

**THE RELATIONSHIP OF GRADE 7 STUDENTS' GENERAL ICT
USE AND ATTITUDES TOWARDS ICT USE FOR SCHOOL
RELATED ACTIVITIES WITH ICT SELF-EFFICACY IN ELEVEN
ENGLISH PROGRAM SCHOOLS OF THAILAND**

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Abstract: The purpose of this study was to determine the relationship of Grade 7 students' general ICT use and attitudes towards ICT use for school-related activities to ICT self-efficacy in eleven English Program schools of Thailand. An adapted version of the OECD Programme for International Student Assessment 2012, Information and Communication questionnaire was used to collect data from 559 Grade 7 English Program (EP) secondary students attending public or private (i.e., non-international) secondary schools within Central Thailand who were enrolled in an English Program during the first term of the 2017-2018 academic school year. Descriptive statistics and multiple correlation coefficients were used to analyze the data. To encourage self-access learning and provide the type of communicative and collaborative tools to EP students that promote 21st century learning skills, this researcher developed a Learning Management System (LMS) system, Icon Educate. Every incoming Grade 7 class enrolled in a participating English Program was given training on how the system can be used as well as an introduction to its content. It was found that there was a strong and positive relationship between students' general ICT use for school-related activities and their attitudes towards ICT use for school-related activities. Additionally, there was a moderately strong and negative relationship between students' general ICT use for school-related activities and their CT self-efficacy.

Keywords: Level of ICT Use, Attitudes Towards ICT, ICT Self-Efficacy, ICT, Thailand English Program

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Introduction

The appropriate educational environment and resources coupled with meaningful learning opportunities are critical to students' development and, therefore, their ability to succeed in the information age. As such, it is imperative that teachers assist students to develop their digital literacy while also providing a variety of learning opportunities to motivate each learner. Teachers must prepare students for a more competitive workforce by providing them with the Information and Communication Technology (ICT) and 21st century skills necessary to succeed (Jones-Kavalier & Flannigan, 2008).

The Thailand National Education Act (NEA) of B.E. 2542 (1999) was enacted on August 14th, 1999 to provide educational reform for Thailand. The primary goal of the NEA was to help bring Thailand forward into a knowledge society and allow Thais to be more competitive in the global workforce arena. Therefore, the NEA stressed the need for Thai people to be lifelong learners and capable of self-learning on a continuous basis. In addition, the NEA reiterated numerous times the importance of integrating technology into the national curriculum.

This commitment to lifelong learning and educational development was reinforced by the Thai Basic Education Core Curriculum, hereafter referred to as the basic core curriculum (2008). One goal of the basic core curriculum was to reiterate the importance of education, lifelong learning and the transformation of Thai society into a knowledge society. The NEA and the basic core curriculum by the Thai Ministry of Education were in line with the global trend of developing 21st century skills to develop a knowledge society dedicated to lifelong learning through digital literacy and technology use (Varis, 2011).

Literacy can be defined to mean more than just the ability to read and write with clarity. With the advent of personal computers, mobile smart phones and the internet, digital literacy is now as important as traditional literacy skills. Digital literacy consists of different aspects such as technological literacy, ICT literacy and information literacy (Voogt, Dede & Erstad, 2011). As such, the ICT skills necessary to function in the information/technology age are a part of the modern classroom. The emphasis today is on 21st century learning skills. When considering 21st century learning skills, the National Education Association (NEA) *Educator's Guide to the 4 C's* (2012) noted the 4 C's as critical thinking and problem solving, communication, collaboration, and creativity and innovation. Technology is a crucial aspect of 21st century learning given technology's ubiquitous presence in our lives. The 21st century learning environment is not just about transferring facts and knowledge. It is about empowering learners to use knowledge effectively.

To encourage self-access learning and provide the type of communicative and collaborative tools to EP students that promote 21st century learning skills, this researcher developed a Learning Management System (LMS). Every incoming Grade 7 class enrolled in a participating English Program was given training on how the system can be used as well as an introduction to its content. This LMS system provides various collaboration and communication tools designed for both math and science, which were available for free to Grades 7 to 9 EP students in the eleven schools via an LMS system at IconEducate.com. The goal of the system was to meet Provision 2.1.4 of the National Education Standards for students to be provided instructional media and have access to all types of ICT for self-learning and participatory learning. The availability of these free eLearning resources was to encourage personalized self-learning by Thai EP students outside of the class in line with Provision 1.3.1 of the National Education Standards.

Objectives

The objectives listed were considered when identifying the purpose of this study.

1. To determine the level of general ICT use for school related activities of Grade 7 English Program students in eleven schools in Thailand.
2. To determine the level of attitudes towards ICT use for school related activities of Grade 7 English Program students in eleven schools in Thailand.
3. To determine the level of ICT self-efficacy for Grade 7 English Program students in eleven schools within Thailand.
4. To determine if there was a significant relationship between students' general ICT use and their attitudes towards ICT use for school related activities with ICT self-efficacy of Grade 7 English Program students in eleven schools in Thailand.

Literature Review

Bandura's (1971) social cognitive motivation for learning theory, or social cognitive theory (SCT), is influential in terms of learning and development. SCT is similar to traditional learning, but the difference is that Bandura's theory discounts that direct reinforcement is the basis of all learning. Bandura partly defined learning as something achieved by observing other's actions. As such, Bandura did not believe that all learning comes from conditioning, reinforcement and punishment, which is part of behavioral theories. SCT includes a social aspect wherein people can learn new data and behaviors simply by watching others. This social aspect of learning is

observational learning or modeling which helps explain the behaviors of people. Additionally, there are cognitive processes involving attention, retention, reproduction, and most importantly for this research, motivation (Bandura, 1971).

By definition, motivation requires effort from the individual so, in large part, it is voluntary though can be reinforced. As such, motivation in self-learning is effort expended to realize learning objectives. The Expectancy-Value Theory of Motivation is a theoretical framework for conceptualizing student motivation (Wigfield & Eccles, 2000). The model consists of three motivational components, which are the expectancy component, the value component, and the affective component. The expectancy component is about students' belief that they can accomplish the task. The value component centers on the students' interest in the task and the perceived importance. Finally, the affective component centers on the students' emotional response to, or feeling about, the task (Pintrich & DeGroot, 1990; Wigfield & Eccles, 2000). Each of the expectancy-value theory components links to the students' motivation for self-learning and impacts motivational self-efficacy.

An important factor that influences motivation is self-efficacy, or belief in one's capabilities to do certain actions as a response to specific conditions. For example, a student with high self-efficacy will be able to accomplish more in school because they are more hardworking and are determined to learn. In other words, their increased self-efficacy allows them to persevere in the face of difficulties and to view demanding learning objectives as a challenge to be overcome. Alternatively, students with low efficacy experience the opposite where they are not performing well in school tasks due to a lack of self-efficacy affecting their motivation (Bandura, 1971). For this research study, self-efficacy is the primary focus of the motivation factors.

Self-Efficacy

Self-efficacy is integral to SCT since it encompasses the student's view of himself or herself. In other words, it is a person's belief that they have the ability to succeed in attaining a specific goal. SCT can link behaviorist and cognitive learning theories because it includes attention, retention, and motivation. Self-efficacy is developed from early childhood, and the development is lifelong, though domain specific. The sources of self-efficacy are based on four sources of influence (Bandura, 1994). They are

1. Mastery experience – when a learner can accomplish a task successfully thereby fueling their sense of self-efficacy;
2. Vicarious experience, or social modeling – observing others being successful at a task. As such, they develop a sense of belief in themselves that they too can complete the task and be successful;

3. Social persuasion – verbal encouragement where positive statements can cause a person to have increased self-efficacy;
4. Emotional and physiological reactions perceived and then interpreted determine the level of self-efficacy in an individual. Therefore, it is important that a student's mood is positive, and stress level is low so they will be motivated to accomplish a task and possess a strong sense of belief in their capabilities.

Self-efficacy is a personal conviction that one is capable of accomplishing a course of action successfully. As such, people will engage in undertakings they feel confident in and avoid those they do not. Self-efficacy beliefs are different from other expectancy beliefs in that they are more specific to tasks or situations that individuals reference in attempt to reach a goal (Pajares, 1996; Pajares & Schunk, 2002). A belief in one's personal competence, or self-belief, encompasses theories of self-concept, attributions of success or failure, expectancy value, goals and self-schemas. Self-beliefs connected to a person's perceived self-competence, or expectancy beliefs, are prominent in academic motivation (Pajares, 1996). In other words, a student's level of self-efficacy will decide whether an academic undertaking is viewed as a challenge to be overcome or as an insurmountable challenge. An individual exerts greater influence over their choices, which is directly impacted by their self-efficacy or belief in their ability, allowing them to persevere and overcome obstacles, either personal or academic. In other words, individuals are proactive and self-regulating rather than being merely controlled by environmental or biological factors.

Reciprocal Determinism

Reciprocal determinism, as defined by Bandura (1978), stated that behavior, internal personal factors and environmental influences all operate interdependently. In other words, they are interlocking factors or determinants of each other that will vary in different persons in different contexts. Behavior involves social interactions as well as verbal and motor responses. Internal personal factors will include cognitive abilities, physical characteristics, beliefs, and attitudes. The environmental influences are the physical surroundings, family, and friends as well as other social influences. For self-access learning, or eLearning, the environmental influences could include access to the appropriate ICT tools at home and school as well as positive modeling of the use of the ICT for self-improvement by family or friends. Furthermore, the three factors are interdependent and reciprocal in that changes in one factor influence the others. As such, a change in behavior can affect the

environment and vice-versa. For example, a student may decide to spend more time and effort studying so they purchase a computer to help them become more organized and productive. On the other hand, a student may receive a computer from their parents in their room, which leads to a change in behavior of increased study time.

The relation of reciprocal determinism to self-access eLearning, or students choosing their learning topics and tools to learn at their own pace, involves how the student uses ICT (behavior), the ICT tools available and how others use ICT (environment) as well as their belief in their ability (motivation). In today's world, students use ICT regularly in their daily lives but how this ICT is used can be a factor. For example, a student may use ICT solely as an instrument for research and information or as strictly recreational. The environmental factors affecting their use of ICT for eLearning are not just limited to the eLearning tools and ICT equipment available. Other environmental factors are perceived parental use of ICT as well as observed peer use of ICT. For example, if a parent or peer uses ICT as a social media or gaming tool, the student may perceive ICT in only that dimension. Finally, a student's self-efficacy in the subject matter will affect their motivation. This motivation, in turn, will decide whether they attempt to make use of the eLearning tools.

Self-Regulated Learning

Few educators will deny the importance of personal initiative and responsibility for one's own learning. Given that motivation requires voluntary effort on the part of the learner, self-regulation activities help to increase learner motivation to reach instructional objectives since they are also voluntary (Kim, 2009). As such, the importance of self-regulated learning is a key factor in successful academic behavior. A self-regulated learner knows when they possess a skill or know a fact (Zimmerman, 1990). As such, they will proactively seek out information to ensure the acquisition of knowledge or mastery of a skill. According to Zimmerman (1989), self-regulated learning is achieved when a learner is a metacognitively, motivationally, and behaviorally active participant in their own learning. As outlined by Bandura (1978) in relation to reciprocal determinism, self-regulated learning is reciprocally influenced by a learner's behavior as well as personal and environmental factors. There is an importance of 3 factors in relation to self-regulated learning: a student's self-regulated learning strategies, the student's perception of self-efficacy based on self-aligned feedback regarding effectiveness of learning, and a commitment to an academic goal (Zimmerman, 1989). A learner's positive self-efficacy has been shown to have a constructive impact on chosen learning strategies and improved self-monitoring of learning outcomes. Additionally, a student with positive perceptions

of self-efficacy will initiate learning activities to promote self-improvement.

Conceptual Framework

This study was a correlational study that aimed to examine the relationship of general ICT use for school-related activities and attitudes towards ICT use for school-related activities with ICT self-efficacy among Grade 7 English program students at eleven schools in Thailand.

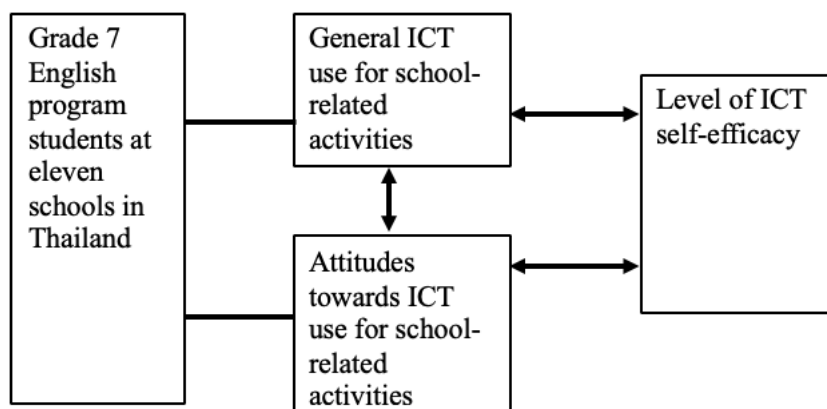


Figure 1. Conceptual framework of the research study.

Method

This study was a quantitative correlational study. The purpose of this research study was to determine whether there were significant relationships of students' general ICT use and their attitudes towards ICT use for school related activities with ICT self-efficacy of Grade 7 English Program students in eleven schools in Thailand. Descriptive statistics, means and standard deviations, were used to find the levels of students' general ICT use and attitudes towards ICT use for school related activities with ICT self-efficacy while multiple correlation coefficients were used to find the relationships among the variables.

Population and Sample

The research study was conducted with Grade 7 English Program secondary students attending public or private (i.e., non-international) secondary schools within Central Thailand who were enrolled in the Bright Future Internal Training and Services (BFITS) Thailand English Program during the first term of the 2017-2018 academic school year. BFITS is an educational service provider specializing in English Programs to Thai public and private schools for which the researcher consulted.

The sample of this research study consisted of 20 classes of Grade 7 English Program secondary students attending public or private (i.e., non-international) secondary schools within Central Thailand who are enrolled in an English Program during the first term of the 2017-2018 academic school year. The researcher focused on participating grade 7 classes for schools located within the geographic region of Central Thailand, specifically Bangkok, Prathum Thani, Nonthaburi, Samut Phrakan, and Nakom Prathum provinces. The total sample size was a convenience sample of 559 students.

Research Instrument

The researcher developed an English language questionnaire using the OECD PISA Questionnaire (2011) as a model. The same 14 quantitative questions used in the OECD PISA questionnaire were used with the addition of a Thai translation. The OECD questionnaire was 14 quantitative items divided into the following five sections.

Section 1 - Availability of ICT

Section 2 - General Computer Use

Section 3 - Use of ICT

Section 4 - ICT Ability

Section 5 - Attitude Towards Computers

Validity and Reliability

Per PISA Scaling Procedures and Construct Validation of Context Questionnaire Data (OECD, 2012), psychometric techniques can be used to examine the extent to which constructs have consistent construct validity across participating countries. As such, PISA used construct validity with convergent validity by ensuring that measures of constructs that were expected to correlate actually did so.

The first thing to note is the scale reliabilities of the PISA 2012 results noted in OECD, 2012. For example, the OECD median Cronbach's alpha for ICT availability was .53 at home and .65 at school. Similarly, the OECD median Cronbach's alpha for ICT use was .83 at home and .85 at school.

In regards to the reliability of the PISA 2012 ICT questionnaire, OECD used a cross-country validity of the constructs by using Cronbach's alpha to check internal consistency of each scaled index within the countries and to compare it among the countries.

Collection of Data

The researcher collected all the data himself but used the current grade 7 English

program math and science periods to allow the researcher to hand out the questionnaire during the students' scheduled class time. Students were given one 55-minute class period to complete the questionnaire. The questionnaire was administered at the end of the first semester of the 2017-2018 academic school year.

Data Analysis

The collected data was analyzed according to the research objectives by using a statistical software package. Bivariate correlation were used for Objective 4 to determine the relationship between Grade 7 English Program students' ICT use and their attitudes toward ICT use for school related activities, their ICT self-efficacy and attitudes toward ICT use for school related activities, and their general ICT use and ICT self-efficacy for school related activities.

The correlation of multiple determination was used to determine the relationship of the predictor variables (students' general ICT use and their attitudes toward ICT use for school related activities) with the criterion variable (ICT self-efficacy). The correlation of multiple determination, or *R*-squared, gives the proportions of the variance of the criterion which can be explained by the predictors.

Findings

The findings of the study are presented according to the research objectives.

Objective 1

Table 1 presents the means and standard deviations for each item in the questionnaire that was used to determine the level of general ICT use for school related activities at home.

Table 1: Means, Standard Deviations and Interpretations for General ICT Use for School related Activities at Home

General ICT use (home)	Item N ^o	<i>M</i>	<i>SD</i>	Interpretation
Browse the internet for school work	9a	3.20	1.04	Normal
Use email to communicate with other students about schoolwork	9b	2.46	1.33	Low
Use email to communicate with teachers about schoolwork	9c	1.98	1.10	Very low
Do classwork and homework on computer	9d	2.88	1.11	Low
Download, upload or browse material from your school's website	9e	2.16	1.15	Low
Check the school's website for announcements	9f	2.41	1.11	Low
Share school related materials with other students	9g	2.22	1.17	Low
Study or research topics you are learning	9h	2.99	1.10	Low
Use the school eLearning (Icon Educate)	9i	2.68	1.26	Low
Total	9	2.55	0.74	Low

From Table 1, it can be seen that the students' use of ICT for school related activities was low overall. The mean score of "general ICT use for school related activities" at home was 2.55 and the mean score of "general ICT use for school related activities at school" was 2.45. The only item to score at a normal interpretation was "browsing the internet for schoolwork" at home with a mean of 3.20. Additionally, "study or research topics you are learning at home" was .01 away from a normal interpretation with a mean of 2.99. This shows that students were not be using ICT for specific tasks because they responded higher to less explicit tasks such as browsing and studying. Objective 2. Table 2 presents the means and standard deviations for each item in the questionnaire that was used to determine attitudes towards ICT use for school related activities.

Table 2: Means, Standard Deviations and Interpretations for Attitudes Towards ICT Use for School related Activities

	Attitudes towards ICT use	Item N ^o	<i>M</i>	<i>SD</i>	Interpretation
Positively worded item	The computer is a very useful tool for my schoolwork	14a	4.06	0.77	Positive
	Doing my homework using a computer makes it more fun	14b	3.67	0.90	Neutral
	The internet is a great resource for obtaining information I can use for my school work	14c	4.14	0.77	Positive
Negatively Worded Item	Using the computer for learning is troublesome	14d	2.54	1.02	Positive
	Since anyone can upload information to the internet, it is generally not suitable to use it for schoolwork	14e	2.90	0.93	Positive
	Information obtained from the internet is generally too unreliable to be used for school assignments	14f	2.86	0.86	Positive
Positively Worded Item	The eLearning helps me to understand what I am learning in class (Icon Thailand / Icon Educate)	14g	3.91	0.74	Neutral
Total		7	3.44	0.46	Neutral

From Table 2, it can be seen that the students' attitude towards ICT for school related

activities was generally neutral. The mean score of attitude towards ICT use for school related activities was 3.44 which was neutral. “The internet is a great resource for obtaining information I can use for my schoolwork” was the highest at 4.14. It should be noted that the survey items consisted of both negatively and positively worded items. When looking at the items individually, all items were marked positively with only two exceptions. “Doing my homework on a computer makes it more fun” and “The eLearning helps me to understand what I am learning in class (Icon Educate)” were both neutral at a mean of 3.67 and 3.92 respectively. Of the surveyed Grade 7 English Program students, 79.7% agreed that the internet was a great resource for obtaining information for schoolwork. Additionally, 77.8% agreed that a computer was a useful tool for schoolwork. Also of note, 54.8% of the surveyed Grade 7 English Program students felt “using a computer can make homework more fun” with 38.6% being neutral. Finally, 70.8% found the eLearning / learning management system (LMS) used by the Grade 7 English program helped the students better understand what they learned in the class.

Objective 3

Table 3 presents the means and standard deviation for each item in the questionnaire that was used to determine level of ICT self-efficacy.

Table 3: Means, Standard Deviations and Interpretations for Level of ICT Self-Efficacy

Level of ICT self-efficacy	Item N ^o	<i>M</i>	<i>SD</i>	Interpretation
Edit digital photographs or images	12a	1.88	0.84	High
Create a database	12b	2.44	0.94	Average
Use a spreadsheet	12c	2.58	1.04	Average
Create a PowerPoint presentation	12d	1.51	0.70	High
Type a Word document to include a table and/or images	12e	1.47	0.69	High
Total		1.97	0.58	High

Table 3 indicates that students’ self-efficacy for using ICT was high. The mean score

of ICT self-efficacy was 1.97, which was interpreted as high. The questionnaire measured the students' self-efficacy perception of their ICT ability to achieve specific tasks with their computer such as editing photographs or creating PowerPoint presentations. The highest self-efficacy value was "typing a word document to include tables and images" with a mean of 1.47. The two specific tasks for which students' self-efficacy was average were "creating a database" and "using a spreadsheet" with means of 2.44 and 2.58 respectively. The research showed that students' ICT self-efficacy was positive but there was a percentage of Grade 7 EP students that still lacked the efficacy to effectively use ICT for specific tasks without help from another person.

Objective 4

Table 4 presents the bivariate correlation among general ICT use for school related activities, attitudes towards ICT for school related activities, and ICT self-efficacy.

Table 4: Bivariate Correlations between General ICT Use for School related Activities, Attitudes Towards ICT for School related Activities, and ICT Self-Efficacy

Variables	1	2	3
General ICT use for school related activities	-		
Attitudes towards ICT use for school related activities	.34** ($< .001$)	-	
ICT Self-Efficacy	-.19** ($< .001$)	-.04 (.40)	-

Note. **Correlation is significant at the .01 level (2-tailed).

The bivariate correlation results in Table 4 of Grade 7 English Program students in select school in Thailand revealed that there was a significant positive relationship between students' level of general ICT use for school related activities and attitudes towards ICT use for school related activities ($r = .34$, $p < .001$) at the significance level of .01. The bivariate correlation results of Grade 7 English Program students in select school in Thailand revealed there was a significant negative relationship between students' level of general ICT use for school related activities and attitudes towards ICT self-efficacy ($r = -.19$, $p < .001$) at the significance level of .01. The bivariate correlation results of Grade 7 English Program students in select school in

Thailand revealed there was no significant relationship between students' attitudes towards and ICT self-efficacy ($r = -.04$, $p = .40$) at the significance level of .01. Since one of the independent variables did not correlate significantly with the dependent variable, further analysis was not needed.

Discussion

General ICT Use for School Related Activities and Attitudes Towards ICT

Grade 7 English program students showed a strong positive relationship between their general ICT use for school related activities and their attitudes towards ICT. This was to be expected from students in a generational group that spent most of their lives surrounded by, and using, technology in various aspects of their learning. As such, the same students would tend to have a more positive outlook towards ICT. As noted in the Technology Acceptance Model (TAM) proposed by Davis, Bagozzi, and Warshaw (August, 1989), this positive outlook and higher expectation towards useful of ICT will positively impact the level of use of technology.

Attitudes Towards ICT and ICT Self-Efficacy

When considering attitudes towards ICT and ICT self-efficacy of the surveyed students, there was no strong correlation between the 2 variables. A study by Alexander and Golja (2007) in Australia did note that students' ICT experiences for school related activities were positive for some and negative for others, which would directly influence a student's attitude as well as self-efficacy differently depending on experiences with regards to the use of ICT.

General ICT Use for School Related Activities and ICT Self-Efficacy

When considering the negative correlation between Grade 7 English program students' ICT use for school related activities and their perceived ICT self-efficacy, there are many influences, unique to Thai education and specific to individual motivation, to be considered.

As noted, Grade 7 English program students' level of general ICT use for school related activities was high but conversely, it correlated negatively with their self-efficacy. According to Bandura's social cognitive motivation for learning theory (1971; 1994), self-efficacy is a factor of motivation. Additionally, reciprocal determinism is a model composed of three factors with triadic reciprocity that influences self-efficacy. The environment (tools) affects behavior (use) and personal (motivation) with self-efficacy at the heart of this model. Bandura defined self-efficacy in individuals as their personal perception of their ability to perform at a specific level so as to impact events in their lives. A student's self-efficacy is based on their belief in their own capabilities with multiple aspects influencing this belief.

Finally, expectancy-value theory conceptualized student motivation in relation to self-efficacy (Intrich & DeGroot, 1990; Wigfield & Eccles, 2000;). These theories and the reciprocal determinism model will assist in the explanation of this study's findings of a negative correlation between students' general ICT use for school related activities and their ICT self-efficacy.

Bandura's Social Cognitive Motivation for Learning Theory, or Social Cognitive Theory (SCT), stressed the influence of observational learning wherein a learner learns by direct experience and replicates the observed behavior (Bandura, 1971). The current study indicated that the surveyed Grade 7 English Program students in Thailand exhibited a high level of ICT use for school related activities with negative correlation to their perceived ICT self-efficacy. This was an unexpected finding not consistent with much of the research done globally which found positive significant correlations between ICT use and ICT self-efficacy. For example, a 2013 study by Hatlevik, Throndsen, Loi, and Gudmundsdottir of students in 15 participating countries noted ICT self-efficacy was positively related to ICT use and ability. However, this study's finding of a negative correlation between the two variables can be interpreted as consistent with the Thai education system's focus on the *what* rather than the *why* of education technology. According to a study by Sapianchai and James (2005), the prevailing ideology of ICT in Thai education focused on the efficiency which technology brought to the classroom. ICT use in school related activities was viewed by its importance to teaching efficiency rather than learning opportunities. This efficiency orientation ideology fit well with the traditional teacher-centered approach in Thai education but would negatively influence the observed behavior of students in how they viewed technology as a self-learning tool, thereby impacting the students' ICT self-efficacy.

The focus on ICT as a teaching tool to allow teaching to be more efficient within the classroom would have a direct impact on student's mastery of the content to be learned, subsequently negatively impacting student motivation. This negative impact on student motivation with regards to ICT use for school related activities would influence the motivational expectancy component of self-efficacy (Bandura, 1994). In other words, the decrease in student motivation would result in a decrease in student ICT self-efficacy even as the use of, and perceived importance of, ICT in the classroom remains high. Motivation is voluntary though it can be reinforced to enhance motivation in observational learning. The reinforcement can be positive (reward) or negative (consequences). Based on this researcher's 15 years of experience working with Grade 7 English program students, the reinforcement in a traditional teacher-centered classroom in Thailand tends to be in the form of grades, which students could view negatively or positively depending on their individual

academic self-efficacy. Alexander and Golja (2007) discovered that Australian students' ICT experiences for school related activities were positive for some and negative for others, which would impact a student's self-efficacy. The Thai education cultural dichotomy of the observed value of ICT as an efficiency teaching tool (Sapianchai & James, 2005) together with this researcher's findings of perceived usefulness of ICT for learning could explain the negative correlation of Grade 7 EP students increase in general ICT use for school related activities coupled with a decreased in the same students' perceived ICT self-efficacy.

The negative correlation of Grade 7 EP students' general ICT use for school related activities and ICT self-efficacy can be further understood by evaluating the expectancy-value theory of motivation put forth by Wigfield and Eccles (2000). Expectancy-value theorists believe individuals' perceptions of their own previous experiences and a variety of socializing influences impact the perceived value of an activity. The expectancy-value theory, when taken with Thai education's traditional efficiency orientation ideology of ICT, explains the negative impact on Thai students' motivation (previous experiences) while continuing to place high value on the use of ICT (socialization influences). In addition, Pajares (1996) asserted that efficacy is most often measured at the task-specific level. The historical tendency of viewing ICT as a teaching tool, rather than a learning tool, would affect Grade 7 EP students' motivation for self-learning. This focus on ICT as a teaching tool at a task-specific level within the classroom would be impact students' motivational self-efficacy. Additionally, engagement theory (Kearsley & Shneiderman, 1998) supports constructivist approaches in which students must be meaningfully engaged in learning activities through interaction with others and with worthwhile tasks, typically associated with the use of ICT within the learning environment. Given that Thai classrooms were traditionally teacher-centered, rote learning environments with ICT used within that context as a teaching tool, this would negatively impact student self-efficacy at a task-specific (ICT use for learning) level.

Recommendations

Administrators direct the culture of a school in regards to the environment of the school to include ICT resources use for learning, not only administrative, purposes. Teachers are the ones who, day to day, set the tone in the classroom and create learning opportunities for their students but administrators are there to support teachers while giving direction to the school as a whole. As such, it is imperative that administrators create a school learning culture that is forward-thinking with students' academic development as a key concern. Given this, administrators should continually assess school objectives as well as the educational programs and policies

that affect their school.

It is a commonly held belief that ICT is simply a tool to support teaching and learning. As such, there is no ICT solution that will ever replace a good teacher using effective best practices pedagogy to promote student learning. As technology advances and social norms with regards to ICT use change, teachers should continually assess their teaching methods as well as students' attitudes to accommodate and take advantage of these changes. Teachers should continually evaluate their classroom environment for effective teaching and learning activities to ensure that the students are engaged.

This research was conducted only on Grade 7 English program students within eleven schools in Thailand. As such, the findings cannot be generalized to other schools or to students within the regular Thai program. It is recommended that future researchers consider a larger sample size across more schools encompassing a wider geographic area. In addition, students within the regular Thai program should be included in future research given that the students for this study were Thai students within an English program learning all subject content using English as the language of instruction.

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