College Students' Perceived Self-efficacy and Use of Information and Communication Technologies in EFL Learning

Hong Ngo Vietnam-USA Society English Centers, Vietnam

Ariana Eichelberger University of Hawaii at Manoa, USA

ABSTRACT

This study examines Vietnamese, non-English major college students' perceived self-efficacy and their comfort in using information and communication technologies (ICTs) in learning English as a foreign language. A survey was completed by 975 students. Findings revealed that half of the students ranked themselves as basic EFL users, and fewer rated themselves as independent users or proficient users. Inferential statistics analysis found students' perceived self-efficacy differed by their comfort levels in using ICTs. Specifically, those with a high to very high comfort level were more self-efficacious in their learning of English compared to those with an average or low level. These findings may help explain the issue of limited proficiency in EFL learning among non-English major college students in Vietnam, in relation to how comfortable they are using ICTs. Further investigation is needed however to clarify the relationship between technology comfort levels and self-efficacy among EFL learners.

Keywords: EFL learning, ICT, Language Learning, Self-efficacy

INTRODUCTION

Perceived self-efficacy is one's belief in his or her capabilities to accomplish a specific task (Bandura, 1984). Learners with high self-efficacy tend to engage more in learning tasks and achieve higher scores than those with low self-efficacy (Raoofi et al., 2012), and low self-efficacy has been associated with academic failure (Cinkara, 2009). Learners' self-efficacy can be improved through the use of technology (Zheng et al., 2009). Therefore, integrating ICTs into English as a foreign language (EFL) learning could be an approach to address the limitations of traditional EFL learning settings and improve English linguistic and pragmatic competence in learners (Singh, 2010).

Self-efficacy is predictive of learners' success in language learning (Cotterall, 1999; Cinkara, 2009; Mutlu et al., 2019) and when lacking, can be an important variable explaining learners' limited proficiency in a target language (Cotterall, 1999; Mills et al., 2007; Raoofi et al., 2012). In world-languages learning in general, learners' self-efficacy can be examined in terms of specific skill or content areas: Communication, Cultures, Connections, Comparisons, and Communities (Mills, 2009). This study investigated the self-efficacy of students in Communication and if it differed by their comfort levels of using ICTs. Specifically, self-efficacy in EFL was examined using the three levels of foreign language proficiency: basic, independent, and proficient as identified by the Council of Europe (2001). The study sought to further understand the persistently limited English proficiency levels among Vietnamese EFL learners (Nguyen, 2018; Pham & Bui, 2019). The study was guided by the following two questions:

- 1. To what degree are Vietnamese, non-English major college students self-efficacious in EFL learning?
- 2. How do Vietnamese, non-English major college students' self-efficacy differ by their comfort levels in using information and communication technologies in EFL learning?

BACKGROUND

Self-efficacy and Failure

Students with differing levels of self-efficacy interpret failures differently. Those with high selfefficacy tend to view their failures as a result of insufficient efforts made on tasks; whereas those with low self-efficacy attribute their failures to deficient abilities (Bandura, 1984). How one views failure may impact how much effort one will put into learning and low self-efficacious students avoid learning tasks. Hence, self-efficacy may impact one's thinking, motivation, feelings, behavior and actions.

Sources of Self-efficacy

The four main ways to build self-efficacy are through performance accomplishments, vicarious experiences, verbal persuasion, and physiological states (Bandura, 1997). Performance accomplishments are based on personal mastery experiences and are seen as the most influential source of efficacy expectations. Successes or repeated failures raise or lower mastery expectations, respectively; and their effects are more powerful if mishaps occur at an early stage in an event. Repeated successes help build strong efficacy expectations that at a later time can mitigate occasional failures and subsequently strengthen self-motivated persistence (Bandura, 1977).

Vicarious experiences, also known as modeling (Bandura, 1977) are the second most effective source of efficacy expectations (Chowdhury et al., 2002). Modeling builds self-efficacy through inferences from social comparison or self-assessing one's own capabilities in relation to others' (Bandura, 1977). Social persuasion is the third source of efficacy expectations. One's self-efficacy is influenced by others' verbal judgments or feedback from others on one's capability of completing given activities (Bandura, 1994). Physiological states are the fourth source of efficacy expectations (Chowdhury et al., 2002). One's physical and emotional wellbeing are indicative of one's strengths and vulnerability (Bandura, 1977). Physical debility, such as fatigue or pain, as well as anxiety, stress, fear and negative moods may be detrimental to one's self-efficacy beliefs (Bandura, 1994; Pajares, 2002).

Self-efficacy and Foreign Language Learning

Self-efficacy is predictive of learners' performance. In their meta-analysis of 24 studies, Raoofi, Tan & Chan (2012) found a relationship between self-efficacy and overall course performance as measured by final course grades, as well as between self-efficacy and proficiency in specific foreign language skills, specifically the receptive skills of listening and reading. In research regarding selfefficacy and language learning, the receptive language skills, listening and reading, are more commonly examined as they use objective measurements that are easily used with large populations. The expressive skills, speaking and writing, are not as easily measured and therefore not as frequently found in the research into the relationship between self-efficacy and language learning. However, in research regarding expressive skills it has been found that low self-efficacy can negatively impact students' ability to perform skills-specific tasks (Moreno & Kilpatrick, 2018), specifically second language writing (Zabihi, 2018) and speaking English in class (Cao & Philp,

(Yilmaz, 2010)

2006) and that EFL students with higher levels of self-efficacy use a variety of learning strategies

Self-efficacy and use of Information and Communication Technologies (ICTs)

To be successful, language learners must engage in additional practice and independent work outside of the classroom. Access to language inputs has increased due to diverse forms of technology for language learning including computers, TV, and CDs/DVDs (Bahrani et al., 2014). Online language learning via social networking websites such as Livemocha (Lloyd, 2012) or italki (Ngo & Eichelberger, 2019) have been shown to empower learners to regularly engage with speakers of their target language outside of traditional learning contexts (Lloyd, 2012; Ngo & Eichelberger, 2019). Other online tools such as email, chat, and video offer pedagogical benefits as they encourage learner motivation and autonomy and provide learners with opportunities to participate in their target socio-cultural contexts (Singh, 2010).

The use of ICTs in foreign-language learning has been found to enhance learner self-efficacy. For example, Malay EFL learners' self-efficacy in learning English grammar increased significantly when using multimedia language courseware (Hashemyolia et al., 2015), and students' self-efficacy when learning Chinese increased after participating in collaborative reading, writing and speaking activities conducted in the virtual world Second Life.

METHOD

This study targeted Vietnamese college students majoring in disciplines other than English. Data were collected using a 28-item survey. There were four demographic questions, and three questions regarding Internet/computer access and comfort levels using ICTs. The remaining 21 questions were adopted from the Communication segment of Mills' 2009 instrument measuring self-efficacy in the five areas of the Standards for Foreign Language Learning (Communication, Cultures, Connections, Comparisons, and Communities). The questions were grouped into EFL proficiency levels (basic, independent and proficient) as defined by the Common European Framework of Reference for Languages (CEFR), an international standard for describing language proficiency levels (Council of Europe [Online]). CEFR defines the official standards of Vietnam's foreign language education sector (Ngo, 2017, p. 7). The framework is used as the basis for "developing foreign language curricular, textbooks, teaching plans and assessment criteria at all levels of education to ensure their continuity" (Vietnam Government, 2008, p. 2).

Internal consistency of the survey was tested using the current sample and reliability was above .80. The survey's directions were translated into Vietnamese and the back-translation method (Desimone & Le Floch, 2004) was applied to the translated version to ensure reliability and validity.

The survey was completed by 1,012 students. Results from 37 were excluded as they did not belong to the sampling frame (18 years old or above, currently residing in Vietnam and not majoring in English). Therefore, responses from 975 students were used for analysis. Males represented 48.9% (n = 477), females represented 50.9% (n = 496), and one student did not reveal his or her gender. The majority had access to computers (79.2%) and Internet (82.8%) at home.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS, version 26.0). Both descriptive and inferential statistics were utilized to answer the research questions. Descriptive statistics summarized demographics, self-efficacy and comfort levels of using ICTs. The analysis of variance (ANOVA) technique was used to determine if students' perceived self-efficacy differed by their comfort levels in using ICTs.

FINDINGS

Students' Perceived Self-efficacy

The overall mean score of self-efficacy was 3.17 (SD = .722), slightly above the mid-point on a fivepoint scale, with 1 being students' disagreement that they were self-efficacious in EFL learning and 5 indicating maximum agreement. Specifically, 39.5% confirmed that they were self-efficacious in their EFL learning, one-third (33.3%) expressed neutrality, and less than one-third (27.2%) were not self-efficacious.

As seen in Table 1, students' self-efficacy decreased as EFL proficiency levels increased. Slightly more than half of the students (50.5%) ranked themselves as basic users of English with regard to their self-efficacy. Thirty-seven percent of participants ranked themselves as independent (or intermediate) EFL users and 31% of the self-efficacious learners identified as a proficient (or advanced) EFL user. A number of students were unsure about their self-efficacy. At the independent users level, this proportion was 35.1%, proficient EFL users 34.4%, and basic EFL users 29.4%. Of those who disagreed that they were self-efficacious in their EFL learning, the largest group (34.6%) were at the proficient EFL user level, followed by the 27.8% at the independent EFL user level, and finally, 20.1% at the basic EFL user level.

Table 1: Self-Efficacy by EFL Proficiency Levels

Proficiency Levels	M (SD)	1-2(*) (%)	3 ^(*) (%)	4-5 ^(*) (%)
Basic Users	3.43 (.707)	20.1	29.4	50.5
Independent Users	3.13 (.758)	27.8	35.1	37.1
Proficient Users	2.96 (.858)	34.6	34.4	31

^{(*) 1-2:} strongly disagree - agree; 3: neither disagree nor agree; 4-5: strongly agree

Tables 2, 3 and 4 summarize how self-efficacious students ranked themselves on specific tasks. As shown in Table 2, not all students agreed or strongly agreed that they were self-efficacious or able to perform the EFL tasks and ranked themselves as basic users. On the most basic task, introducing and greeting someone, 71.3% felt they could do this task. On two tasks in particular write a short biography of a well-known person (item 4, 28.4%) and use present, past, and future tenses in presentations (item 6, 31.2%) - under 50% of the students indicated that they were selfefficacious.

Table 2: Proficiency Level: Basic EFL Users

No	Items	1-2	3* (%)	4-5*
		(%)		(%)
Basic	Users (<i>M</i> = 3.43, <i>SD</i> = .707)			
1	I can introduce someone and use basic greetings and leave- taking experessions.	7.4	21.3	71.3
2	I can ask and answer simple questions, initiate and respond to simple statements in areas of immediate need or on familiar topics.	8.8	26.3	64.9
3	I can skim short advertisements in newspapers and identify important pieces of information.	14.6	29.9	55.5
4	I can write a short biography of a well-known person.	37.3	34.3	28.4

5 I can describe myself, my family and other people. 16.9 31.2 51.9
6 I can give prepared presentations with near full control of present, past, and future tenses. 35.4 33.2 31.2

Average

20.1

29.4

50.5

1-2*: Strongly disagree (1) - Disagree (2); 3*: Neither disagree nor agree; 4-5*: Agree (4) - Strongly agree (5)

Table 3 summarizes how self-efficacious students were regarding language tasks used to assess learners' language proficiency at the independent EFL users level. On average, students were split across the categories not self-efficacious, neutral and self-efficacious. Only on the task of understanding an email providing instructions on a particular task (item 9), did half or more (50.3%) of the students feel self-efficacious. On many of the language tasks, items 7, 12, 15, and 16, students did not feel self-efficacious. Of those four items, describing the plot of a film or short story in a composition (item 16) was reported as the most difficult, with only one-fourth (25.5%) reporting they could successfully complete it. On item 15, only 29.3% of the students felt they could successfully complete the task.

Table 3: Proficiency Level: Independent EFL Users

No	Items	1-2	3*	4-5*
		(%)	(%)	(%)
Indep	Independent Users $(M = 3.13, SD = .758)$			
7	I can write an email to make future plans with a friend.	31.4	37.6	31
8	I can express my feelings and emotions in writing.	22	32	46
9	I can understand an email that provides me with information about a particular task.	18	31.7	50.3
10	I can read short stories and follow the flow of thoughts and actions and thus understnad the overall meaning and many details.	19.2	36.1	44.7
11	I can relate the plot of a book or film and describe my reactions.	31.2	38	30.8
12	I can take an active part in informal discussions in familiar contexts, commenting and explaining my point of view clearly.	31.7	36.6	31.7
13	I can understand the main ideas of most TV shows.	29.4	33.8	36.8
14	I can write simple directions.	19.9	35.3	44.8
15	I can account for and sustain my opinions in discussion by providing relevant arguements and comments.	36	34.7	29.3
16	I can describe the plot of a film or short story in a composition.	39.2	35.3	25.5
	Average	27.8	35.1	37.1

1-2*: Strongly disagree (1) - Disagree (2); 3*: Neither disagree nor agree; 4-5*: Agree (4) - Strongly agree (5)

As seen in Table 4 below, at the proficient EFL users level, the overall average self-efficacy ratings were almost equally split. The number of students who did not believe they could complete the tasks was 34.6%, close to those who were neutral, 34.4%. Fewer, 31%, felt they could complete the tasks. None of the tasks were returned with more than 40% of the students believing that they could accomplish them, except item 18, in which 40.9% felt they could give a brief, organized oral presentations using visual and technological support (that is, PowerPoint). Writing a persuasive essay (item 21) or an analytical essay (item 20) were challenging for the majority of students as indicated by less than 25% of students reporting they could perform either task.

Average

34.6

No	Items	1-2 (%)	3* (%)	4-5* (%)
Profic	cient Users (M = 2.96, SD = .858)			
1	I can actively participate in a debate.	34.6	33.3	32.1
2	I can give a brief organized oral presentation using visual and technological support (i.e. PowerPoint) when appropriate.	28	31.1	40.9
3	I can ask for clarification in an email.	29.8	36	34.2
4	I can write an analytical essay.	40.2	35.2	24.6
5	I can write a persuasive essay.	40.3	36.3	23.4

Table 4: Proficiency Level: Proficient EFL Users

1-2*: Strongly disagree (1) - Disagree (2); 3*: Neither disagree nor agree; 4-5*: Agree (4) -Strongly agree (5)

Students' Comfort Levels in using ICTs

The majority of students indicated they were comfortable using ICTs for EFL learning. Specifically, 40.6% rated themselves with "high to very high" comfort levels, 49.5% rated their comfort level using ICTs as "average", and those with "low to very low" comfort levels accounted for 9.5% of students. Very few students, less than 1% (0.4%) reported that they were not at all comfortable.

Self-efficacy and Comfort Levels

To examine if students' comfort levels in using ICTs had a significant impact on their perceived selfefficacy in becoming a basic, independent or proficient user of EFL, a one-way analysis of variance (ANOVA) was conducted after the assumption of equal variances had been checked using the Levene's test. The test showed that the variances were not significantly different, indicating equal variances among the comfort levels in using ICTs. The ANOVA results then revealed significant values in the three F tests, $F_{Basic\ Users}$ (3,969) = 23.512 (p < .001), $F_{Independent\ Users}$ (3,969) = 27.316 (p < .001), and $F_{\text{Proficient Users}}(3,969) = 17.855 (<math>p < .0001$), implying that the means of the four comfort levels in using ICTs were unequal.

Since the F-tests showed statistically significant differences in the means between the groups as a whole, pairwise comparisons of the mean using Tukey's Honestly Significant Difference procedure were performed. The analysis found two significant comparisons for each of the proficiency levels: (1) between the high to very high and the average comfort level groups, and (2) between the high to very high and the low to very low comfort level groups. In other words, students with a high comfort level were significantly more self-efficacious in their EFL proficiency than those who were very low to average. The other comparisons were not significant (ps > 0.1), indicating that students' self-efficacy in EFL proficiency did not significantly differ between those with an average comfort level and those with a low to very low comfort level.

DISCUSSION

This section discusses two major findings: students' overall low self-efficacy and the relationship between students' comfort level in using ICTs and their perceived self-efficacy in EFL learning.

Self-efficacy and EFL Learning

Only 39.5% of the students were self-efficacious in their English learning. How students think about their ability to complete a learning task impacts how they regulate their approach to that task (Tilfarliglu & Cinkra, 2009) and determine their engagement and effort exerted (Schunk, 2003). Individual self-efficacy could be affected by past performance, vicarious experiences, verbal persuasion, and physiological states when viewed from a social cognitive perspective (Bandura, 1997).

Low self-efficacy is characterized by low aspirations and weak commitments to goals. Individuals with a low self-efficacy become frustrated when facing difficult challenges and subsequently view those challenges as threats to be avoided (Siritararatn, 2013). Low self-efficacy foreign language students tend to attribute failures to low ability, a factor beyond their control (Graham, 2006; Hsieh, 2004; Hsieh & Kang, 2010). In learning a foreign language, low self-efficacious students have also been found to view the ability to learn a language as a gift (Genç et al., 2016) and tend to remain unresponsive to productive tasks (Sener & Erol, 2017).

How a language learner perceives their abilities, their self-efficacy, has been found to be a stronger predictor of EFL performance than anxiety or perceived value of English language and culture (Chen, 2007). Highly efficacious students are confident they can achieve, challenge themselves with goals and commit to achieve them, actively work to avoid failure, show higher levels of resilience and attribute failure to internal factors that they can change (Ching, 2002). If self-efficacy is an influential factor in language learning, how might self-efficacy be enhanced in language learners? There is evidence that self-efficacy can be strengthened in students who are taught specific language learning strategies then given feedback on how those strategies related to learning outcomes (Graham, 2007; Graham, 2011). Conversely, language learners who are more self-efficacious tend to use more and varied learning strategies (Wong, 2005). Language learning students, given the opportunity to teach each other in class, also show heightened levels of self-efficacy (Mantasiah, 2018), as have students who are given opportunities to self-regulate their learning (Mizumoto, 2013).

Perceived EFL Self-efficacy and ICT Comfort Levels

Students' perceived EFL self-efficacy differed by their comfort levels in using ICTs. Those with a "high to very high" ICT comfort level were found to be more self-efficacious than those with an "average" or "low to very low" comfort level. Students with higher levels of self-efficacy have been found to not avoid difficult tasks and those who are more confident in their computer skills were also more self-efficacious in language learning (Chen, 2014). Previous studies have found that a variety of technology tools can be used to improve EFL learning outcomes. Email has been successfully used for EFL students to participate in cross-cultural exchanges with foreign peers (Erkan, 2013), and blogs have been a successful venue for practicing EFL writing skills (Incecay & Genc, 2014). The use of both these tools also enhanced self-efficacy in students' writing skills (Erkan, 2013; Inceçay & Genç, 2014).

CONCLUSION

These findings are of importance to the improvement of students' EFL learning with the use of ICTs. In this study, many Vietnamese college students majoring in academic disciplines other than English did not believe in their capabilities to learn English well and were not comfortable in using ICTs for EFL learning. This finding raises concern for students' EFL learning and could to some degree explain the limited EFL proficiency among Vietnamese, non-English major college students. Those who reported a "high to very high" comfort level were more self-efficacious in their EFL learning than those with a "low to very low" or "average." This suggests that it is vital to foster

students' self-efficacy in both ICT use and EFL learning. Providing opportunities for students to use technology may improve comfort levels with technology, and if those experiences are within the context of language learning, may have an even greater impact.

This study focused its analysis on Vietnamese non-English major college students, and therefore the generalizability of the findings to other populations may be limited. Other populations may have different qualities and characteristics, for example, in motivation and anxiety toward EFL learning (Quadir, 2011). Future research should examine why Vietnamese, non-English major college students do not believe in their capabilities to learn English well and should confirm the effects of students' ICT comfort levels on perceived self-efficacy.

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