants with a negative attitude toward the use of ICTs in EFL learning represented the smallest group. Findings show that 33.4% (for blogs) to 79.9% (for computers) of the participants supported the use of ICTs in learning EFL. This does not imply that 20.1% to 66.6% of the participants possessed a completely opposite attitude. In fact, more participants expressed neutral perspectives, that is, 15.2% (for computers) to 45.7% of all research participants (for videoconferencing). Participants adopting a negative attitude ranged from 4.9% (for computers) to 22% (for blogs). In general, information technologies were viewed as useful affordances to EFL learning to higher degree than communication technologies and networking technologies.

Examples of these include videoconferencing, blogs, VoIP, and social networking sites.

Differences in ICT Attitudes Across English Skills

With regards to the use of ICTs to augment four English language skills—listening, speaking, reading, and writing, findings indicate that more participants viewed ICTs as positive affordances to the improvement of the receptive aspects of their English language skills i.e., listening and reading skills (see Figure 4). Specifically, 76.5% and 70.6% of the participants supported the use of ICTs for listening and reading skills, respectively. Using ICTs to improve the expressive language skills, i.e., speaking and writing, was indicated by a smaller percentage of participants. Writing skills received 54.3% of the participants' scores and speaking skills about 8% more (i.e., 62.4%). In brief, listening skills appeared to benefit the most from the use of ICTs.
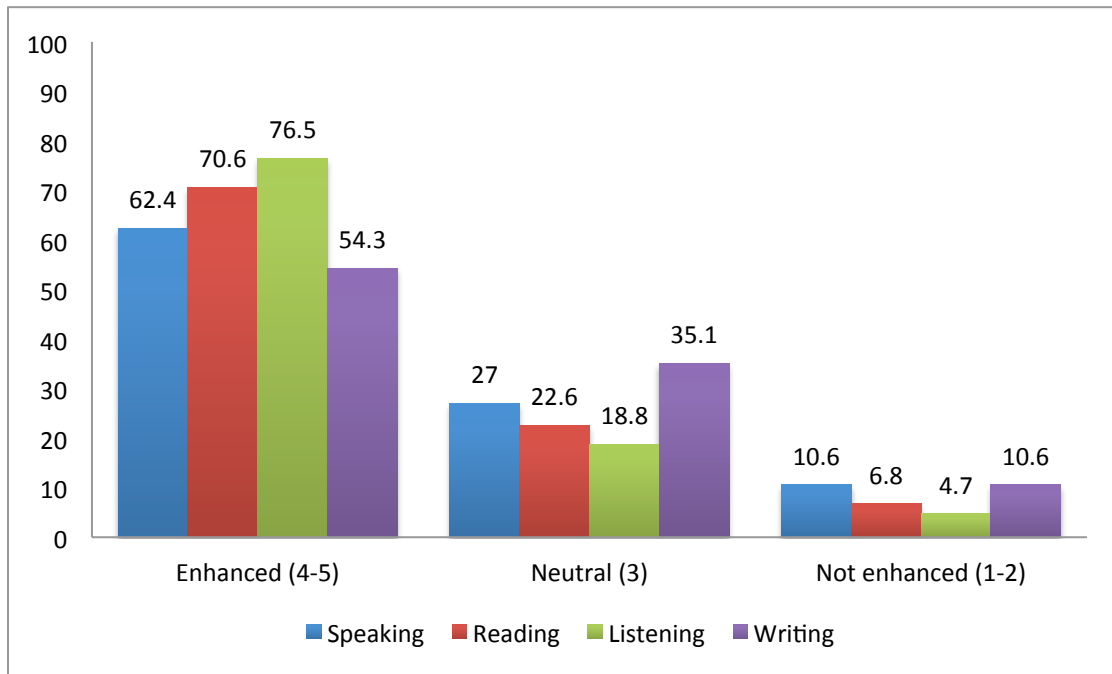
Figure 4. ICT-enhanced EFL Learning: For or Against?

A reasonable proportion of participants expressed their neutral and negative perspectives of using ICTs to enhance their English language skills. As shown in Figure 4, the number of participants who were not confident about whether EFL learning could benefit from the use of ICTs fell in the range between 18.8% (for listening) and 35.1% (for writing). The percentage of participants with unfavorable attitudes toward the use of ICTs for EFL learning was remarkably lower, from 4.7% (for listening) to 10.6% (for both speaking and writing).

Beliefs in ICT-enhanced English Language Learning

Part 2 (ICT-enhanced English language learning: For or Against?) of Table 11 presents the extent to which participants were for or against the use of ICTs in enhancing EFL learning in general. Findings revealed that more than 60% of the participants agreed that ICTs played an important role in enhancing EFL learning, as evidenced by 63.5% of the participants who expressed their supportive attitude. The number of participants with a neutral attitude was 28.1% and those with a negative attitude accounted for less than 10% (i.e., 8.4%).

Aside from examining participants' attitudes toward the use of ICTs in advancing the four main skills of English language learning (see Figure 4), Part 2 attempted to understand participants' feelings in other EFL learning-related aspects, with results showing that many participants expressed positive attitudes. As shown in Figure 5, participants' positive beliefs in an increasing use of ICTs for EFL learning (item 20) scored the highest, as compared to their beliefs in other things (items 14 to 19), making up 73.8% of the participants (item 20). The participants felt that

1) Using ICTs for EFL learning could improve learners' motivation (item 17, 69.5%),

2) ICTs could enable opportunities for learners to practice using English in a more real-life setting (item 16, 68.8%),

3) ICTs could make English-language education become more accessible and less threatening (item 19, 66.7%), and

4) Using ICTs to learn English could help enrich their general knowledge of the world in which they belonged to (item 18, 58.7%).

Less than 50% of participants thought that technologies could help them develop their metacognitive skills through planning and organizing their own studies better (item 14, 48.8%) and take greater control of their own English learning (item 15, 49.7%).

	14. Managem-ent of learning	15. Greater control of ELL	16. Access to English use	17. Motivation in ELL	18. Knowledge expansion	19. Accessible & less threatening English-language education	20. An increasing use of ICTs in ELL
Positive	48.8	49.7	68.8	69.5	58.7	66.7	73.8
Neutral	38.9	37.6	24.5	24.5	31.3	27.1	21.1
Negative	12.3	12.7	6.7	6	10	6.2	5.1
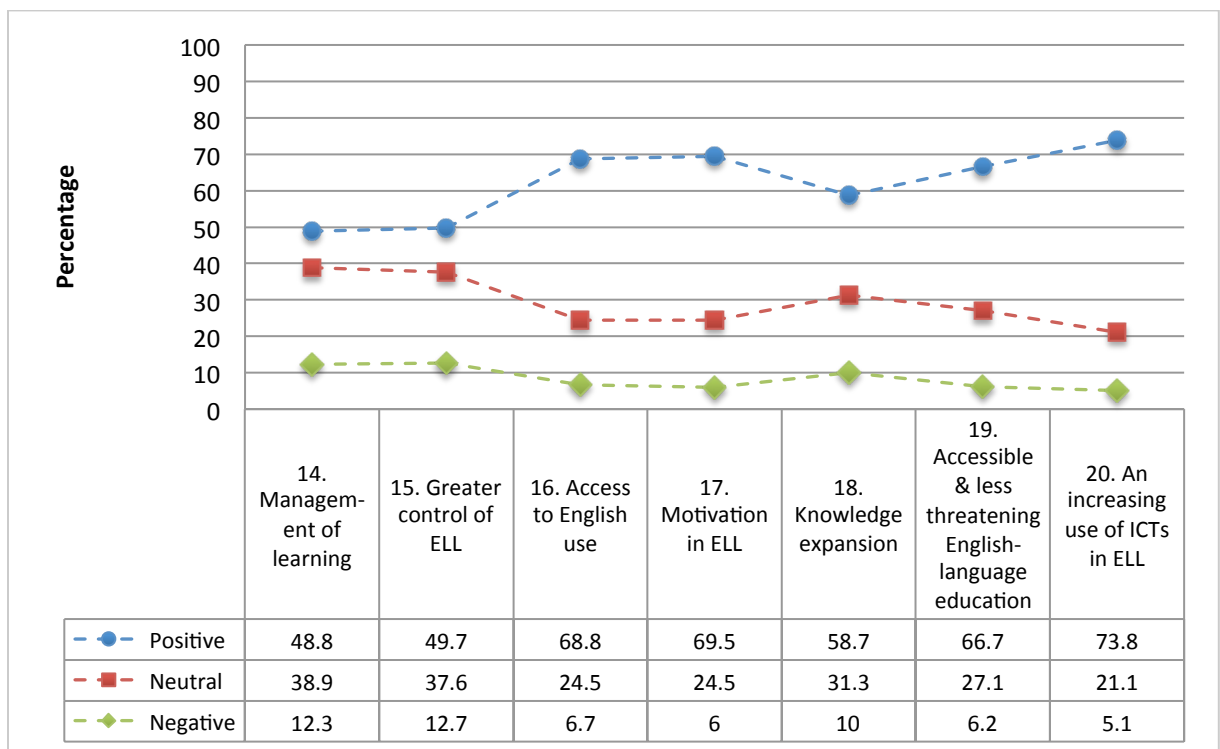
Figure 5. Attitudes towards the Benefits of ICTs to EFL Learning

Findings indicate many participants may have a hard time navigating through challenges in utilizing available technologies to serve their EFL learning outside of the school context. Findings in Figure 5 show that 21.1% to 38.9% of participants expressed their uncertainty about the potential of ICTs in enhancing EFL learning and that 6% to 12.7% were negative about the usefulness of ICTs. The idea of using ICTs to help them plan and organize their own studies seemed the least plausible, as made

evident by 37.6% of the participants indicating their neutrality and 12.7% a negative attitude.

Section 2: Follow-up, Qualitative Results

Results of the descriptive statistics revealed a need to elaborate on the quantitative results on participants' attitudes (i.e., positive, negative, neutral) toward the use of different types of ICTs in EFL learning. Participants' responses to a one-on-one interview with the researcher were analyzed with the support of the qualitative analysis software MAXQDA (see Appendix D for the interview questions). Qualitative results were reported with respect to participants' experiences in using accessible ICTs for EFL learning and variability in their attitudes toward the use of ICTs in English language learning.

Experiences in Using ICTs for EFL learning

Findings revealed that at least two technological tools were used by participants (see Figure 6); computers and smartphones were identified as a common means to access a wealth of learning resources, including information and tools such as Facebook, Yahoo Chat, Mailtalk, Speaking24.com, online dictionaries, pronunciation software, e-books, news on the web, YouTube video channels, English-language learning (ELL) games, and ELL websites. Online dictionaries were most favorable because of the ease of searching along with the built-in audio feature. In contrast, participant 8 (P8) perceived such a convenience as a disadvantage. She explained that she forgets the meaning of a word more easily when looking it up in an online dictionary or an electronic dictionary as compared to using a conventional or paper-based dictionary. She stressed that sufficient efforts invested in learning would return better outcomes. The remaining types of technology, other than online dictionaries and ELL websites were used by a fewer number of the participants. Blogger, Skype, and Yahoo 360° were also used, but for other purposes unrelated to EFL learning;

television was used for EFL learning but only rarely.

Code System	P1(22…	P2(22…	P3(21…	P4(25…	P5(21…	P6(20…	P7(27…	P8(21…	P9(25…	P10(1…	P11(1…
▼ ICT adoption											
▶ Radio		•									
▶ Music		•				•					
▶ Skype		•				•					
▼ Learning resources (info & tools)											
▶ Yahoo		•		•					•		
▶ Speaking24.com		•		•							
▶ Facebook		•				•		•	•	•	
blogger				•							
mailtalk		•									
Games							•				
News on the web									•		
▶ YouTube videos	•										•
▶ E-books						•		•			
▶ Online dictionnaries	•		•	•	•	•	•	•	•	•	•
▶ ELL websites						•		•	•		•
▶ Smartphone	•	•				•		•			
▶ Computer	•	•	•	•	•	•	•	•	•	•	•
▶ Television	•					•				•	
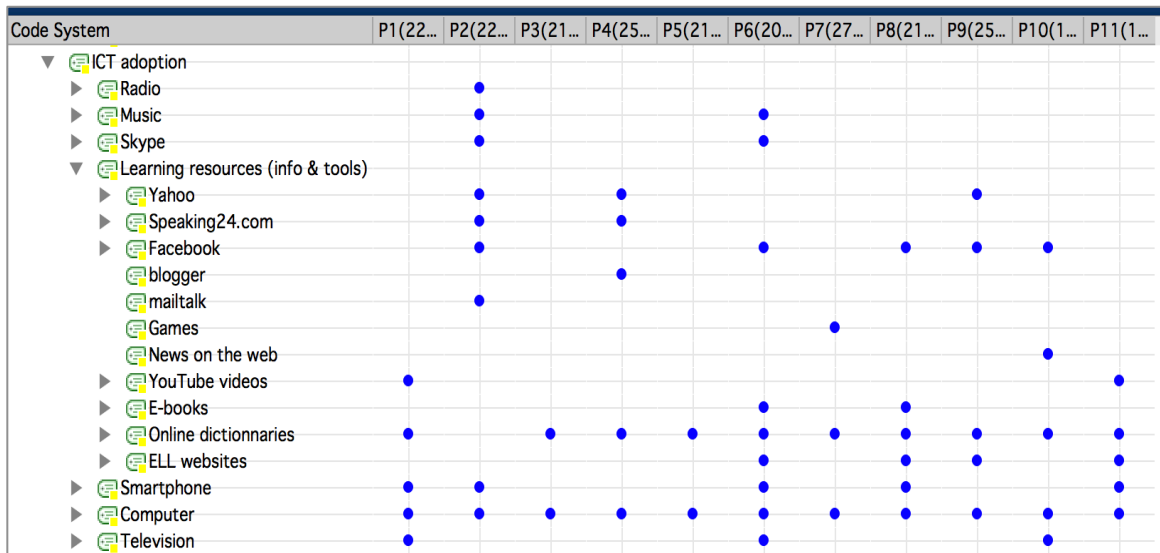
Figure 6. MAXQDA Screenshot Displaying Interviewees' ICT Adoption

Not every available technology tool was used for EFL learning. This was not because participants did not want to, but because they did not think that a specific tool had the same potential uses for EFL learning. Blogger, Skype, and Yahoo 360ᵒ were examples of this. Participant 4 (P4) said that she used Blogger and Yahoo 360ᵒ to share stories and photos with others, but did not use them for learning English. She said with confidence that these tools were not developed for English-language learning because she did not see any features supporting this type of learning. P4 added that her friends also used these tools, but they also did not use any of them for English-language learning.

A number of participants used pairs of technology tools for specific purposes. Participant 2 (P2) used Skype as an add-on for Speaking24.com (a public online chat room) when conducting exchanges with her language partner. Speaking24.com provides learners with text-based chat services but enables its users to bring in other tools such as Skype and Yahoo Messenger for audio and/or video dialogs. According

to P2, Speaking24.com was familiar to most Vietnamese learners of English as a foreign language.

Searching for appropriate English-language learning materials was a challenge for many participants. Seven interviewees asserted that they spent a significant amount of time looking for EFL learning resources with free access. Many of them had to give up their search as it took them much more time than expected; consequently, they did not find it worthwhile to spend their time on searching for learning resources. Some participants believe that it would be "wiser" or better to pay teachers for EFL learning courses. Participant 3 (P3) admitted that she spent a lot of time searching for learning resources to improve her oral communication skills but was unable to determine which resources were useful for her. She, therefore, decided to pay for English-language courses and find a classmate with whom she could practice speaking English.

Participants learned about ELL resources through their own searches. They primarily asked peers for assistance, and rarely consulted their teachers for guidance. Some participants reasoned that teachers should not be bothered with questions on learning tools. According to participant 7 (P7), ICTs were not integrated into the English-language curriculum at school, so students should not expect their teachers to train them on how to use available technologies in EFL learning. P7 further explained that teachers did not have time for this and strictly following the curriculum was important. Regarding this, participant 10 (P10) articulated the following:

> Em chỉ nên hỏi thầy cô về những vấn đề lớn lao chứ về tài liệu học tiếng Anh thì em không nên phiền thầy cô. Mặc dù để tìm được nguồn tài liệu có chất lượng, em sẽ mất nhiều thời gian và thực tế thì em không có đủ thời gian cho việc này. Em thường nhờ bạn em giúp, nếu bạn không giúp được thì em sẽ suy nghĩ đến việc phiền thầy cô. Nhưng … việc thế này thì đâu phải là việc lớn đâu chị… em nghĩ em không nên." (Translation: I should only consult my teachers for big things. I think I should not bother them with questions about searching for good English-language learning resources; this is not a big thing… I understand that it will take me plenty of time to search for a good learning resource and in fact, I do not have enough time to do it. I often ask my friends and if they can't help, I will then consider if I should ask my teacher with something like this. But… it is not a 'big' thing.)

Variability in Attitudes toward the Use of Specific Types of ICTs

Concerning attitudes toward the use of ICTs in learning EFL, in contrast to the consistent attitudes of P2 and P5 (see Figure 7), P1, P4, P8 and P9 had mixed attitudes toward the use of ICTs. P3, P6, P7, P10 and P11 were slightly more stable in their attitudes toward the use of ICTs. Reasons for adopting specific attitudes are presented as follows.

Code System	P1(22...	P2(22...	P3(21...	P4(25...	P5(21...	P6(20...	P7(27...	P8(21...	P9(25...	P10(1...	P11(1...
▶ Actual use of ICTs	●	●	●	●	●	●	●	●	●	●	●
▶ Positive Attitude	●	●	●	●	●		●	●	●	●	●
▶ Negative Attitude	●		●	●		●		●	●	●	●
▶ Neutral Attitude	●			●		●		●	●	●	●
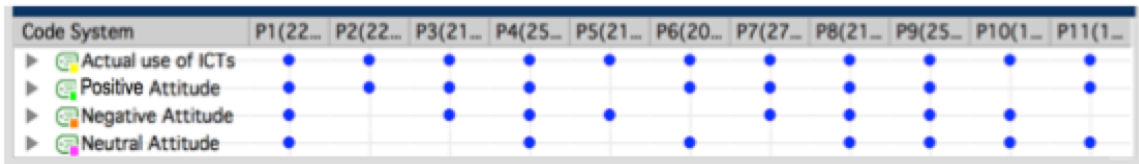
Figure 7. MAXQDA Screenshot Displaying the Variability in ICT Attitudes

Positive attitude. As can be seen in Figure 7, nine interviewees (P1, P2, P3, P4, P6, P7, P8, P9, and P11) indicated their positive attitudes toward the use of specific types of ICTs in learning EFL. In Figure 8, six interviewees perceived a combination of a computer and the Internet enabling a great tool for learners to reach an abundance of online English-language learning resources. P9 said:

> Nhờ có máy tính và Internet mà em có thể duy trì được việc học tiếng Anh của mình và thực hành sử dụng tiếng Anh vào trong cuốc sống" (Translation: Thanks to having a computer and the Internet, my learning English as a foreign language has not been interrupted and I have been able to practice using English in life).

▼ Postive Attitude	0
▶ Computer & Internet as great affordances	6
▼ Positive affordances to ELL	0
▼ Access to a variety of ELL Materials	0
▶ Useful, updated materials on ELL websites	3
YouTube videos (as useful supplements)	1
▼ Access to the target language use	0
Communication (Facebook)	1
Study group (writing & reading)	1
Language exchange (Speaking24.com)	1
▶ Engaging learning experiences	3
▶ Making ELL affordable to learners	2

Figure 8. MAXQDA Screenshot of the Code Segment for Positive Attitudes

Many interviewees affirmed positive affordances of ICTs to English-language learning. It gives learners means to access to a variety of English-language learning resources and they can embrace them as an ancillary resource. A plethora of updated, interactive English-language learning resources have been shared via the web and many of them are free-of-charge to users. Participants experienced the use of these English-language learning resources in different ways. P1 highly appreciated instructional videos on YouTube. He said:

> Mỗi lần em không hiểu rõ bài giảng của thầy cô ở trên lớp, em thường hay tìm các video trên YouTube để xem thêm. Vì em xem ở nhà, nên em có thể xem đi xem lại… cho tới khi nào em hiểu thì thôi. Bằng cách này, em cảm thấy mình hiểu bài hơn mặc dù mất nhiều thời gian để tìm những video có nội dung tương tự với bài học ở trên lớp" (Translation: When I find it difficult to understand in-class lessons, I often search for videos with the same topics on YouTube and watch them after school. Since I do this at home, I can watch them again and again… until I think I can understand the in-class lessons. By doing this, I feel that I can understand the lessons better; although it does take me time to find relevant YouTube videos.)

The use of ICTs has transformed learners' experiences of learning EFL to one where learners' retention is enhanced through the use of interactive activities. The findings of this study show that not all learners found it engaging and motivating to learn EFL at school. P7, a very tech-savvy learner majoring in computer programming, was typical in that he shared that learning English at school was boring and that he was unmotivated to learn it. Therefore for him, mastering English was a real challenge. He said:

> Học tiếng anh thật là khó vì hàng ngày em có sử dụng tiếng Anh đâu. Em phải nhớ quá nhiều những từ ngữ xa lạ và cấu trúc ngữ pháp phức tạp. Gần đây em tìm thấy vài cái game. Em chơi và em thấy em cũng học được nhiều câu, nhiều từ tiếng Anh. […] hình như học qua game phù hợp với những người lười và không có động lực học tiếng Anh như em. […] Chị mà đưa quyển sách cho em là em không học được. Em nghĩ sách dành cho các bạn siêng học thôi, và tất nhiên là không có em rồi. Em thích học tiếng Anh qua game. […] Em thấy học qua game dễ nhớ hơn. (Translation: Learning EFL is a real challenge because I do not need to use it in my daily life. I have to remember too much unfamiliar vocabulary and complicated grammatical structures. Recently I have found some games and through playing these games I was able to learn many words and sentences in English. […] It seems that learning English via playing games

is appropriate for a student like me. I am lazy and unmotivated to learn English. […] I can't learn English by reading books. I think that books are for diligent students, which of course does not include me. I like to learn English by playing games […] my retention of English is enhanced.)

ICTs enable learners to practice using the target language in a real-life setting. Online chat rooms and social networking sites are two platforms utilized by some participants. P2 joined an online English chat room called Speaking24.com and online study groups on Facebook to improve her speaking and writing skills, respectively. According to P2, Speaking24.com is an online chat room commonly used by many students in Vietnam. Figures 9 and 10 display screenshots of Speaking24.com's interface and its "English chat online."

Figure 9. The Interface of Speaking24.com Site
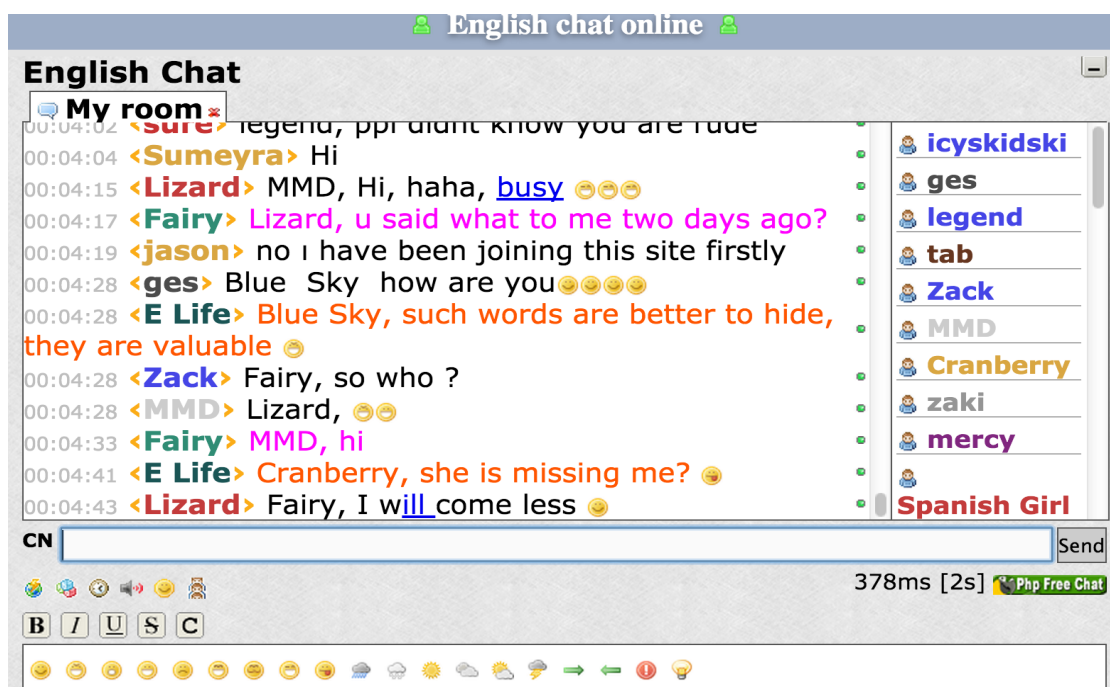
Figure 10. The Interface of Free English Chat Online

Speaking24.com helps connect learners in Vietnam with those learning the same target language from different countries, including Columbia, Bangladesh, India, Spain, Brazil, and Egypt. She stressed that this online chat room provided the chance for language learners to practice using their target language. According to P2, joining the forum is not a complicated process:

> […] mình không cần phải hẹn trước với bất kỳ ai trong diễn đàn Speaking24.com đâu chị. Lưu ý là mình cần phải có tài khoản Yahoo hoặc Skype và tai nghe có cả micro nếu mình muốn thực hành giao tiếp với bạn nào đó trong diễn đàn này. Có 1 list những người available. Mình sẽ tìm trong đó xem có ai muốn thực hành nói chuyện với mình không. […] Nếu không thì mình có thể tham gia vào diễn đàn chung và trao đổi với nhau qua đó [sử dụng chức năng "free English chat online" của Speaking24.com]. (Translation: […] We do not need to set up a time with a language partner in Speaking24.com [the online chat room] in advance. Note that we must have a Yahoo or Skype account in addition to a headset with a microphone if we want to have a direct oral conversation with someone in this chat room. From the Contact List [Figure 9], we can see who is online and who we can start a conversation with. Otherwise, we just join the crowd using the 'free English chat online' feature [Figure 10] of Speaking24.com. […])

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In addition to the use of Speaking24.com, other types of technology were adopted. For example, P11 did not use Speaking24.com but he opted for Facebook's online study groups. For him,

> […] đúng là lý tưởng thật khi có được môi trường ngôn ngữ cho người học tiếng Anh thực hành. Riêng em, em cảm thấy rằng có Facebook account là một thuận lợi vì qua đó em có điều kiện tiếp xúc với những người khác nói tiếng Anh. (Translation: it is ideal to have [such] an environment where a learner can practice using English. For me, having a Facebook account is an advantage since it connects me with people who speak English.)

Having an abundance of ELL resources online has made ELL affordable to some learners. Participants P8 and P11 were interested in downloading audio files and practice exercises (.doc or .pdf) shared by online study groups via Facebook and English-language learning websites (e.g., http://hoctienganh360.com/, http://tienganhonline.net/, and http://hoctienganh.info/). Both participants were in favor of listening to the audio files available on the web with the hope of improving their listening skills. P11 shared:

> Thật sự thì em không mua nhiều sách học tiếng Anh. Em chủ yếu tìm kiếm các bài nghe và các tài liệu dạng pdf thôi. Em tải về để tự học […] Em nghe và tập nói theo thôi chứ không có nói với ai hết; em thường hay làm vậy nhằm cải thiện kỹ năng nghe và nói. […] Theo em thì các nguồn tài liệu có sẵn và miễn phí ở trên mạng làm cho việc học tiếng Anh của em trở nên ít tốn kém với em hơn. Nếu không chắc là em không kham nổi. (Translation: Actually I do not buy many books for my EFL learning. For the most part, I spend time searching for audio files and English-language materials in pdf format. I download them for self-study. […] I listen to the audio files and repeat after the speaker in the audio files; I do this very often to improve my proficiency in speaking and listening. I think the availability of free-of-charge resources makes English-language learning more affordable for me.)

Negative attitudes. Eight of 11 participants (P1, P3, P4, P5, P7, P8, P9 and P10) had negative feelings about the use of ICT in EFL learning. Variability in attitudes was found in six participants (P1, P3, P4, P7, P8, P9, and P10) with the exception of P5 whose attitude toward using specific types of ICTs for EFL learning was unchanged. P5 had a completely negative feeling toward using ICTs in EFL

learning. Participants had negative attitudes for three main reasons (see Figure 11).

Figure 11. MAXQDA Screenshot of the Code Segment for Negative Attitudes

Firstly, learning must be centered around the teacher, and in a face-to-face setting. P5 and P7 were negative about the use of ICT in English-language learning. They placed a strong emphasis on the role that teachers played in their EFL learning progress. Though P7 admitted that his vocabulary was enriched through playing games using English, he believed that technologies alone could not help him to become fluent in English. He said:

> Em nghĩ rằng chỉ có học với giáo viên mới được thôi [mới giúp người học giao tiếp tiếng Anh tốt thôi]. Có technology mà không có giáo viên hướng dẫn thì cũng không hiệu quả đâu. (Translation: Given technology without instruction from teachers, I don't think that EFL learners could communicate in English well.)

More specifically, P5 suggested that learners should take English-language courses offered by foreign language training centers instead of spending significant amounts of time at home searching for English-language learning resources to learn from.

Secondly, some learners did not perceive particular technologies (e.g. Facebook, Blog, Yahoo 360◦, TV, and ELL websites) as useful tools for certain English skills. They believe that they can use online resources to improve their pronunciation and advance their listening skills, but not speaking skills. P7 and P8 suggested that learners should participate in English-speaking clubs instead of

spending time learning English online if they wished to improve their Speaking skills. P8 added that

> Ngày nay cải thiện kỹ năng nói tiếng Anh không khó như nhiều người nghĩ. Theo em nhận thấy, ngày càng có nhiều du khách đến Việt Nam và nhiều người sẽ cần người hướng dẫn du lịch, ít nhất là về chỉ dẫn đường xá. Đây là cơ hội tốt cho những người học tiếng Anh như em đó chị. Theo em, người học hãy tìm họ, ngỏ ý giúp đỡ, và bắt chuyện với họ. […] Người học có thể tận dụng những công cụ kỹ thuật có sẵn để cải thiện các kỹ năng tiếng Anh, ngoại trừ kỹ năng nói. (Translation: Improving speaking skills nowadays isn't as difficult as many people may think because I notice that there are a lot of visitors to our country and many of them will need some help at least for directions. This is a good chance for learners of English like me. Find them, offer some help, and start conversation with them. […] EFL learners can utilize available ICTs to support the improvement of skills in English with the exception of speaking skills.)

P3 shared that she spent a lot of time searching for relevant English-language learning materials on the web but was unable to sort out what might fit her present level of English proficiency. P4 employed various technologies for English-language learning, but when asked about the usefulness of blogging for EFL learning, she responded that Blogger (a free weblog publishing tool) and Yahoo 360° (a social networking and personal communication portal) did not have any uses for English-language learning. She made this judgment based on her own experiences with Blogger and Yahoo 360° and was persuaded by the fact that none of her peers used these tools for English-language learning.

> Em đã từng dùng Blogger và Yahoo 360°để úp hình và chia sẻ chuyện này nọ với bạn bè thôi, chứ chẳng dùng cho việc học tiếng Anh. Mà bạn bè của em không ai sử dụng mấy cái trang này cho việc học tiếng Anh cả. Theo em thấy thì hai trang này đâu có chức năng gì có thể dung cho việc học tiếng Anh. (Translation: I used to have a blog using Blogger and Yahoo 360°. I used them for sharing pictures and stories with friends. I saw that none of my friends had used them for EFL learning. As far as I know, blogs and Yahoo 360° did not have any features that people could use to support English-language learning.)

Contrary to other participants, P1 utilized available technologies to improve his listening skills choosing to watch English-language news on television; however, he found it too boring and ineffective:

> Em chỉ có thể xem các bản tin tiếng Anh trên Tivi nhưng cái nào ngắn thôi, tức là dưới 15 phút. Em có nghe người ta nói là nên dành thời gian … xem tin tức tiếng Anh. Em cố thử nhưng chưa đầy 15 phút, em gục luôn. […] Do đó, em không nghĩ xem tin tức tiếng Anh hữu ích cho em trong việc học tiếng Anh. Xem bản tin tiếng Anh trên tivi dễ ngủ lắm và không hiệu quả chị. (Translation: I can only watch the news for less than 15 minutes. I heard some people said it was worth spending time … just to listen to the news. I tried but I always fell asleep after the fifteenth minute or sometimes before then. […] So I don't think that watching the news will help with my EFL learning. You know, it is easy to fall asleep and when watching news in English and to me it is an ineffective tool for learning English.)

Finally, there were some learners who did not have preference for specific types of technology. P8 and P10 were typical examples. P10 had no preference for digital games and P8 did not like online dictionaries. P8 shared that ICTs' convenience came with a disadvantage; for example, the quick search results offered by online dictionaries resulted in learners finding it harder to remember the word they had just looked up in the online dictionary. P8 had her own preference for a paper-based dictionary but did not reject the convenience and overall usefulness of online dictionaries to learners. She said:

> Vấn đề là do em thôi. Em không còn sử dụng tự điển điện tử nữa mặc dù nó giúp em tra từ nhanh hơn. […] Tuy nhiên em thích quyển tự điển mà em có. Chị biết không, tra từ theo kiểu cổ điển này cần kiên nhẫn chút nhưng em cảm thấy nhớ nghĩa và cách dùng từ trong câu lâu hơn. (Translattion: […] this is a personal issue. I no longer used my electronic dictionary tool though it is much quicker to look up a word using this tool than doing so with a conventional dictionary. […]. However, I prefer to use a conventional dictionary, a paper-based one. You know, looking up a word this way requires some patience and effort, but I feel that I can remember the definition and how to use it in a sentence longer.)

Neutral attitudes. As summarized in Figure 7, seven of 11 participants (i.e., P1, P4, P6, P8, P9, P10, P11) had neutral attitudes toward one or more types of ICTs. Reasons include their concerns over online security (e.g. getting a virus on their

computer), negative affordances of ICTs, and limited knowledge of English and of using ICTs for ELL (see Figure 12). P6 was hesitant to continue using ICTs for EFL learning because of the negative effects on vision (eyestrain, dry eyes) and headaches caused by reading from a computer or mobile device screen.

Figure 12. MAXQDA Screenshot of the Code Segment for Neutral Attitudes

Concerns over online security influenced participants' decisions about using available technologies for EFL learning. P10 refused to sign up for an account on any English-language learning website; he said:

> Em không cảm thấy an toàn khi cung cấp thông tin về bản thân khi tạo account cho các trang học tiếng Anh. Em cũng sợ giao dịch trực tuyến. Em sợ máy bị nhiễm virus hoặc tài khoản ngân hàng của mình bị hacked. Tốt nhất là không tham gia mấy cái này này. (Translated quotation: I do not feel safe providing any information about me while signing up for an account on any English-language learning website or making online transactions using a bank account. I am also afraid of getting a virus on my computer and having my bank account information stolen. It is best for me not to get involved in such activities.)

Online security, cyber-flirting, and product advertisement made some participants hesitant to continue using these online tools. P4 used to participate in Speaking24.com. She found it useful at the beginning but after a few weeks she discontinued using it after encountering the issue of unwanted cyber-flirting, which raised a question about the security of this online forum. She added:

> Khi em bắt đầu thích sử dụng Speaking24.com thì em bị người trong diễn đàn này tán tỉnh vài lần. Em thấy lo ngại khi tham gia cái này. Em hỏi đứa bạn thân, nó nói nói là diễn đàn này không phải là môi trường an toàn để học tiếng Anh đâu. Sau đó em có hỏi thầy và thầy cũng nói giống vậy. Do đó, em không

tham gia nữa. (Translation: I started liking Speaking24.com, but then I encountered cyber-flirting there several times. That made me really concerned. I asked my close friend and she said that it was not a safe learning environment. I also consulted my teacher and he said the same thing, so I didn't go back.)

Some participants asserted that not all available ICTs could be used for EFL learning and that they attempted to utilize a certain tool in vain. Many online resources presented an advantage, but at the same time also confused them in deciding on what was relevant and what was not. P1 said:

Có người bảo em tìm tài liệu học tiếng Anh trên mạng mà học. Em làm thử nhưng thấy có quá nhiều và em không biết cái nào phù hợp và đáng tin cậy nữa." (Translation: I was told that I could search for ELL resources on the web and I did, but there are so many that I could not identify which ones were reliable ones.)

Having tried to search for an online dictionary with an audio feature, he was confused by the search results displaying a wide range of online dictionaries. P1 further expressed:

Em thấy có nhiều tài liệu trên mạng quá và em không biết cái nào tốt cái nào không nên em tham khảo bạn em." (Translation: there were many and I didn't know which one was good to use. I had to ask my friend for help.)

Another participant (P10) said that he came across some English-language learning websites and tools but was uncertain if they were worth spending any time on. He said:

Bạn em có khuyên em dành thời gian học tiếng Anh trên mạng. Bạn có giới thiệu một số nguồn tại liệu cho em. Em có thử nhưng em không biết được là mấy nguồn đó tốt hay không nữa. (Translation: My friend advised me to spend time learning English online and recommended some English-language learning resources to me. I gave it a try but I could not say if any of them was good or not.)

Being unsure about the benefits of available ICTs for EFL learning could therefore have affected some of the participants to continue exploring them.

Section 3: Inferential Statistics for Participants' ICT Attitudes

This section summarizes inferential statistics results pertaining to the relationship of ICT attitudes with self-efficacy and with individual factors of learner autonomy. A univariate analysis of variance using General Linear Model (GLM) was performed and the outputs are summarized in this section. Before proceeding with this analytic analysis method, an overview of descriptive statistics of the participants' self-efficacy and learner autonomy is presented. Additionally, the normality of data on ICT attitudes, learner autonomy, and self-efficacy were also checked.

Self-efficacy and Learner Autonomy

Learner autonomy (LA). As reported in Chapter 3, learner autonomy in this study consisted of five factors: self-awareness of the status difference among students and between students and teachers (LA1), English-language learning strategy use (LA2), learner dependency on teachers (LA3), socially-oriented motivation (LA4), and the importance of within-group relationships (LA5).

The values of these individual factors varied; however they indicated that participants were autonomous either at the reactive or proactive level in their own ELL. The mean values of LA2 ($M = 3.34$, $SD = .685$), LA4 ($M = 3.85$, $SD = .603$), and LA5 ($M = 3.86$, $SD = .682$) were above the mid-point of a five-point scale, with 5 indicating maximum agreement by all participants and '1' referring to maximum disagreement. The values were indicative of being autonomous, but at a reactive level. The values of LA1 ($M = 2.67$, $SD = .814$) and LA3 ($M = 2.83$, $SD = .747$) were below the mid-point. The smaller values on the contrary depicted a sign of proactive autonomy in learners and vice versa, with larger values indicating a stronger sign of reactive autonomy. The mid-point of a five-point scale referred to a neutral attitude.

Differences in the values of five underlying factors of learner autonomy are displayed in Figure 13. The bar graph shows that the values of LA4 and LA5 are higher than the rest. Specifically, 71% of the participants valued the importance of the relationship within the group (LA5). These participants liked to engage in activities

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involving discussion within the group and serving the common goals of the group. For them, maintaining a sense of harmony in the group was important.
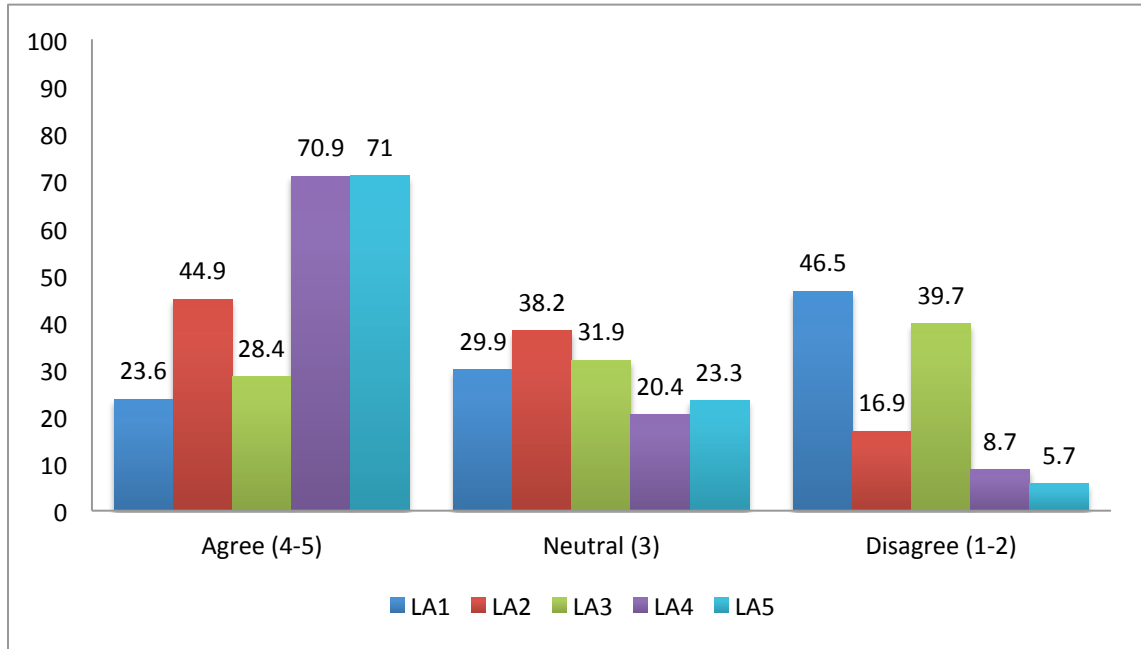
Figure 13. Underlying Factors of Learner Autonomy by Frequency

LA4 has a relatively equal value as compared with LA5 as shown in Figure 13. Approximately equal number (i.e., 70.9%) of participants reported that their motivation was socially oriented (LA4); as long as they perceived the practical values of the learning tasks, or if they felt that their success contributed to the goals or prestige of significant groups such as their families, they would feel strongly encouraged to learn well. Apart from these, the findings showed that less than half (i.e., 44.9%) of the participants were able to discipline themselves in EFL learning with the intention of using English-language strategy better (LA2).

The results also revealed a small proportion of the participants reported themselves as proactive learners and can be seen in the mean scores of LA1 ($M = 2.67$, $SD = .814$) and LA3 ($M = 2.83$, $SD = .747$). In this case, lower scores were indicative of proactive autonomy and higher scores implied reactive autonomy in their learning;

the proactive group did not see themselves as passive receivers of knowledge transmitted by the teachers nor teachers as authority figures in the classroom. Furthermore, they did not hesitate to stand out by voicing their opinions or questions openly in the classroom. Participants also believed that learners should contribute their ideas to improve teaching contents. These proactive participants accounted for 39.7% for LA3 and 46.5% for LA1, as displayed in Figure 13.

Self-efficacy. The overall mean score of self-efficacy was equal to 3.17 (SD = .722), slightly above the mid-point of a five-point scale, with 1 referring to the extent to which all the participants disagree that they were self-efficacious in EFL learning and 5 indicating a maximum agreement by all participants. In Figure 14, less than one-third (i.e., 27.1%) of the participants did not believe in their capability, about one-third (i.e., 33.3%) expressed neutral responses, and more than one-third (i.e., 39.6%) confirmed that they were self-efficacious in their EFL learning.
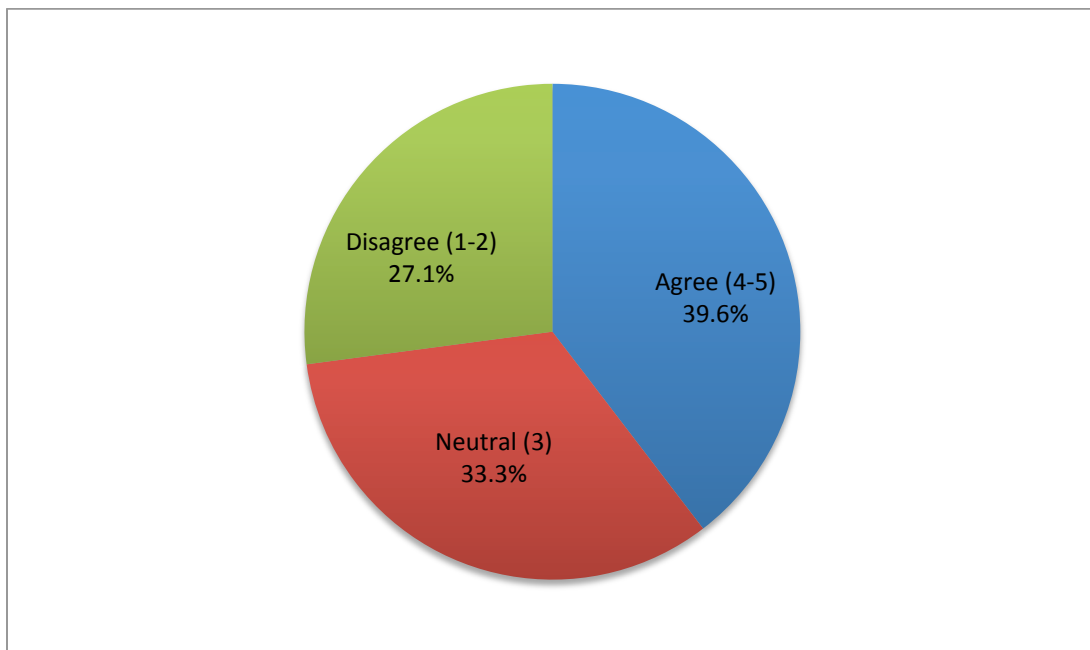
Figure 14. Self-efficacy in Overall

Taking a closer look at self-efficacy across three proficiency levels, it is evident that self-efficacy was higher as the proficiency level in communication skills was lower or vice versa (see Figure 15).
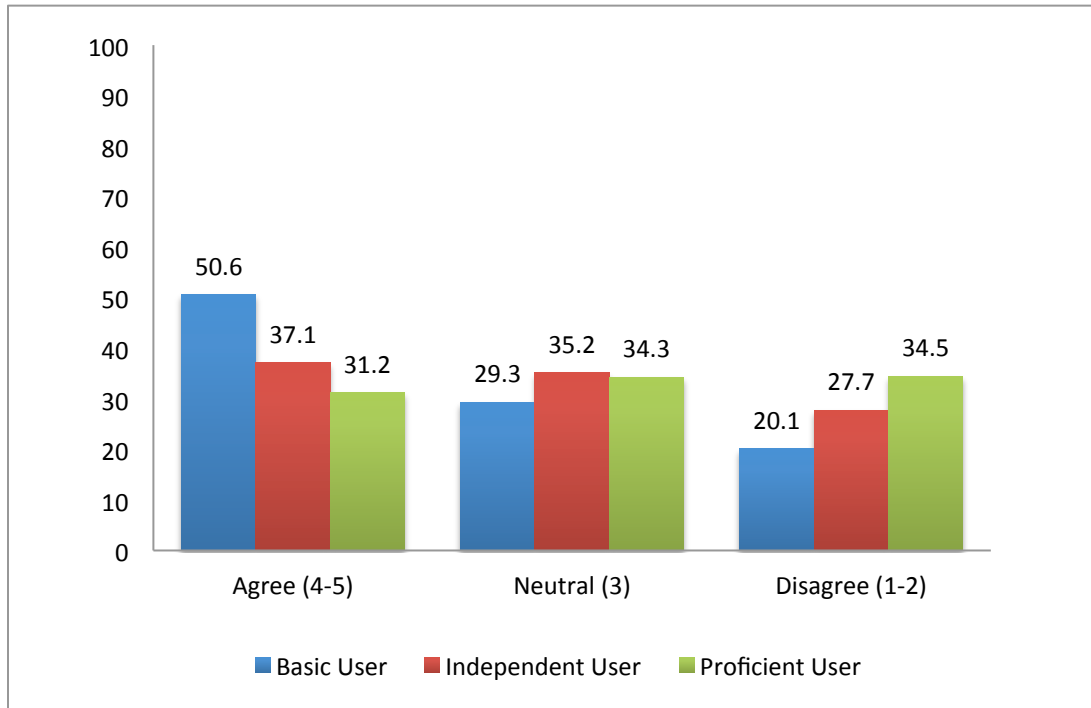
Figure 15. Participants' Self-efficacy by Proficiency Levels

Slightly more than half of the participants (50.6%) ranked their self-efficacy at the level of Basic Users (items 1, 2, 10, 18, 20 and 22; see Appendix C). The number dropped to 37.1% at the level of Independent Users (items 3, 4, 7, 8, 9, 11, 12, 14, 15 and 23; see Appendix C) and to 31.2% at the Proficient Users level (items 5, 6, 21, 16, and 19; see Appendix C). Those who were unsure of their self-belief in their capability to perform specific skills at the intermediate or independent level represented the largest number of participants: 35.2% for the Independent User level, 34.3% for the Proficient User level, and 29.3% for the Basic User level. Those who did not believe in their capability to learn English well across proficiency levels accounted for 20.1%

at the elementary or Basic User level, 27.7% at the Intermediate or Independent User level, and a larger percentage of 34.5 at the Advanced or Proficient User level.

Correlation Coefficients Analysis

In addition to the descriptive statistics, a bivariate correlation technique was performed and the correlation coefficient matrix was generated for ICT attitude with five underlying factors of learner autonomy (LA1, LA2, LA3, LA4, and LA5), self-efficacy (SE), gender, and comfort level with technology (CLT). The purpose was to preliminarily explore if there was any indication of a relationship with any of the above factors with ICT attitude. Table 12 summarizes the correlation coefficients for the aforementioned variables.

Table 12

Correlation Coefficients Matrix

		1	2	3	4	5	6	7	8	9
1.	ICT Attitude	—								
2.	CLT	.099**	—							
3.	Gender	.075*	-.261**	—						
4.	Self-efficacy (SE)	.357**	.252**	-.118**	—					
5.	LA1	.003	-.039	-.139**	.088**	—				
6.	LA2	.440**	.051	-.003	.436**	.047	—			
7.	LA3	-.018	-.007	-.206**	.065*	.541**	.031	—		
8.	LA4	.393**	.016	.061*	.184**	.009	.256**	-.028	—	
9.	LA5	.406**	.059*	-.027	.254**	-.024	.313**	-.061	.415**	—

**. $p < .01$; *. $p < .05$; N = 970

Note:
1. ICT Attitude: Attitude toward the use of information and communication technologies
2. CLT: Comfort Level with Technology
5. LA1: Self-awareness of status difference in the classroom
6. LA2: EFL learning strategy use
7. LA3: Learners' dependency on teachers
8. LA4: Socially oriented motivation
9. LA5: Importance of within-group relationships

Positive, weak to positive and strong correlations were found between ICT attitudes with other individual factors, except for LA1 ($r = .003, p > .05$) and LA3 ($r = -.018, p > .05$). It appeared that LA2 ($r = .440$) had the strongest positive correlation with ICT attitudes, followed by LA5 ($r = 406$), LA4 ($r = .393$), and self-efficacy ($r = .357$). The relationships of ICT attitudes with gender and with CLT were positive but very weak, as evidenced by $r = .075$ and $r = .099$, respectively. In a positive relationship, an increase in the value of one variable can be explained by an increase in the value of the other and vice versa. Nonetheless, no certain conclusions can be made at this point on the true relationship of ICT attitudes with other factors based on the preliminary findings. It is evident that relationships among the independent variables were also found, implying a shared proportion of the variance in ICT attitudes as an outcome. For instance, there was a positive relationship between self-efficacy and CLT ($r = .252, p < .05$).

A negative relationship was found between LA3 and Gender ($r = -.206, p < .05$). This overlap may have affected the true correlation coefficients depicting the relationships of individual independent variables with the dependent variable, ICT attitudes. There is the likelihood that difference in ICT attitudes among the participants might be attributed to their gender or comfort levels with technology, or that difference in ICT attitudes might be due to an interaction of one factor with another. The preliminary findings consequently helped identify variables to be included for further analysis with the employment of the univariate analysis of variance.

Normal Distribution of the Data

ICT attitudes, learner autonomy, and self-efficacy data were normally distributed. The skewness values ranged from -.664 (LA5: Importance of within-group relationships) to .288 (LA1: self-awareness of the status difference in the classroom). The kurtosis scores fall in the range from -.222 (LA1) to 1.384 (LA4: Socially oriented motivation). According to Lewis-Beck et al. (2004), "skewness [measuring

the symmetry of the data distribution] and kurtosis [measuring the peakness of the distribution] both should fall in the range from +2 to -2 if data are normally distributed" by statistical convention (p. 543).

Univariate Analysis of Variance

The quantitative analysis proceeded with the application of linear regression using the univariate General Linear Model procedures which enabled an opportunity to understand participants' ICT attitudes at a deeper level. This method allows for checking interaction effects and factors with more than two underlying levels (e.g., gender has two levels, and CLT has four). When a more complex statistical technique such as GLM is applied, the coefficients between individual factors on ICT attitudes would then be adjusted for the presence of each independent variable. The earlier preliminary investigation (i.e., from the bivariate correlation coefficients analysis) suggested excluding LA1 and LA3 in the follow-up analysis due to no statistically significant correlations of each with ICT attitudes.

Preliminary checks for interaction effects. Before proceeding with the final quantitative analysis by using the GLM method, it was important to explore the interaction effects of the independent factors associated with ICT attitudes. In other words, this was primarily to examine if ICT attitudes are influenced by self-efficacy or learner autonomy and if their relationships depended on gender or comfort levels with technology (CLT). The tests of interaction effects were then applied to: 1) learner autonomy factors (LA2, LA4, LA5) with gender, 2) learner autonomy factors (LA2, LA4, LA5) with CLT, 3) self-efficacy and CLT, and 4) self-efficacy and gender.

Table 13 shows the preliminary results for the model with six factors and eight tests of the interaction effects. Only one interaction effect test (i.e., between LA4 and gender) was found to be statistically significant at the 0.5 level. The *F*-statistic value was equal to 2.045 with an associated *p*-value of .019; LA5 and CLT was almost statistically significant, $F_{(19,576)} = 1.605$, $p = .050$. The remaining tests of interaction effects were not statistically significant at 95 percent of confidence level. Additionally

two predictors (LA4 and CLT) were not statistically significant at the .05 level; specifically, the F-statistic values of LA4 and of CLT were not large enough to be statistically significant ($p = .204$ for LA4 and $p = .812$ for CLT). This could be due to the presence of the interaction effect between LA4 and gender. Therefore, the final model for analysis should include six variables (i.e., self-efficacy, LA2, LA4, LA5, gender, CLT) and the two interaction effects (i.e., between LA4 and gender, and between LA5 and CLT).

Table 13

Pooled ANOVA Table - Model 1

Dependent Variable: ICT Attitudes

Source	SS	df	MS	F	p
Self-Efficacy (SE)	18.431	79	.233	1.485	.006
LA2	8.542	16	.534	3.398	.000
LA4	3.041	15	.203	1.290	.203
LA5	3.633	10	.363	2.312	.011
Gender	3.144	1	3.144	20.010	.000
Comfort Level with Technology (CLT)	.150	3	.050	.318	.812
SE * CLT	12.200	95	.128	.817	.889
LA2 * Gender	2.820	13	.217	1.381	.164
LA4 * Gender	3.856	12	.321	2.045	.019
LA5 * Gender	1.908	9	.212	1.349	.208
LA2 * CLT	4.078	24	.170	1.081	.360
LA4 * CLT	2.881	22	.131	.833	.685
LA5 * CLT	4.793	19	.252	1.605	.050
SE * Gender	10.228	58	.176	1.122	.257
Error	90.506	576	.157		
Corrected Total	258.520	969			

a. R Squared = .650 (Adjusted R Squared = .411)

Note: The Levene's test found that the underlying assumption of homogeneity of variance for the analysis is not violated, as evidenced by $F(951,18) = .745$, $p = .847$.

GLM for the final model. Given the preliminary findings from computing the univariate GLM, the quantitative analysis continued with the application of the univariate GLM method for the finalized model comprising six factors (i.e., self-

efficacy, LA2, LA4, LA5, gender, and CLT), along with the two tests of the
interaction effects (i.e., between gender and LA4, and between CLT and LA5). Before
proceeding with the GLM, the Levene's Test of Equality of Error Variance was
performed to determine whether or not the assumption of homogeneity of variance
was violated. The Levene's Test results showed $F_{(951,18)} = .631$ with p $=.943$,
reinforcing the conclusion that the group variances could be treated as equal.

Table 14 summarizes the analysis results using the GLM. The final model with
six predictors along with the two tests of interaction effects accounted for
approximately 51% of the variance in participants' ICT attitudes in ELL. The R
Squared values (as shown below Table 14) were equal to .507 and the adjusted R
Squared of .410. All the F-tests of the differences in the means of individual predictors
in addition to the tests of interaction effects were statistically significant at the 95
percent of confidence level.

Table 14

Pooled ANOVA Table - Model 2

Dependent Variable: ICT Attitudes

Source	SS	df	MS	F	p	η^2
Self-efficacy (SE)	24.008	80	.300	1.906	.000	0.0012
LA2	15.592	16	.974	6.190	.000	0.0038
LA4	9.150	15	.610	3.875	.000	0.0024
LA5	8.540	11	.776	4.932	.000	0.0030
Gender	6.063	1	6.063	38.515	.000	0.0235
Comfort Levels with Technology	1.525	3	.508	3.229	.022	0.0020
LA4 * Gender	5.449	12	.454	2.884	.001	0.0018
LA5 * CLT	6.963	21	.332	2.106	.003	0.0013
Error	127.512	810	.157			
Total	258.520	969				

a. R Squared = .507 (Adjusted R Squared = .410)

As shown in Table 14, self-efficacy had the main effects on ICT attitudes, as
evidenced by $F_{(80,810)} = 1.906, p < .001$). This indicates that the positive impact of self-
efficacy was not moderated by gender or CLT (comfort levels with technology). The
relationship between ICT attitudes and self-efficacy could be inferred that the higher

the self-efficacy was, the more positive the ICT attitudes were. In this study, participants as EFL learners had quite low self-efficacy in EFL learning, $M = 3.17$ ($SD = .722$). Approximately 50.6% of the participants reported their self-efficacy in EFL at the Basic User of the three proficiency levels identified by the Common European Framework of Reference for Languages (CEFR).

Similar to self-efficacy, LA2 (English-language learning strategy use) was found to have the main effects on ICT attitudes, as evidenced by $F_{(16,810)} = 6.190$, $p < .001$. The finding indicates that the more self-regulated in the use of English-language learning strategy the learners were, the more positive ICT attitudes they adopted for EFL learning. The mean value of LA2 was just above the mid-point of a five point scale, $M = 3.34$ ($SD = .685$), showing that participants were self-regulated in their use of English-language learning strategies.

The presence of the significant interaction effects as shown in Table 14 changed the effects of LA4 (socially oriented motivation) and LA5 (importance of within-group relationships) on ICT attitudes; that is, the positive effects of these two learner autonomy factors on ICT attitudes changed depending on gender and comfort level with technology. LA4 and LA5 herein had simple effects on ICT attitudes. The effects were conditional, implying that the nature of the relationships of ICT attitudes with LA4 and LA5 might vary. In order words, there was a moderated causal relationship between ICT attitudes and LA4, and between ICT attitudes and LA5.

The positive impact of LA4 on ICT attitudes differed across gender, $F_{(12,810)} = 2.884$, $p < .05$. In this study, female learners were coded as 2 and male learners were coded as 1. The F test for gender is equal to 38.515 ($p < .001$), denoting a statistically significant mean difference in ICT attitudes between female and male participants. In Table 15, the female group had a higher mean value ($M = 3.725$, $SD = .480$) than the male group ($M = 3.648$, $SD = .550$), thus the mean difference was equal to 0.077. It could therefore be inferred from the moderated causal relationship that female participants had a more socially oriented motivation and adopted a more positive ICT attitude than did male participants.

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Table 15

Descriptive Statistics for Gender Difference in ICT Attitudes

Dependent Variable: ICT Attitudes			
Gender	*M*	*SD*	N
Male	3.648	.550	475
Female	3.725	.480	495
Total	3.687	.517	970

The positive impact of LA5 on ICT attitudes varied across CLT groups, $F_{(21,810)} = 2.106$, $p < .05$. As can be seen in Table 14, the significant *F*-values only reveals an overall significant difference in means, but did not isolate where the difference occurred in a situation of a factor with underlying levels. In this case, CLT has four levels: no skills, low to very low, average, and high to very high. The descriptive statistics (see Table 16) presented the mean with standard deviation and the group size for each of the four CLT groups. The mean scores of the "no skills" (*M* = 3.738, *SD* = .697) and the "high to very high" (*M* = 3.736, *SD* = .515) were equal. It should be noted that the "no skills" had a very small size, involving only four participants in the group compared to the "high to very high" (n = 394). The "low to very low" group with 481 participants had the lowest mean score, but were still above the mid-point of a five-point scale, with 5 being a maximum agreement by all the participants, *M* = 3.541 (*SD* = .520).

Table 16

Descriptive Statistics for CLT Difference in ICT Attitudes

Dependent Variable: ICT Attitudes			
Comfort Level	*M*	*SD*	N
1 (No skills)	3.738	.697	4
2 (Very low to low)	3.541	.520	91
3 (Average)	3.674	.512	481
4 (High to very high)	3.736	.515	394
Total	3.687	.517	970

As reported earlier (in Table 14), the F-test showed that there was a statistically significant difference in the means between the CLT groups as a whole, as determined by $F = 3.229$, $p = .022$; however, to identify which groups differed from each other, a post-hoc comparison analysis using the Tukey HSD test was performed. The Tukey post-hoc test results (see Table 17) show a statistically significant mean difference in ICT attitudes between the "average" and the "low to very low" (mean difference = .133. p = .019), as well as between the "high to very high" and the "low to very low" (mean difference = .195, $p < .001$). It could be therefore concluded that learners at an average or high CLT valued the importance of within-group relationships (LA5) more and adopted a more positive ICT attitude, as compared to those at a low CLT.

Table 17

Tukey Post-hoc Comparison Analysis Results

Dependent Variable: ICT Attitudes
Tukey HSD

(I) CLT	(J) CLT	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	0.196	0.203	.767	-0.326	0.718
	3	0.064	0.199	.989	-0.449	0.577
	4	0.001	0.199	1.000	-0.512	0.515
2	1	-0.196	0.203	.767	-0.718	0.326
	3	-.133*	0.045	.019	-0.249	-0.016
	4	-.195*	0.046	.000	-0.314	-0.076
3	1	-0.064	0.199	.989	-0.577	0.449
	2	.133*	0.045	.019	0.016	0.249
	4	-0.062	0.027	.096	-0.132	0.007
4	1	-0.001	0.199	1.000	-0.515	0.512
	2	.195*	0.046	.000	0.076	0.314
	3	0.062	0.027	.096	-0.007	0.132

Based on observed means.
 The error term is Mean Square (Error) = .157.
*. The mean difference is significant at the 0.5 level.

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Comparing Impact Levels of LA Factors and Self-efficacy on ICT Attitudes

Three of the five learner autonomy factors were found to have positive impacts on learners' ICT attitudes in EFL learning. The η^2 values in Table 14 indicated that LA2 (English-language learning strategy use) had the strongest and main effects, followed by the interaction effects of LA4 (socially oriented motivation) and gender, and those of LA5 (importance of within-group relationships) and CLT.

Self-efficacy has the lowest η^2 values, indicating its weakest effects on ICT attitudes as opposed to LA2 and the two interaction effects of LA4 with gender and LA5 with CLT. However the effects of self-efficacy on ICT attitudes were not moderated by gender or CLT as the two learner autonomy factors (LA4 and LA5).

Summary

This chapter has presented the quantitative and qualitative findings pertaining to participants' attitudes toward the use of ICTs in EFL learning. Descriptive statistics showed that the majority of the participants had positive attitudes toward ICT, predominantly the first cluster of ICTs: the information technologies. Certain types of ICTs (e.g., computers, online dictionaries, digital music) were identified to be more advantageous to EFL learning than the others (e.g., blogs, videoconferencing such as Skype). In addition, there were perspectives asserting that ICTs were more advantageous to the development of listening and reading skills than to that of speaking and writing ones. Findings from one-on-one follow-up interviews assisted in understanding participants' ICT attitudes at a deeper level as well as the variability in their ICT attitudes.

The quantitative findings further determined the relationships between ICT attitudes and other variables as illustrated in Figure 16. There were direct and positive relationships between (1) ICT attitudes and self-efficacy, and (2) between ICT attitudes and LA2 (English-language learning strategy use). Different from self-efficacy and LA2, the relationships between ICT attitudes and LA4 (socially oriented

motivation) and LA5 (importance of within-group relationships) were causal and moderated by gender and CLT (comfort levels with technology), respectively.
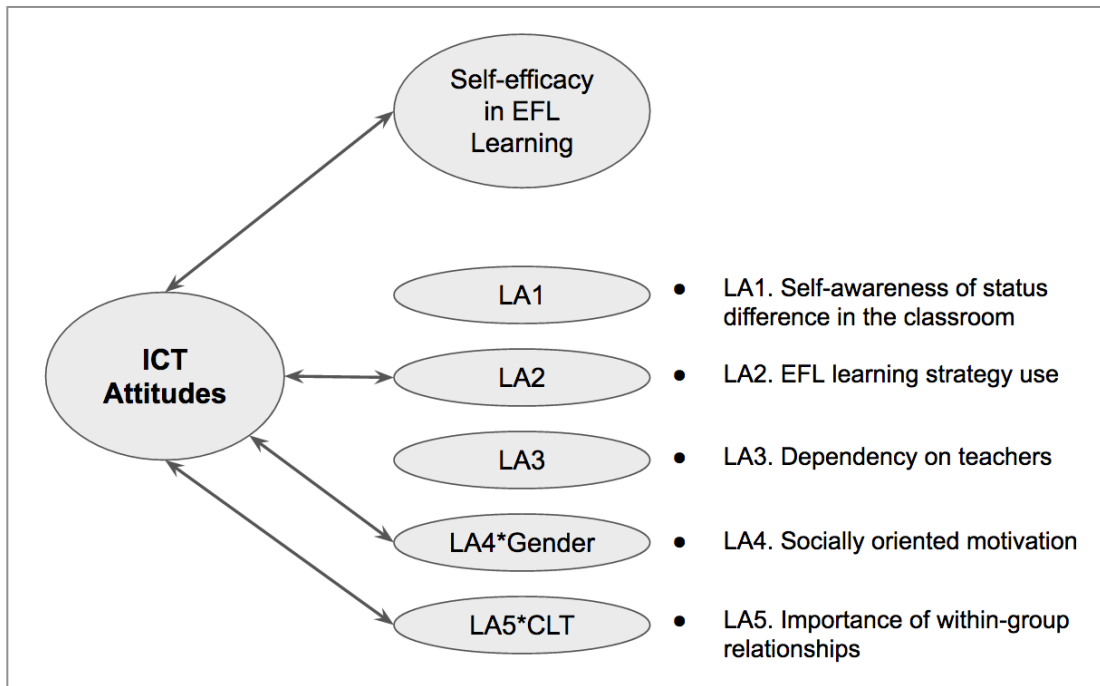
Figure 16. Relationship between ICT Attitudes and other Variables

Given the data collected from 970 participants, the study determined that about 51% of the variance in ICT attitudes could be explained by self-efficacy and learner autonomy. In EFL learning, female participants had more socially oriented motivation and were positive toward the use of ICTs in EFL learning, as compared to male participants. In addition, participants at an average or high to very high CLT were more positive than those with CLT at a low to very low level. No statistically significant difference in ICT attitudes was found between the group at an average CLT and the group at a high to very high CLT.

CHAPTER 5. DISCUSSIONS

This chapter discusses the results of the study, beginning with a summary of the study overview and purpose, followed by a discussion of the major findings in response to the three research questions. Subsequent sections include a discussion of the study's contribution to theory, limitations, implications for practice, and the researcher's recommendations for future research. The chapter ends with a summary of the study's conclusions.

Study and Purpose

The purpose of this study was to examine the attitudes of Vietnamese EFL learners toward the use of ICTs in their EFL learning in Vietnam and how this could be explained by learner autonomy and self-efficacy. The data collection began with administering the questionnaire to 970 learners using a mixed mode strategy, followed by one-on-one interviews with eleven volunteer learners.

Overview of Major Findings

The analysis of quantitative and qualitative data disclosed the major results in response to the research questions. The study found:

- The majority of the learners adopted positive ICT attitudes. The number of learners with positive ICT attitudes toward the use of ICTs was about twice as large as the number of those with neutral attitudes, and six times larger than the number of those with negative attitudes.
- More learners perceived that the use of ICTs would benefit the receptive (i.e., listening and reading) aspect of English than the expressive one (i.e., speaking and writing) and that the information technology (e.g., computers, digital

music, films on DVDs, and online dictionaries) was more useful than the communication technology (e.g., television/radio, videoconferencing, VoIP) and social networking technology categories (e.g., Facebook and blogs).

- There were statistically significant relationships between ICT attitudes with self-efficacy and three predictors of learner autonomy (LA2: English-language learning strategy use, LA4: socially oriented motivation, and, LA5: importance of within-group relationship). The effects of LA4 and LA5 on ICT attitudes varied, depending on gender and comfort levels with a computer and the Internet, respectively.

  o Female learners, who were found to have a more socially oriented motivation as compared to male learners, were more positive toward the use of ICTs in EFL learning.

  o Learners at an average or high CLT valued the importance of within-group relationships (LA5) more and adopted a more positive ICT attitude, as compared to those at a low CLT.

- More than half of the variance in ICT attitudes (51%) could be explained by self-efficacy and learner autonomy factors.

Discussion of Major Findings

Research on the ICT attitudes of Vietnamese EFL learners in Vietnam and their relationship with self-efficacy and learner autonomy is limited. As reviewed in Chapter 2, learners tended to develop a positive attitude toward the use of a particular technological tool when it was brought into a formal learning context; that is when learners received direct instructions and support from the instructors on how to use the technological tools effectively for their English-language learning. This contrasts with the situation of Vietnamese EFL learners in the present study, where learners endeavored to adopt available ICT tools for their own English-language learning outside their low-ICT classrooms. Previous research showed a difference in the technology attitudes across gender and computer skills or literacy, and asserted that

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the use of ICTs had a predominantly positive impact on language-learning outcomes while learner autonomy and self-efficacy was nurtured. However, according to the researcher, no research studies were found from the literature examining the relationships between ICT attitudes and learner autonomy, and between ICT attitudes and self-efficacy, presumably due to the qualitative nature and scope of studies previously conducted.

High Prevalence of Positive ICT Attitudes

The study found a high prevalence of learners with a favorable attitude toward the use of ICTs for EFL learning, despite the fact that ICTs was scarcely incorporated into the English language curriculum or limited-to-no formal support and guidance was offered to EFL learners in the classroom-based setting in Vietnam. This finding is consistent with that of Liu (2009) who surveyed 140 Chinese students at Yangquan College in China to examine their attitudes toward ICTs in learning English as a foreign language. In both studies, the majority of learners perceived ICTs as positive affordances to the enhancement of EFL learning and as factors contributing to their positive attitudes. These factors included cultural perceptions of ICTs (i.e. ICT experience, and attitudes of others about ICT usage in EFL learning) and gender. Liu's (2009) also found that learners' English proficiency levels might affect their ICT attitudes. The present study did not include this factor but did cover self-efficacy and three predictors of learner autonomy (LA2, LA4, and LA5) clarifying that the effects of LA4 and LA5 on how ICT attitudes varied depending on gender and comfort levels using a computer and the Internet. Discussions on these findings are presented later in this chapter.

Differences in ICT Attitudes Across Aspects of English Language

Technology helps language learners enhance their receptive (listening and reading skills) and expressive language (speaking and writing skills) competencies (Newton, 2016). Learners have unprecedented access to an abundance of meaningful

language input in various forms (i.e. written, visual and audio-visual resources), referring to the most valuable contribution of technology to the enhancement of learners' receptive English skills (Newton, 2016). As for the expressive skills, technology such as Skype, text chat, Twitter, virtual 3D environments (e.g. Open Sim or Second Life) enabled opportunities for learners to practice speaking and writing in English without being impeded by time or space (Newton, 2016). The findings of the present study largely corroborate Newton's (2016) ideas, given learners' attitudes toward the use of ICTs to the development of their English language competencies. The present study specifically determines that a greater number of learners viewed ICTs as useful affordances to the development of the receptive aspect of English, as opposed to the expressive ones. It is unlikely for learners to improve their expressive skills (i.e. speaking and writing), given the tools that they used, e.g. online dictionaries, digital music, and films on DVDs.

The findings on the divergent ICT attitudes across EFL skills are congruent with the comments made by Yunus, Lubis, and Lin (2009) when they reviewed the literature on the benefits of using ICTs in language learning, particularly Computer Assisted Language Learning (CALL) software programs. These researchers recognized that CALL programs were fundamentally adapted to serve the growth of learners' receptive English language skills. Other forms of technology such as videoconferencing and chat room were utilized to promote learners' communicative competence; yet, they were not widely adopted by learners for language learning (Yunus, Lubis, & Lin, 2009). Similarly, a smaller number of the learners in the present study perceived that communication and networking technologies (e.g. Skype, Facebook, and Speaking24.com) would be useful to the development of their expressive English language skills.

Differences in ICT Attitudes Across ICT Categories

Learners did not take the same attitude for all forms of technology. Of the three ICT categories (information technology, communication technology, and networking

technology), information technologies (e.g., computers, online dictionaries, films on DVDs, and digital music) received more appreciative attitudes from learners. It is possible that the benefits of information technologies seem to be more apparent to learners than other forms of technology (e.g., communication technologies such as videoconferencing and networking technology such as blogs). According to Davis et al. (1989), a person's attitude toward the adoption of a tool can be influenced by his/her perception of that tool with respect to its usefulness (i.e. enhancing his/her performance) and/or ease of use (i.e. technical difficulty which requires great effort). The present study found that learners endeavored to use computers and other forms of technology in order to accomplish basic EFL learning tasks including searching for EFL materials (e.g. reading, grammar, listening), looking up a word in an online dictionary, and running a certain EFL learning software on their computer.

Learners' lack of applied knowledge of available tools for EFL learning is also another possible reason. Without this type of knowledge, or principle-knowledge of a particular tool according to Rogers (2003), learners may find it challenging or impossible to utilize it for an EFL learning purpose. The qualitative results of the present study made evident that learners knew how to use blogs to share pictures and stories to people, but did not have an idea on how to utilize it for EFL learning. First, in their observation of a blog's features, they did not think that blogs were developed for language learning purposes. They expressed that these features were not applicable to EFL learning purposes. Second, none of their friends used blogs for language learning. It is possible that these qualitative findings might be biased, given the self-reported nature of the qualitative data gathered from a small group of learners. Nonetheless, the findings to some degree reflect those of Liu (2009) who reported that the complexity of ICTs negatively affected the attitude of learners toward the use of ICTs in learning English.

As stated earlier in this chapter, the findings on the discrepancy in ICT attitudes across ICT groups relate well to those on the differences in ICT attitudes across aspects of English. The study found (1) a greater number of learners were more

positive toward the use of information technology (including computers, online dictionaries, digital music, and films on DVDs) in EFL learning as opposed to networking technology and communication technology, and (2) receptive English language skills were perceived to benefit more from ICTs than expressive skills. Taken together, these findings show information technology has been more commonly adopted for the improvement of learners' receptive English language skills. The use of communication technology (e.g. video conferencing) or networking technology (e.g. online chat room) gained much attention from researchers to learners' development of speaking skills (Yunus, Lubis, & Lin, 2009); however, it is more likely that learners will not adopt a positive attitude toward the use of a technology tool for EFL learning, given the complexity of that tool (Liu, 2009) without principles-knowledge (Rogers, 2003) or a vision of how and why to use it for EFL learning.

Gender Difference in ICT Attitudes

The study found that female learners had more favorable attitudes toward the use of ICTs in EFL learning. This finding is in line with that of Liu (2009), but contrary to that in Lai and Kuo (2007). Lai and Kuo (2007) examined the attitude of Taiwanese EFL students attempting to use computer technology and computer-assisted language learning programs to enhance their English language learning. Their findings are the exact opposite, that male learners had a more positive attitude than female learners. Their findings point to male learners having more confidence in computer technology, accounting for a low level of anxiety in learning a foreign language with (CALL) programs (Lai & Kuo, 2007). The researchers, Lai and Kuo (2007) further explained that this difference reflected a cultural perception in Taiwan, giving rise to prejudice based on gender, in other words that technology has traditionally been viewed as a subject for males to learn. Consequently, males tended to received more opportunities to access different forms of technology resulting in an increase in their confidence with technology.

Other studies found different results regarding learners' attitudes toward technology use for purposes other than for learning EFL. For example, Wong and Hanafi (2007) found no gender differences in learners' attitudes toward the use of technology tools and applications in future teaching practices of Malaysian student teachers despite the same amount of exposure to technology given to each gender group. Dorup (2004), Kubiatko (2010), and Liaw (2002) on the other hand, concluded that the use of computers or other technologies was normally more favored by male learners. Their studies found that males were more interested and competent in using computers than females (Kubiatko, 2010). Male learners had more computer experience and this significantly affected their perceptions of computers and web technologies (Liaw, 2002). More male learners than females preferred technologies to be used in learning because of the flexibility in time and space enabled by the integration of ICTs in learning and teaching (Dorup, 2004).

In the present study, the gender difference in learners' ICT attitudes in EFL learning involves the presence of another factor, which is learners' socially oriented motivation in EFL learning. The roles of each factor (i.e. gender, ICT attitudes, and socially oriented motivation) are discussed in the following section. The discrepancy in ICT attitudes across gender is to a certain degree, explained by the interactive effects between gender and socially oriented motivation.

Relationship between ICT Attitudes and Learner Autonomy

The present study ascertained the relationship of ICT attitudes with three out of five predictors of learner autonomy (i.e., LA2: English-learning strategy use, LA4: socially oriented motivation, and LA5: importance of within-group relationship). There was no statistically significant relationship between ICT attitudes and the other two predictors of learner autonomy (i.e., LA1: learner self-awareness of status difference in the classroom, and LA3: learner dependency on teachers).

ICT attitudes with LA1 (Self-awareness of the Status Difference in the Classroom) and LA3 (Learner Dependency on teachers). Surprisingly, no

statistically significant relationship was found between the ICT attitudes and the two predictors of learner autonomy: LA1 and LA3. The values of LA1 and LA3 indicate that learners' perceptions did not change much with respect to the status difference between teachers and learners, and the dependency of learners on teachers in EFL learning, showing that learners took ownership of their EFL learning.

These perceptions only relate minimally to the ICT attitudes. A possible explanation may be that the more responsibility for EFL learning they took, the smaller difference in student-teacher status in classroom and the less dependency on teachers they perceived. The present study found that ICTs were scarcely incorporated into the curriculum and that the majority of the learners did not perceive themselves as passive receivers of knowledge. It can be understood that learners' ICT attitudes were not significantly related to their dependency on teachers as well as their perceptions of status difference between teachers and learners in the classroom. Nevertheless, it could be that in an EFL learning context where ICTs are fully integrated into the curriculum, findings on the relationship of ICT attitudes with LA1 and LA3 predictors might differ. Further investigations are needed to confirm and validate this finding.

ICT attitudes with LA2 (EFL Learning Strategy Use). Contrary to LA1 and LA3, LA2 had a moderate and positive relationship with the ICT attitudes. The effect of LA2 on the ICT attitudes was direct and not under the influence of the remaining factors, including gender and comfort levels with a computer and the Internet. Learners who self-reported as being autonomous in their use of English-language learning strategy to reach their goals tended to adopt a positive attitude toward the use of ICTs for ELL. The opposite was also true with learners who self-reported as not autonomous in their use of ELL strategy to reach their goals, adopting a negative attitude toward the use of ICTs for ELL. These are strategic learners with metacognitive skills who are able to take control over their learning efforts. According to Rahimi and Katal (2012), "strategic learners have metacognitive knowledge about their own thinking and learning approach, a good understanding of what a task entails, and the ability to orchestrate the strategies that best meet both the task demands and

their own learning strengths" in EFL learning (p. 74). Thanks to the advent of technologies and an abundance of available online learning resources, learners are empowered to develop their metacognitive skills, an important element to increase their autonomy (Godwin-Jones, 2011; Hobrom, 2004; Kaur & Sidhu, 2010). Boulton, Chateau, Pereiro, and Azzam-Hannachi (2008) reviewed a study by Richards (2005) that commented that individual learners selected language materials and resources available online according to their own learning attitudes, strategies, styles, preferences, motivations and needs.

This finding may not directly support the results of previous research studies on the relationships between the actual use of ICTs and the development of learner autonomy because this study investigated the attitudes of learners toward the use of ICTs in EFL learning, not the actual use of ICTs. Learners' attitudes toward ICTs can be predictive of their future adoption of ICTs, according to Rogers (2003), Davis et al. (1989), and Petty and Cacioppo (1986). There has been some limited research that has statistically investigated this relationship, notwithstanding the recognized positive impacts of ICTs in "encourag[ing] learners to strive for autonomy in the target language" (Kessler, 2009, p. 79) and expanding the classroom context (Lloyd, 2012; UNESCO Institute for Information Technologies in Education, 2004).

The finding on the relationship between ICT attitudes and the second predictor of learner autonomy with respect to learners' use of English-language strategy otherwise, expands an understanding of the relationship between learners' use of English-language learning strategies and their ICT attitudes. Learners who are self-determining are more likely to take ownership of their EFL learning. Having access to a computer, the Internet, and/or other forms of technology may add an opportunity that piques learners' interest in exploring learning strategies with the support of technological tools that can increase learning outcomes. The qualitative results uncovered that learners endeavored to incorporate diverse tools (e.g., YouTube Channel, online chat rooms, online dictionaries) into their learning practice.

ICT attitudes with LA4 (Learners' Socially Oriented Motivation). The present study also found a moderate positive relationship between learners' ICT attitudes and LA4 was statistically significant. The effects of this predictor on ICT attitudes however varied depending on the difference in gender, meaning that female learners' ICT attitudes associated with socially oriented motivation differed from those of males. As compared to male learners, female learners were found to be more positive about the use of ICTs in EFL learning, and their motivation was more socially oriented. This result partially lends its support to Liu's (2009) findings, in particular that female learners self-reported a more favorable attitude toward the use of ICTs in EFL learning than males. Both studies acknowledged the existence of gender difference in the attitude of EFL learners toward ICT usage in EFL learning, with the current study further stressing the differences tied to socially oriented motivation (e.g., female learners were more socially motivated than males).

As a whole, it is more likely that in the context of foreign language learning and when learners' socially oriented motivation is taken into account, more female learners may have a positive attitude toward the use of technology, as compared to male learners. Females tended to use social/affective strategies more often than males (Maccoby & Jacklin, 1974; Zeynali, 2012), had higher motivation to learn a foreign language compared to males (Diab, 2000), and outperformed males in language learning (Sunderland, 1998). Nikitina and Furuoka (2007) described a language classroom as a "unique socio-educational environment" where "the learners need to speak and interact with the classmates considerably more than they might be required while learning other subjects" (p. 2). Female learners were found to be more active than males in such a language classroom (Sunderland, 1998).

ICT Attitudes with LA5 (Importance of the Within-Group Relationships). The study found a moderate and positive relationship between ICT attitude and the fifth predictor of learner autonomy. The effects of this predictor on ICT attitudes were noticeably conditional, depending on learners' comfort levels with a computer and the Internet. The differences were identified between learners who ranked themselves at a

"low to very low" comfort level and those at higher comfort levels (i.e., the average level and the high to very high level); by contrast, no statistically significant difference in the ICT attitudes was found among learners who felt comfortable enough or highly confident in using a computer and the Internet. It was clear that learners' self-rank of their comfort levels with technology did impact their ICT attitudes associated with the fifth predictor of learner autonomy.

This study theoretically provides support to other studies. On the one hand, it validates the views that very limited computer-related experience (Bovee et al., 2007; Liaw, 2002) or learning curves associated with technological tools might induce a negative attitude toward ICT use in English-language learning (Liu, 2009) in learners. On the other hand, the finding may be in line with Rashed's (2008) qualitative findings, claiming that learning curves or a lack of ICT skills does not account for negative attitudes. In this regard, Rashed (2008) clarified that learners' anxiety and their negative attitude toward English-language learning were among the factors bringing about a negative change in learners' ICT attitudes. It is important to note that the fifth predictor of learner autonomy was not addressed in Rashed (2008) and Liu (2009), showing that the current study presents findings unique to previous ones.

Relationship between ICT Attitudes and Self-efficacy

The current study found a moderate and positive relationship of ICT attitudes with self-efficacy. The effect of self-efficacy on ICT attitudes was not influenced by gender nor comfort levels with technology. This is similar to the effect of LA2 (EFL learning strategy use) on ICT attitudes; however the effects of self-efficacy on ICT attitudes were not as strong as those of the other factors of learner autonomy (i.e. LA2, L4, and LA5). In the present study, learners did not show sufficient self-efficacy in their EFL learning. From social cognitive perspectives, Bandura (1997) explains that an individual's self-efficacy (i.e. beliefs in his/her ability to perform a specific task) can be affected by his/her mastery experience, vicarious experiences, social persuasion, and physiological arousal.

Unlike the present study, previous research did not investigate the relationship between ICT attitudes and self-efficacy in EFL learning. Previous research focused on use of a particular type of technology for EFL learning. For example, Zheng et al. (2009) found that using a 3D game-like virtual world (Quest Atlantic) improved EFL learners' self-efficacy. Further research emphasizes an important role of ICTs in increasing self-efficacy in EFL learners but with the role of teachers in helping learners to find appropriate online resources for them to use and providing prompt feedback to the learners in need (Godwin-Jones, 2011; Hobrom, 2004). The qualitative findings of the present study showed that ICTs were not incorporated into the English-language curriculum at schools; meanwhile, teachers rarely incorporated available technologies into their teaching practice with the exception of teachers working for foreign language training centers. Taking the perspectives of Godwin-Jones (2011) and Hobrom (2004) into account, it could be inferred that the lack of ICT use in class and teachers' guidance in selecting appropriate resources could reveal learners' self-efficacy level in EFL learning in the present study. Further research should be conducted to confirm this interpretation.

Contribution to Theory

While there has been a large body of research on the use of specific forms of technology in language learning, limited research has examined the variability in ICT attitudes among EFL learners and especially those who were majoring in fields of study other than English as a foreign language. Furthermore, no research evidence has been found investigating the relationships of ICT attitudes with learner autonomy and self-efficacy in EFL learning. The current study was designed to understand ICT attitudes of Vietnamese EFL learners and to explore the relationships of ICT attitudes with perceived self-efficacy and predictors of learner autonomy. The study's efforts contribute to the literature in both quantitative and qualitative ways.

Findings of the present study add that ICT attitudes can be predicted by perceived self-efficacy, and predictors of learner autonomy including English-

language strategy use (LA2), socially oriented motivation (LA4), and the importance of the within-group relationships (LA5) in EFL learning. The findings further affirm that the differences in ICT attitudes in relation to LA4 and LA5 depend on gender and comfort levels with a computer and the Internet, respectively. While previous research documented differences in attitudes toward ICT usage between male and female learners, and among learners with different comfort levels using a computer and the Internet, the present study's findings support that:

(1) Female learners tend to be more socially oriented motivated and favor the use of ICTs in EFL learning more than males,

(2) Learners' comfort level with using computers and the Internet did impact their ICT attitudes in EFL learning but taking the importance of within-group relationships (LA5) factor into consideration,

(3) Variability in a learner's ICT attitudes is explained by his/her lack of principles-knowledge or vision of why and how to use a particular form of technology in EFL learning, according to Rogers (2003). This is due to learners having to rely on non-expert advice from peers or others with limited principles-knowledge of incorporating available technologies into their learning practice. The peripheral sources of information can explain the change in a learner's attitude toward the use of a particular form of technology. Bhattacherjee and Sanford (2006) specified peripheral cues as one of the factors accounting for attitude change toward a behavior.

Given the data of the present study, the 20 learner autonomy items, half of which were proposed by Littlewood (1999) and the rest by Zhang and Li (2004) were tested for its internal consistency and validity. The study noted that two learner autonomy factors (LA1 and LA3) statistically correlated with each other, but not the other LA factors; this further pointed out that four predictors (items 4 to 7, see Appendix C) proposed by Littlewood (1999) forming LA1 in the present study did not statistically relate to the other six predictors. This could be due to the differences in learning contexts in which in the Vietnamese EFL one, ICTs were scarcely

incorporated into the curriculum designed to teach English to non-English major students.

The findings of the study did not provide support for any perspectives stereotyping Vietnamese EFL learners as passive learners. On the other hand, the study supports Littlewood's standpoints viewing learner autonomy in both reactive and proactive levels. The present study found that a large number of learners were quite proactive in their EFL learning. It is the time to adopt different lenses when viewing Vietnamese learners, especially EFL learners in the digital age. Taking Confucian cultural and educational backgrounds into account when talking about Vietnamese learners may create stereotype threats impeding them from their natural development. Trinh (2005) and Nguyen (2011) contended that Asian learners were autonomous in their learning by nature.

Limitations and Future Work

Despite having involved a large sample size and answering the proposed research questions, the findings of the present study are subject to a few limitations. The following are those that the researcher is aware of:

The first limiting factor is ecological generalizability; according to Fraenkel et al. (2012) ecological generalizability is the extent to which research results can be generalized to other settings and conditions outside the research setting. The present study used non-probability sampling, involved a small sample size for the second qualitative phase of data collection, and surveyed Vietnamese EFL learners at the ages of 18 and over, majoring in fields of study other than English language at school in Vietnam. The research results may not be applicable to a variety of EFL learners and in other settings and conditions, such as English majors, and EFL learners coming from other cultures (i.e., non-Vietnamese). The generalizability of the findings is also limited due to the relatively small sample size. Future studies involving a more diverse population are recommended.

The second limiting factor was the use of telephone interviewing as a strategy for qualitative data collection. Despite the advantages (e.g. flexibility in addressing a geographically scattered sample; live communication between the researcher and the respondents) offered by the strategy, telephone interviewing brought with it some disadvantages. As mentioned in Gillham (2005), the drawbacks include the reduction of non-verbal cues, e.g. facial expressions and body language. Moreover, not every learner feels comfortable answering questions during an interview over the telephone, which leads to a decline in learners' engagement during an interview. In the present study, my perception was that interviewees from southern Vietnam were relatively shy in contrast with those from the central and northern areas of the country. This phenomenon has raised some questions about the differences in local cultures across the country. Interviewees' shyness might present a challenge to obtaining more expansive responses (Irvine, 2011). It is suggested that future investigations employing interviews consider taking this phenomenon into account.

The third limiting factor is related to instrument usage. In the present study, all three sub-sections (i.e. ICT attitudes, self-efficacy, and learner autonomy) were tested for their internal consistency, but only learner autonomy was validated. It was decided not to proceed with the validation process because ICT attitudes and self-efficacy had highly reliable questions. Nevertheless, it was important to explore the data structure of learner autonomy. As explained in Chapter 3, the correlation coefficients between learner autonomy items demonstrated a need for validating these learner autonomy items. Future work is needed to further validate the instrument.

The fourth limitation of this study originates in performing general linear model (GLM) procedures to investigate the relationships of ICT attitudes with self-efficacy and predictors of learner autonomy. This technique is limited due to the effects of one individual independent variable being examined while the others were held constant (Heck, 2006) while the GLM procedures did not consider the measurement errors associated with independent variables (Graham, 2008). The current study additionally found a relationship between self-efficacy and learner autonomy. It is therefore

suggested that the association of all three variables (ICT attitudes, self-efficacy, and learner autonomy) should be investigated in future studies with a more advanced and comprehensive statistical analysis technique (e.g. structural equation modeling) in order to address this limitation and to confirm the findings of the present study.

Not all ICT tools were mentioned in the questionnaire to investigate learners' attitudes toward the use of ICTs in their EFL learning and this is the fifth limitation of the study. A few technological tools were included in each of the three ICT categories. For instance, the networking technologies only included two social networking technologies. Thus, it would be inappropriate to interpret ICTs in the present study as all information and communication technological tools.

Last but not least, the total number of the learners who did not have access to the computer or the Internet and were at the age of 18 or above was unable to define. The present study involved a relatively small sample size and targeted those were currently residing in urban areas; therefore, overgeneralizing the statistics in the study should be avoided. An actual number of those who did not have access to computers and the Internet across the nation must be different, definitely larger. This limitation of the study has demonstrated the needs for future research targeting the same population but in different areas.

Implications of the Study

Given the findings, the study has some implications. The findings reveal a positive sign or a strong need for a systemic uptake and integration of ICTs into the curriculum. To a great extent, learners' positive ICT attitudes, access to and skills in using computers and the Internet, together with their attempts to utilize available ICTs for EFL learning suggest that educators and policy makers should do well to consider a systemic uptake and integration of ICTs in the English-language curriculum.

One the one hand, formal integration of ICTs into teaching and learning will better support learners in their process of utilizing available ICTs to augment their

EFL learning. Mastering a foreign language is a lifelong and intricate process (Quinn, 1974), requiring additional practice and independent work outside of classroom settings (Gahungu, 2009; Steven & Liu, 2010; Singh, 2010; Fageeh, 2011; Hamouda, 2013). As noted by other scholars such as Lloyd (2012), Stevenson and Liu (2010), Kumar and Tammelin (2008), and Godwin-Jones (2006), breakthroughs in technology, for example the advent of Web 2.0, have shifted foreign language learning toward a new paradigm where learners have opportunities to be immersed in an authentic environment of language learning and ICTs. The use of social networking sites enabled "some continuity between formal and informal learning contexts"; this allowed students to "see some integration of their learning into their lives outside the traditional learning environment" (Lloyd, 2012, para. 52).

On the other hand, ICT integration may entail social segregation in education unless the digital gap between those who have and those who have not is handled accordingly. Although learners with less means make up only a small percentage of the study's demographics, it is therefore vital for policy makers and educators to take this difference into consideration when making decisions related to integration of ICTs into education. Learners with low socio-economic backgrounds do not have access to computers and the Internet nor do they feel comfortable using these technologies.

Moreover, the study unveiled the fact that an overwhelming number of learners felt comfortable using a computer and the Internet, but this did not necessarily indicate that all of them were able to successfully utilize available ICTs in EFL learning. Of most importance is the learner's need to have principles-knowledge (Rogers, 2003); in other words, the learner's vision of why and how to use a form of technology for learning purposes ensure an effective use of technology (Sahin, 2006; Seeman, 2003). Lack of principles-knowledge of an ICT tool may lead to the discontinuance of using it (Sahin, 2006). This study's qualitative findings support Sahin's (2006) assertion.

Sufficient support in the use of ICTs for EFL learning is important to learners, especially those who self-reported having low self-efficacy in EFL learning. The study found that learners' self-efficacy was positively correlated to their ICT attitudes in

EFL learning; however, learners in the present study had a quite low self-efficacy in EFL learning, depicting a low possibility of adopting ICTs for EFL learning. Furthermore, low self-efficacy learners neither engage in as many learning tasks as do those with higher self-efficacy, nor perform their learning tasks well. Learners with low self-efficacy tend to interpret their failures as deficient abilities rather than insufficient efforts spent on the tasks (Bandura, 1984). Adequately supporting learners in integrating ICTs into EFL learning increases their beliefs in their capabilities to learn English well with the use of ICTs.

ICT attitudes can be explained by self-efficacy and learner autonomy factors in general. Concerning the relationships of ICT attitudes with self-efficacy, and the three out of five predictors of learner autonomy in EFL learning, this study has potential implications for theory and future research. Previous published work showed that one's attitude could be shaped by the following factors: (a) perceived usefulness and perceived ease of use (Davis et al., 1989), (b) subjective norms and perceived behavioral control (Ajzen, 1991), (c) perceived usefulness and source credibility (Bhattacherjee & Sanford, 2006), and (d) relevant knowledge of an innovation that a learner has, social norms, expected outcomes, and ICT attributes such as relative advantage (Rogers, 2003). The findings of the present study point to the definitive connection between self-efficacy (one of the self-belief concepts) and learner autonomy as predictive of ICT attitudes.

Conclusion

The present study was designed to examine the ICT attitudes of Vietnamese EFL learners and to investigate its relationship with self-efficacy and learner autonomy in EFL learning. The study has identified (1) that a greater number of learners had favorable attitudes toward the use of ICTs in EFL learning, (2) that the majority of the learners had access to a computer and the Internet, and (3) that most learners were comfortable with using these technologies.

The study also found that more than half of the variance in ICT attitudes could be explained by self-efficacy and learner autonomy. The effects of two predictors of learner autonomy, LA4 (socially oriented motivation) and LA5 (importance of within-group relationship), on ICT attitudes varied depending on gender, and comfort levels using a computer and the Internet, respectively. These findings provide insights for a systemic uptake and integration of ICTs into national foreign language curricula, but with consideration for the digital divide among learners.

Given the results of the relationship of ICT attitudes and self-efficacy and learner autonomy factors, the study has detected (1) a need to take these two variables into account when examining ICT attitudes in EFL learning, and (2) a need to confirm the findings on the recently identified relationship of ICT attitudes. The qualitative and quantitative analysis of ICT attitudes undertaken in this study have extended our knowledge of Vietnamese EFL learners' ICT attitudes and the effects of learner autonomy and self-efficacy on these attitudes.

Although the findings in the present study are subject to a few limitations, the study has several strengths. The study's questionnaire demonstrated a high level of internal consistency. The study involved a rather large number of the learners completing the questionnaire and a few of them participated in one-on-one interviews with the research conducted over the telephone.

Concerning future research work, more advanced statistical analysis techniques should be performed to confirm this study's findings, which will deepen the understanding of the relationships among ICT attitudes, self-efficacy, and learner autonomy.

APPENDIX A. UH IRB APPROVAL

UNIVERSITY
of HAWAI'I*
MĀNOA

October 3, 2013

TO: Hong Ngo
             Principal Investigator
             Educational Technology

FROM: Denise A. Lin-DeShetler, MPH, MA
             Director

SUBJECT: CHS #21561- "Investigating Vietnamese EFL Learners' Attitudes Toward ICT Use,
                    Autonomy, and Self-Efficacy in EFL Learning in Vietnam"

This letter is your record of the Human Studies Program approval of this study as exempt.

On October 3, 2013, the University of Hawai'i (UH) Human Studies Program approved this study as exempt from federal regulations pertaining to the protection of human research participants. The authority for the exemption applicable to your study is documented in the Code of Federal Regulations at 45CFR 46.101(b)(Exempt Category 2).

Exempt studies are subject to the ethical principles articulated in The Belmont Report, found at http://www.hawaii.edu/irb/html/manual/appendices/A/belmont.html.

Exempt studies do not require regular continuing review by the Human Studies Program. However, if you propose to modify your study, you must receive approval from the Human Studies Program prior to implementing any changes. You can submit your proposed changes via email at uhirb@hawaii.edu. (The subject line should read: Exempt Study Modification,) The Human Studies Program may review the exempt status at that time and request an application for approval as non-exempt research.

In order to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so. Signed consent forms, as applicable to your study, should be maintained for at least the duration of your project.

This approval does not expire. However, please notify the Human Studies Program when your study is complete. Upon notification, we will close our files pertaining to your study.

If you have any questions relating to the protection of human research participants, please contact the Human Studies Program at 956-5007 or uhirb@hawaii.edu. We wish you success in carrying out your research project.

APPENDIX B. CONSENT FORM

University of Hawaii at Manoa
Consent to Participate in Research Project

Investigating Vietnamese EFL Learners' Autonomy, Self-efficacy, and Attitudes toward ICT Use in EFL learning

My name is Hong Ngo and I am a PhD student in Educational Technology at the University of Hawaii at Manoa.

The purpose of the study is to deeply understand Vietnamese learners' attitudes toward ICT use, autonomy, and self-efficacy in learning English as a foreign language. In addition, I would like to investigate the interrelationships among their autonomy as language learners, self-efficacy, and attitudes toward ICT in learning English. I am asking you to participate in my study as a research participant because you are Vietnamese at the age of 18 years old and above, and English as a foreign language is not your major.

Project Description – Activities and Time Commitment: If you participate, I will ask you to complete a survey and will interview you if you are interested. These are two separate processes and will be conducted at different time. After completing the survey, if you want to proceed with the interview, please provide your contact information so I will get back to you in two weeks. The survey questions ask you about your age, your current education level, and your technical skills; your perceptions of autonomy as language learners, self-efficacy and attitudes toward ICT use. It may take you 30 to 35 minutes to complete the survey and about 10 to 15 minutes for the interview. Completing the survey and participating in the interview are separate process and you don't have to join the interview if you are not interested.

Benefits and Risks: There are no direct benefits to you in participating in my research project, however, results of this project help me and other researchers learn more about Vietnamese EFL learners' autonomy, self-efficacy, and attitudes toward ICT use in learning English as a foreign language (EFL). I believe there is little or no risk to you in participating in this project. If, however, you are uncomfortable or stressed by answering any question, you may skip it, take a break, stop the interview, or withdraw from the project altogether.

Confidentiality and Privacy: During this research project, I will keep all data from the interviews in a secure location. Only I will have access to the data, although legally authorized agencies, including the University of Hawaii Human Studies Program, have the right the review research records.

After I transcribe the interviews, I will continue keeping the audio-recordings safely or will erase the audio-recordings when needed. When I report the results of my research project, and in my typed transcripts, I will not use your name or any other personally identifying information. Instead, I will use a pseudonym (fake name) for your name. If you would like a summary of the findings from my final report, please contact me at the number listed near the end of this consent form.

Voluntary Participation: Participation in this research project is voluntary. You can choose freely to participate or not to participate in the interview and there will be no penalty or loss of benefits for either decision. In addition, at any point during this project, you can withdraw your permission without any penalty of loss of benefits.

Questions: If you have any questions about this project, please contact me via phone (+001) 808-944-6476 or e-mail (hongtp@hawaii.edu). If you have any questions about your rights as a research participant, in this project, you can contact the University of Hawaii, Human Studies Program, by phone at (+01) 808-956-5007 or by e-mail at uhirb@hawaii.edu.

Signature for Consent:

I agree to participate in the research project entitle, "*Investigating the Attitudes of Vietnamese EFL learners toward ICT Use, Autonomy and Self-efficacy in EFL learning*" I understand that I can change my mind about participating in this project, at any time, by notifying the researcher.

Signature: …………………………………………………………………………………………
Your name: …………………………………………………………………………………………
Date: …………………………………………………………………………………

APPENDIX C. QUESTIONNAIRE

QUESTIONNAIRE

Investigating Vietnamese EFL Learners' Attitudes toward ICT Use, Autonomy, and Self-efficacy in EFL Learning

This questionnaire consists of four sections. Please note there is no right or wrong answer and your responses to the following items will be kept confidential. Please answer them freely and honestly. Choose the ones that best describe you. It may take you no more than 25 minutes to complete the questionnaire. I thank you very much for your great help.

SECTION 1: Demographic Information

Directions: Please choose the ones that may apply.

1 Gender: ☐ Male ☐ Female

2 Age: _____

3 The highest level of education you have completed:
   ☐ General education (1st grade – 12th grade) ☐ Master's degree
   ☐ Associate's degree ☐ Doctoral degree
   ☐ Bachelor's degree ☐ Post graduate

4 I have a personal computer (a desktop or laptop).
   ☐ Yes ☐ No

5 I have an Internet access at home.
   ☐ Yes ☐ No

6 My comfortable level of using computer and Internet.
   ☐ Very high ☐ High ☐ Just fine ☐ Low ☐ Very low ☐ None

7 Your current school (name, location- e.g. Bien Hoa, Ho Chi Minh City…):

SECTION 2: Attitudes towards ICT Use

Directions: On a scale from 1 (strongly disagree) to 5 (strongly agree), choose the number that best describes you.

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

	I think that the following technological tool/application would help me learn English better.					
1	Computer	1	2	3	4	5
2	Music on digital media (e.g. CDs/mp3)	1	2	3	4	5
3	Films on the DVD (with subtitles or not)	1	2	3	4	5
4	Online dictionaries and grammars (*Merriam-Webster Online, The Free Dictionary, Cambridge Dictionaries Online, Macmillan, etc.*)	1	2	3	4	5
5	TV/Radio	1	2	3	4	5
6	Videoconferencing (*ooVoo, Skype, etc.*)	1	2	3	4	5
7	Voice over the internet (*Skype, Viber, Zalo, etc.*)	1	2	3	4	5
8	Blogs	1	2	3	4	5
9	Social networking sites (*e.g. Facebook, MySpace, Bebo*)	1	2	3	4	5
	I think that technologies could help me…					
10	to speak English better.	1	2	3	4	5
11	with reading in English.	1	2	3	4	5

12	to improve my listening skills.	1	2	3	4	5
13	with writing in English.	1	2	3	4	5
14	to plan and organize my own studies better.	1	2	3	4	5
15	to take greater control of my own English learning.	1	2	3	4	5

I feel…

16	Technologies give learners access to more authentic (real-life) English use.	1	2	3	4	5
17	Using technologies can motivate me more to learn English.	1	2	3	4	5
18	Using technologies to learn English can help me integrate better in the world in which I live.	1	2	3	4	5
19	Technologies can make learning and education more accessible and less threatening to me.	1	2	3	4	5
20	Technologies in English/language learning will increase in the future.	1	2	3	4	5

SECTION 3: Learner Autonomy

Directions: On a scale from 1 (strongly disagree) to 5 (strongly agree), choose the number that best describes you.

1	**2**	**3**	**4**	**5**
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

1	I like activities where I am part of a group which is working towards common goals.	1	2	3	4	5
2	I like to take part in activities which involve discussion within a group.	1	2	3	4	5
3	When I am working in a group, I like to help maintain a sense of harmony in the group.	1	2	3	4	5
4	In the open classroom, I often feel hesitant to 'stand out' by voicing my opinions or questions.	1	2	3	4	5
5	In the classroom I see the teacher as an authority figure.	1	2	3	4	5
6	I tend to see knowledge as something to be 'transmitted' by the teacher rather than 'discovered' by me as a learner.	1	2	3	4	5
7	I expect the teacher (rather than me myself) to be responsible for evaluating how much I have learnt.	1	2	3	4	5
8	I feel strongly motivated to follow through learning tasks of which I perceive the practical value.	1	2	3	4	5
9	I feel more motivated to work when my own success contributes to the goals or prestige of significant groups (e.g. family, other students).	1	2	3	4	5
10	In the classroom I feel very concerned to perform well and correctly in what I do.	1	2	3	4	5
11	When asked to use technologies that I haven't used before, I feel worried but try to learn them anyway.	1	2	3	4	5
12	I preview materials before the class. (I come prepared for class.)	1	2	3	4	5
13	I find I can finish my task in time.	1	2	3	4	5
14	I attend out-class activities (e.g. English speaking club) to practice and learn English.	1	2	3	4	5
15	I do not choose books, exercises which suit me, neither too difficult nor too easy.	1	2	3	4	5
16	When I make mistakes in study, I usually let them be.	1	2	3	4	5
17	I do not good use of my free time in English study.	1	2	3	4	5
18	I keep a record of my study, such as keeping a diary, writing a review, etc.	1	2	3	4	5
19	I do not make self-exam with exam papers chosen by myself.	1	2	3	4	5
20	Students should not design the teaching plan together with teachers.	1	2	3	4	5

SECTION 4: Self-Efficacy in EFL Learning

Directions: On a scale from 1 (strongly disagree) to 5 (strongly agree), choose the number that best describes how sure you are that you can perform each of the English tasks below.

1	**2**	**3**	**4**	**5**
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

I believe…						
1	I can introduce someone and use basic greetings and leave-taking expressions.	1	2	3	4	5
2	I can ask and answer simple questions, initiate and respond to simple statements in areas of immediate need or on familiar topics.	1	2	3	4	5
3	I can relate the plot of a book or film and describe my reactions.	1	2	3	4	5
4	I can take an active part in informal discussions in familiar contexts, commenting and explaining my point of view clearly.	1	2	3	4	5
5	I can actively participate in a debate.	1	2	3	4	5
6	I can ask for clarification in an email.	1	2	3	4	5
7	I can write an email to make future plans with a friend.	1	2	3	4	5
8	I can express my feelings and emotions in writing.	1	2	3	4	5
9	I can understand an email that provides me with information about a particular task.	1	2	3	4	5
10	I can skim short advertisements in newspapers and identify important pieces of information.	1	2	3	4	5
11	I can read short stories and follow the flow of thoughts and actions and thus understand the overall meaning and many details.	1	2	3	4	5
12	I can understand the main ideas of most TV shows.	1	2	3	4	5
13	I can watch an English film and then analyze and interpret it.	1	2	3	4	5
14	I can write simple directions.	1	2	3	4	5
15	I can describe the plot of a film or short story in a composition.	1	2	3	4	5
16	I can write an analytical essay.	1	2	3	4	5
17	I can write a letter to an editor making a statement in favor of or against a point of view.	1	2	3	4	5
18	I can write a short biography of a well-known person.	1	2	3	4	5
19	I can write a persuasive essay.	1	2	3	4	5
20	I can describe myself, my family and other people.	1	2	3	4	5
21	I can give a brief organized oral presentation using visual and technological support (i.e., PowerPoint) when appropriate.	1	2	3	4	5
22	I can give prepared presentations with near full control of present, past, and future tenses.	1	2	3	4	5
23	I can account for and sustain my opinions in discussion by providing relevant arguments and comments.	1	2	3	4	5

Tìm hiểu thái độ của người học tiếng Anh đối với việc sử dụng công nghệ thông tin và truyền thông (ICT), tính chủ động, và niềm tin vào khả năng thành công trong việc học tiếng Anh

Bảng câu hỏi này gồm có 4 phần. Xin lưu ý rằng không có câu trả lời đúng hay sai. Do vậy, anh/chị hãy trả lời chân thật bằng cách chọn câu trả lới phù hợp nhất với anh/chị. Tất cả câu trả lời sẽ được bảo mật. Anh/chị cần khoảng 20-25 phút để hoàn tất bảng câu hỏi này. Xin chân thành cảm ơn.

PHẦN 1: Thống kê cơ bản

Hướng dẫn: Chọn những câu trả lời phù hợp với anh/chị.

1   Giới tính: ☐ Nam   ☐ Nữ

2   Tuổi: _____

3   Trình độ văn hóa:
      ☐ Phổ thông (12/12)   ☐ Thạc sĩ
      ☐ Cao đẳng   ☐ Tiến sĩ
      ☐ Cử nhân đại học   ☐ Nghiên cứu sinh cao cấp

4   Tôi có máy vi tính (máy tính để bàn hoặc máy tính xách tay).
      ☐ Có   ☐ Không

5   Tôi có thể truy cập internet tại nhà.
      ☐ Có   ☐ Không

6   Kỹ năng sử dụng máy tính và internet của tôi
      ☐ Rất thành thạo.   ☐ Thành thạo.   ☐ Tạm được.   ☐ Thấp.   ☐ Rất thấp.   ☐ Không biết gì.

7   Hiện tại anh/chị đang học ở đâu (tên trường, địa điểm – v.d. Biên Hòa, tp. HCM,…)?
      _____

PHẦN 2: Thái độ đối với việc sử dụng ICT trong việc học tiếng Anh

Hướng dẫn: Trên thang điểm từ 1 (hoàn toàn phản đối) đến 5 (hoàn toàn đồng ý), hãy chọn chỉ số phù hợp nhất đối với cá nhân anh/chị.

1	**2**	**3**	**4**	**5**
Hoàn toàn không đồng ý	Không đồng ý	Trung lập	Đồng ý	Hoàn toàn đồng ý

	Tôi nghĩ rằng công cụ/ứng dụng kỹ thuật sau đây sẽ giúp tôi học tiếng Anh tốt hơn.					
1	Máy tính	1	2	3	4	5
2	Nhạc trên các phần mềm kỹ thuật số, ví dụ: *đĩa CD hay mp3*	1	2	3	4	5
3	Xem phim đĩa (DVD) có hoặc không có phụ đề	1	2	3	4	5
4	Tự điển hay các bài học ngữ pháp trực tuyến ví dụ: *Merriam-Webster Online, The Free Dictionary, Cambridge Dictionaries Online, Macmillan, v.v…*	1	2	3	4	5
5	TV/Radio	1	2	3	4	5
6	Videoconferencing, ví dụ: *ooVoo, Skype, v.v…*	1	2	3	4	5
7	Trò chuyện qua mạng Internet, ví dụ: *Skype, Viber, Zalo, v.v…*	1	2	3	4	5
8	Blogs	1	2	3	4	5
9	Các trang mạng xã hội, ví dụ: *Facebook, MySpace, Bebo, v.v…*	1	2	3	4	5

	Tôi cho rằng kỹ thuật (technologies) có thể giúp tôi…					
10	nói tiếng Anh tốt hơn.	1	2	3	4	5
11	đọc hiểu tiếng Anh tốt hơn.	1	2	3	4	5
12	cải thiện kỹ năng nghe.	1	2	3	4	5
13	viết tiếng Anh tốt hơn.	1	2	3	4	5
14	lên kế hoạch và tổ chức việc học của mình tốt hơn.	1	2	3	4	5
15	kiểm soát tốt hơn việc học của mình.	1	2	3	4	5
	Tôi cảm thấy kỹ thuật (technologies)…					
16	giúp người học tiếp cận được cách sử dụng tiếng Anh thực tế hơn.	1	2	3	4	5
17	có thể giúp thúc đẩy việc học tiếng Anh của tôi hơn.	1	2	3	4	5
18	giúp tôi hòa nhập tốt hơn vào thế giới mà tôi đang sống.	1	2	3	4	5
19	có thể giúp cho việc học tiếng Anh dễ tiếp cận và ít đáng sợ với tôi.	1	2	3	4	5
20	được dùng cho việc học tiếng Anh sẽ gia tăng trong tương lai.	1	2	3	4	5

PHẦN 3: Tính chủ động của người học trong việc học tiếng Anh

Hướng dẫn: Trên thang điểm từ 1 (hoàn toàn phản đối) đến 5 (hoàn toàn đồng ý), hãy chọn chỉ số phù hợp nhất đối với cá nhân anh/chị.

1	2	3	4	5
Hoàn toàn không đồng ý	Không đồng ý	Trung lập	Đồng ý	Hoàn toàn đồng ý

1	Tôi thích làm việc vì mục tiêu chung của nhóm.	1	2	3	4	5
2	Tôi thích tham gia các hoạt động thảo luận nhóm.	1	2	3	4	5
3	Tôi chú trọng đến việc duy trì sự hòa hợp giữa các thành viên với nhau.	1	2	3	4	5
4	Tôi thường ngại giơ tay phát biểu vì tôi sợ mình nổi trội hơn các bạn.	1	2	3	4	5
5	Tôi xem thầy cô là người quyền lực trong lớp.	1	2	3	4	5
6	Theo tôi, kiến thức là những gì thầy cô truyền đạt cho mình chứ không phải do mình tự khám phá.	1	2	3	4	5
7	Tôi mong thầy cô là người chịu trách nhiệm đánh giá khối lượng kiến thức mà mình học được, chứ không phải chính mình.	1	2	3	4	5
8	Tôi cảm thấy có động lực mạnh để làm những bài tập/hoạt động khi tôi hiểu được giá trị thực tế của nó.	1	2	3	4	5
9	Tôi cảm thấy hào hứng để làm việc hơn khi sự thành công của mình đóng góp cho mục tiêu hay uy tín của các nhóm, ví dụ: gia đình, bạn học.	1	2	3	4	5
10	Tôi rất lo lắng đến việc học tốt và làm đúng những gì tôi cần phải làm.	1	2	3	4	5
11	Khi được yêu cầu sử dụng các kỹ thuật mà tôi chưa từng sử dụng, tôi cảm thấy ngại nhưng vẫn cố gắng học cách sử dụng chúng.	1	2	3	4	5
12	Tôi xem bài trước khi đến lớp.	1	2	3	4	5
13	Tôi hoàn thành bài tập đúng hạn.	1	2	3	4	5
14	Tôi tham gia các hoạt động ngoại khóa (như câu lạc bộ nói tiếng Anh) để trau dồi tiếng Anh của mình.	1	2	3	4	5
15	Tôi không tự chọn sách hoặc tìm bài tập phù hợp với khả năng của mình.	1	2	3	4	5
16	Nếu tôi làm sai trong khi học, tôi thường cho qua.	1	2	3	4	5
17	Tôi chưa tận dụng tốt thời gian rảnh rỗi của mình cho việc học tiếng Anh.	1	2	3	4	5
18	Tôi ghi lại cẩn thận những gì tôi trải qua trong quá trình học, như viết nhật ký hoặc soạn bài ôn tập...	1	2	3	4	5
19	Tôi không tự đánh giá trình độ của mình qua những đề thi do tôi tự tìm kiếm.	1	2	3	4	5
20	Người học không nên tham gia vào việc biên soạn giáo án cùng với giáo viên.	1	2	3	4	5

PHẦN 4: Sự tự tin vào khả năng thành công trong việc học tiếng Anh

Hướng dẫn: Trên thang điểm từ 1 (hoàn toàn phản đối) đến 5 (hoàn toàn đồng ý), hãy chọn chỉ số phù hợp nhất đối với cá nhân anh/chị.

1	2	3	4	5
Hoàn toàn không đồng ý	Không đồng ý	Trung lập	Đồng ý	Hoàn toàn đồng ý

	Tôi tin rằng tôi có thể…					
1	giới thiệu ai đó và nói những câu chào hỏi cũng như tạm biệt bằng tiếng Anh.	1	2	3	4	5
2	hỏi và trả lời những câu đơn giản, chủ động giao tiếp bằng tiếng Anh căn bản trong những tình huống khẩn thiết hoặc về những đề tài quen thuộc bằng tiếng Anh.	1	2	3	4	5
3	kể lại tóm tắt một truyện ngắn hay một bộ phim nào đó và nói lên cảm nghĩ của mình về nó bằng tiếng Anh.	1	2	3	4	5
4	tham gia tích cực vào các cuộc thảo luận thông thường và đưa ra nhận xét cũng như giải thích quan điểm của mình một cách rõ ràng bằng tiếng Anh.	1	2	3	4	5
5	tham gia tranh luận một cách tích cực bằng tiếng Anh.	1	2	3	4	5
6	viết email bằng tiếng Anh yêu cầu ai đó làm rõ một vấn đề nào đó.	1	2	3	4	5
7	viết email bằng tiếng Anh để lên kế hoạch tương lai với bạn bè của mình.	1	2	3	4	5
8	viết ra những cảm xúc/tình cảm của mình bằng tiếng Anh.	1	2	3	4	5
9	hiểu nội dung email bằng tiếng Anh đề nghị tôi làm một việc nào đó.	1	2	3	4	5
10	đọc lướt các mẫu quảng cáo trên báo bằng tiếng Anh và biết được những mẫu thông tin nào quan trọng với mình.	1	2	3	4	5
11	hiểu được suy nghĩ cũng như hành động của các nhận vật trong một truyện ngắn bằng tiếng Anh, và hiểu được ý nghĩa khái quát cũng như những tình tiết của câu truyện.	1	2	3	4	5
12	hiểu được nội dung chính của hầu hết các phim truyền hình bằng tiếng Anh.	1	2	3	4	5
13	xem một bộ phim bằng tiếng Anh, phân tích, và giải thích bộ phim đó bằng tiếng Anh.	1	2	3	4	5
14	viết những lời chỉ dẫn cơ bản bằng tiếng Anh.	1	2	3	4	5
15	viết một bài luận bằng tiếng Anh miêu tả cốt truyện của một bộ phim hoặc truyện ngắn nào đó.	1	2	3	4	5
16	viết một bài luận phân tích một vấn đề nào đó bằng tiếng Anh.	1	2	3	4	5
17	viết một bức thư bằng tiếng Anh gửi cho tổng biên tập báo thể hiện sự đồng tình hay phản đối của mình về một quan điểm nào đó trên báo.	1	2	3	4	5
18	viết một bài tiểu sử ngắn về một người nổi tiếng bằng tiếng Anh.	1	2	3	4	5
19	viết một bài luận thuyết phục người khác bằng tiếng Anh.	1	2	3	4	5
20	miêu tả bản thân, gia đình hay người khác bằng tiếng Anh.	1	2	3	4	5
21	thuyết trình ngắn bằng tiếng Anh, có sử dụng kỹ thuật, ví dụ PowerPoint khi cần thiết.	1	2	3	4	5
22	thuyết trình bằng tiếng Anh và sử dụng gần như hoàn hảo các thì hiện tại, quá khứ và tương lai.	1	2	3	4	5
23	giải thích và giữ vững lập trường của mình bằng cách đưa ra những lý lẽ cũng như nhận xét phù hợp bằng tiếng Anh.	1	2	3	4	5

APPENDIX D. INTERVIEW QUESTIONS

1- What tools have you ever used for your English-language learning?
Công cụ nào bạn sử dụng nhằm hỗ trợ việc học tiếng Anh của mình?

2- Would you please elaborate your attitudes toward the use of ICTs for English-language learning?
Bạn vui lòng cho biết cụ thể thái độ của bạn đối với việc sử dụng công nghệ thông tin viễn thông vào việc học tiếng Anh của mình?

    a. What are the reasons for supporting the use of ICTs in English language learning? *Bạn ủng hộ việc sử dụng công nghệ thông tin viễn thông vào việc học tiếng Anh của mình vì những lý do nào?*

    b. Would you please share your thoughts on why you take an attitude of neutrality toward the use of some communication and social networking technologies for English-language learning?
Bạn vui long chia sẽ suy nghĩ của mình về việc bạn chưa thể hiện thái độ rõ ràng về việc sử dụng công nghệ thông tin vào việc học tiếng Anh?

    c. Would you please share your thoughts on why you have negative attitudes toward the use of some communication and social networking technologies for English-language learning?
Bạn vui long chia sẽ suy nghĩ của mình về thái độ không tán thành việc sử dụng công nghệ thông tin vào việc học tiếng Anh?

    d. What has driven you to think that ICTs are not useful affordances for the improvement of the expressive aspect of English language (Speaking and Writing skills)?
Do đâu bạn nghĩ rằng công nghệ thông tin viễn thông không có ích cho việc cải thiện kỹ năng nói và viết trong tiếng Anh?

3- What are the reasons for being neutral about the use of a specific type of technology (e.g., Skype, blogs) for ELL?
Bạn giữ thái độ trung tính về việc sử dụng một công cụ kỹ thuật cụ thể, ví dụ như Skype hay blog?

APPENDIX E. ITEM DISCRIMINATION INDICES

Part 1. Item-Total Statistics for Items on Attitudes toward the Use of ICTs in ELL

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
S2-Q1	69.64	97.199	.489	.329	.883
S2-Q2	70.01	98.615	.406	.284	.886
S2-Q3	70.07	97.604	.431	.300	.885
S2-Q4	69.73	97.934	.459	.267	.884
S2-Q5	70.10	98.102	.447	.263	.885
S2-Q6	70.37	98.010	.460	.332	.884
S2-Q7	70.14	97.219	.471	.377	.884
S2-Q8	70.57	98.044	.410	.360	.886
S2-Q9	70.11	96.448	.439	.337	.885
S2-Q10	70.03	95.009	.589	.435	.880
S2-Q11	69.86	95.891	.610	.467	.880
S2-Q12	69.71	97.069	.549	.398	.882
S2-Q13	70.16	96.554	.541	.389	.882
S2-Q14	70.24	96.283	.539	.537	.882
S2-Q15	70.24	96.758	.499	.518	.883
S2-Q16	69.88	96.540	.559	.440	.881
S2-Q17	69.88	96.311	.599	.500	.880
S2-Q18	70.04	96.903	.495	.335	.883
S2-Q19	69.92	96.939	.553	.432	.881
S2-Q20	69.73	96.854	.538	.407	.882

Part 2. Item-Total Statistics for Items on Learner Autonomy in ELL

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
S3-Q1	62.20	58.300	.276	.363	.716
S3-Q2	62.19	58.084	.308	.389	.714
S3-Q3	61.99	58.800	.268	.310	.717
S3-Q4	63.17	56.370	.307	.266	.714
S3-Q5	63.04	55.939	.349	.269	.710
S3-Q6	63.66	55.646	.378	.449	.707
S3-Q7	63.39	55.455	.362	.369	.708
S3-Q8	61.86	60.044	.157	.324	.725
S3-Q9	61.92	58.975	.234	.352	.720
S3-Q10	62.55	57.396	.278	.112	.716
S3-Q11	62.21	57.991	.298	.186	.715
S3-Q12	62.60	58.171	.272	.346	.717
S3-Q13	62.40	58.591	.260	.360	.718
S3-Q14	62.73	57.714	.271	.238	.717
S3-Q15	63.13	56.110	.353	.321	.709
S3-Q16	63.39	56.980	.287	.351	.716
S3-Q17	62.30	58.493	.218	.145	.721
S3-Q18	62.84	56.991	.314	.224	.713
S3-Q19	62.84	57.255	.297	.161	.715
S3-Q20	63.24	56.833	.282	.257	.716

Part 3. Item-Total Statistics for Items on Self-efficacy in ELL

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
S4-Q1	68.16	264.664	.324	.478	.954
S4-Q2	68.34	259.782	.492	.578	.952
S4-Q3	69.10	251.146	.708	.587	.950
S4-Q4	69.10	252.238	.704	.634	.950
S4-Q5	69.16	250.941	.726	.648	.950
S4-Q6	69.06	250.106	.736	.653	.950
S4-Q7	69.12	251.269	.708	.631	.950
S4-Q8	68.82	253.685	.638	.502	.951
S4-Q9	68.70	253.972	.637	.550	.951
S4-Q10	68.61	256.901	.572	.508	.952
S4-Q11	68.80	254.530	.659	.561	.951
S4-Q12	69.03	253.085	.647	.523	.951
S4-Q13	69.34	253.024	.677	.620	.950
S4-Q14	68.83	253.720	.661	.511	.951
S4-Q15	69.30	249.275	.762	.687	.949
S4-Q16	69.34	249.689	.746	.707	.950
S4-Q17	69.39	250.905	.707	.683	.950
S4-Q18	69.23	250.459	.727	.638	.950
S4-Q19	69.33	251.564	.716	.665	.950
S4-Q20	68.67	254.735	.626	.518	.951
S4-Q21	68.96	249.883	.709	.558	.950
S4-Q22	69.19	250.332	.705	.604	.950
S4-Q23	69.21	251.054	.699	.610	.950

APPENDIX F. COMMON FACTOR ANALYSIS

Kaiser-Meyer-Olki **and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.815
Bartlett's Test of Sphericity	Approx. Chi-Square	4227.380
	df	190
	Sig.	.000

Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.505	17.526	17.526	2.949	14.744	14.744	2.511
2	3.257	16.283	33.809	2.656	13.281	28.025	1.942
3	1.661	8.304	42.113	1.052	5.259	33.284	2.126
4	1.159	5.797	47.910	.601	3.003	36.287	2.376
5	1.047	5.235	53.145	.402	2.008	38.295	2.189
6	.887	4.435	57.580				
7	.844	4.221	61.800				
8	.791	3.957	65.757				
9	.758	3.789	69.546				
10	.736	3.679	73.224				
11	.681	3.404	76.628				
12	.659	3.295	79.923				
13	.608	3.041	82.964				
14	.598	2.988	85.952				
15	.566	2.829	88.781				
16	.497	2.485	91.266				
17	.489	2.447	93.714				
18	.449	2.247	95.960				
19	.421	2.105	98.065				
20	.387	1.935	100.000				

Extraction Method: Principal Axis Factoring.
a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

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