

THE CONTRIBUTION OF ICT COMPETENCE AND SELF-EFFICACY TOWARD EFL LEARNING AUTONOMY

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Abstract

The objective of this study was to investigate the role of information and communication technology (ICT) competence and self-efficacy in promoting autonomous learning. The study involved first-year students enrolled in the English Department at public universities located in Pekanbaru, Riau Province. Participants were required to complete three questionnaires, one for each of the three variables: ICT competence, self-efficacy, and learning autonomy, all in the context of English as a foreign language learning. The questionnaires were administered using a five-level Likert scale. The data collected was then analyzed using descriptive analysis and inferential analysis, specifically employing the regression correlation technique. The results showed that the level of ICT competence, self-efficacy, and learning autonomy of the English Department students are all defined in the “high” level. ICT competence and self-efficacy each contribute positively to learning autonomy, respectively by 21.7 and 43.4 percent. ICT competence and self-efficacy simultaneously have a favorable impact on participants' learning autonomy, contributing up to 45.5 per cent.

INTRODUCTION

The increasing rate of globalization and technological advancements has led to a growing number of individuals opting to acquire proficiency in one or multiple languages. The acquisition of various languages has piqued the interest of numerous individuals. Language learning has moved into an entirely distinct phase due to the rapid development of new online technology and apps. The majority of learners from all over the world have

attempted to learn languages using websites, online programs, and Internet-based technology (Janfeshan et al., 2023). The learning of English language skills has been deemed essential in Indonesia, as the government has identified it as a critical factor in achieving national academic excellence (Kemendikbud RI, 2020). Consistent with the preceding claim, it is imperative for students in Indonesia to attain proficiency in English, as it enhances their likelihood of competing in the professional sphere, both domestically and globally. Consequently, a considerable number of students opt for English as their major or English Education as their field of study at the university level.

In order for students to successfully learn the language and achieve academic success, lecturers, in this instance those who teach English, have to assist the students. Unfortunately, lecturers are in charge of very diverse groups of students, and they are unable to meet the needs of each student individually (Ruelens, 2019). Teachers and lecturers cannot possibly control and keep up with the learning progress of each student. Consequently, to attain an improved standard of academic success, students must possess the ability to autonomously manage their own learning. In other words, it is expected that students possess the ability to engage in autonomous learning. Learning autonomy is a term that can be defined as the ability to manage one's own learning (Benson, 2013a). It is also associated with how students are responsible for improving, or at least, keeping up with their progress until they meet the objective of the learning. Learning autonomy is proven to have a positive correlation with students' learning achievement (Mustajib & Ardian, 2020; Myartawan et al., 2013).

Language learners must engage in extra practice and independent work outside of the classroom to be successful, therefore students are able to learn outside of the classroom or without teacher instruction (Ngo & Eichelberger, 2021). The availability of adaptable learning tools increases the likelihood of independent English as a foreign language acquisition. One way in which students' learning autonomy can be fostered is through their Information, Communication and Technology (ICT) competence. The utilization of technology, specifically internet platforms established by autonomous language learning centres, exhibits significant variation in the quantity and nature of information offered to their diverse user base (Budianto, 2014). Therefore, it is believed that the use of ICT contributes to students' autonomous learning, as students have access to the knowledge they need whenever and wherever they choose.

One of the studies that focuses on the role of ICT to promote autonomous learning was completed by Budianto (2014). The purpose of the study was to determine how International Class Program (ICP) students at the Faculty of Islamic Education utilize online sources. The results indicated that three participants felt favorably about using the internet to perform task learning experiences compared to their experiences in a traditional classroom, indicating that the use of ICT had a positive effect on fostering students' autonomous learning. Another study was conducted by Karampelas et al.

(2013). The study was conducted in a Greek primary school with the objective of exploring the potential of information and communication technology (ICT) to enhance autonomous learning. The study assesses the extent to which students were motivated to utilize ICT for educational purposes, whether they employed ICT to acquire information on curriculum subjects, and whether they utilized ICT to develop or apply managerial skills. The findings indicate that students were able to effectively utilize ICT while adopting an autonomous learning approach.

In Indonesia, the use of ICT in EFL teaching and learning has been utilized, as mentioned in Eryansyah & Erlina (2023). Teachers in South Sumatra had a positive impression and attitude toward the effectiveness of ICT in helping students to study efficiently, despite the fact that only 24% said they used it in their normal EFL classes on a daily basis. Teachers noted that certain constraints, such as a lack of ICT facilities and resources for teachers, continued to restrict them from using ICT in their EFL lectures.

According to the findings of a study conducted by Rinekso & Kurniawan (2020), the majority of English teachers in Indonesia viewed information and communication technology (ICT) as an opportunity for them to increase learner autonomy. This was due to the fact that ICT enabled students to become more independent and become more engaged with the classes. A study by Borova et al., (2021), examined the idea of the information and communications environment of higher education institutions and examined how to incorporate Google educational tools, specifically Google Forms and Google Classroom, into university students' daily learning routines, lends credence to the preceding statement. It has been found that when students use Google educational resources to supplement their instruction, they perform better academically and show higher levels of enthusiasm and responsibility. The result is also in line with a study conducted by Al Arif et al., (2023), which aimed to evaluate the opinions and expectations of English Department students at Jambi University regarding the use of ICT in English language learning. The majority of respondents (76%) felt that using ICT in English language learning helps them study more successfully. They believed that ICT could offer a variety of content sources for English language learning.

Apart from possessing proficient ICT skills, students' self-efficacy beliefs play a crucial role in determining their goal attainment. Self-efficacy refers to the belief in one's own capacity to carry out tasks, achieve goals, and overcome obstacles in academic settings. Without a positive mindset, students may perceive their outcomes as inadequate or unsatisfactory. The availability of technological resources for acquiring knowledge in the English language has made it convenient for individuals with high self-efficacy to initiate learning activities, as they possess a strong belief in their capabilities. However, learners with low self-efficacy encounter difficulties in commencing the learning process, as they lack confidence in their abilities and are apprehensive about potential failures at the outset (Schunk, 1991 as cited in Honarзад & Rassaei, 2019).

A study by Song (2024) purposed to investigate and uncover the relationship between English self-efficacy and autonomous learning ability among undergraduate students at an application-oriented Chinese institution. It was discovered that there was a significant relationship between the surveyed students' English self-efficacy and their English autonomous learning capacity, and that students' English autonomous learning ability increased as their English self-efficacy improved. A study by Tilfarlioglu & Ciftci (2011) aimed at examining the connection between self-efficacy and learner autonomy, self-efficacy and academic success, learner autonomy and academic success, and these two ideas and academic success. In addition, the study sought to investigate the influence of self-efficacy on academic achievement, the effect of learner autonomy on academic success, and the combined effect of self-efficacy and learner autonomy on academic success. The data analysis demonstrated a favourable association between self-efficacy and learner autonomy, self-efficacy and academic achievement, and learner autonomy and academic achievement.

This study is designed to determine whether students' ICT competence, as well as their self-efficacy, affect the quality of their autonomy learning in learning English as a foreign language, particularly in Pekanbaru, Riau Province.

METHOD(S)

Research Design

This is a quantitative study which is categorized as correlational design. According to Creswell (2014), the utilization of correlational statistics as a means to identify and categorize the relationships between two or more variables is what constitutes a correlational design. In keeping with the prior assertion, this study used the regression analysis technique. The analysis looks at the correlation between independent and dependent variables. It provides regression equation parameters that represent the dependent variable's reliance on the independent variables.

Setting and Participants

In line with the title of this study, the populations of students of the English Study (Bachelor) Program in two public Universities in Riau, which are, two public universities in Riau Province. First-year students were chosen for the reason that these students underwent their high school education during the COVID-19 pandemic, which necessitated remote learning and the utilization of various technological devices. The

student received minimal in-person guidance from teachers. Upon graduation, they transitioned to university and encountered a shift from online to offline learning in the college setting. The total of first-year students in University A are 115 students and in University B are 135 students.

The sampling technique considered appropriate to this study is a simple random sampling technique. In the context of research methodology, simple random sampling is a technique that ensures each individual in the population has an equal chance of being selected to participate in the study. Homogeneity of population and uniform distribution of the study population are advantageous factors in academic research (Noor et al., 2011). This technique is chosen due to the samples can represent a homogenous population (Darmanah, 2019).

The number of samples in this study was defined using the Slovin's sampling formula:

$$n = \frac{N}{1 + N(e)^2}$$

In which:

- n : the number of samples
 N : the number of population
 e : margin of error

From a total the 250 students from both universities, the minimal number of students that should be treated as a sample are 152 students.

Table 1

Number of samples

Institution	Number of Population	Percentage	Number of Minimum Sample
University A	115	46%	70
University B	135	54%	82
Total	250	100%	152

According to the data in Table 1, the proportion of students is 46% and 54% respectively. Consequently, it can be said that out of 152 participants, 70 students from University A and 82 students from University B represent the minimum number of samples.

Instrumentation

A modified autonomy learner questionnaire by Gholami (2016) is adopted to gain the learner learning autonomy data. This instrument is considered relevant due to its modification to fit in a language learning context. In collecting students' ICT data, self-reports are the most used method for evaluating abilities (Palczyńska & Rynko, 2021). The questionnaire for the students participants' ICT competence was adopted from Copriady et al., (2014). The self-efficacy questionnaire is a modified version of The Questionnaire of English Self-Efficacy (QESE) Scale, C. Wang et al., (2013). Several items of the questionnaire are adapted to the context of the study. The questionnaires were subsequently subjected to tests of validity and reliability. Based on the results of the assessments, the questionnaires for ICT competence, self-efficacy, and learning autonomy comprised 31 items, 31 items, and 43 items, respectively.

All three questionnaires use the 5-scale Likert Scale. Singh (2006) states that the original Likert scale consists of a series of statements (items) pertaining to a real or hypothetical situation under investigation. On a metric scale, participants are requested to indicate their level of agreement (from strongly disagree to strongly agree) with the given statements (items). Here, the combination of all the statements reveals the specific dimension of the attitude towards the issue, and so they are necessarily interconnected (Joshi et al., 2015).

Data Collection Method(s)

According to Sekaran (2003), the questionnaire is the best, simplest, easiest, and most concise way to collect data and information from all participants because the approach is open, there is no direction, and participants are free to give reactions and responses about something that is happening in a country. Participants were expected to complete three questionnaires, one for each of the three variables: ICT competence, self-efficacy, and learning autonomy, all in the context of English as a foreign language learning. Surveys examine a sample of a population to provide a quantitative or numerical detail of "trends, attitudes, or opinions" (Creswell, 2014). The questionnaires were distributed directly to participants.

Data analysis

This quantitative study gained three types of data, which are, students' learning autonomy, ICT competence and self-efficacy. There were two kinds of analysis executed in this study, descriptive analysis and inferential analysis. Descriptive statistics were used to see and describe comprehensively. The mean and standard deviation had also been seen in this

descriptive statistical analysis to measure the level of all three variables. The reading of the mean score is based on the interpretation as presented in Table 2.

Table 2

Score Interpretation

Category	Interpretation
4.01 – 5.00	Very High
3.01 – 4.00	High
2.01 – 3.00	Moderate
1.01 – 2.00	Low
0.01 – 1.00	Very Low

The data were subsequently subjected to inferential analysis using the regression correlation technique and the Statistical Program for the Social Sciences (SPSS) platform. The procedure is described as follows: Normality Test, Homogeneity Test, Multicollinearity Test, Heteroscedasticity Test, Simple Regression Test, Multiple Regression Test and lastly, finding Determination Coefficient.

FINDINGS AND DISCUSSION

Findings

It was previously specified that a minimum of 152 students would constitute the required sample size. In the end, 170 students participated in this research; 88 students from University A and 82 students from University B. The findings of the data analysis are displayed below.

Participants' Learning Autonomy

The results of the learning autonomy questionnaire analysis can be seen in the figure below.

Figure 1

The result of Participants' Learning Autonomy

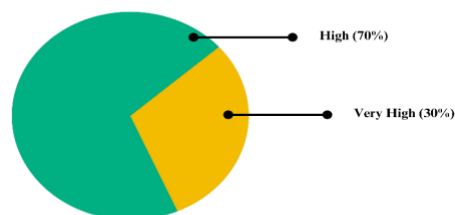


Figure 1 illustrates that 30% of the participants achieved a "very high" level of learning autonomy, while the remaining 70% attained a "high" level of learning autonomy. The average score is 3.85, which is rated as "High".

Participants' ICT Competence

The results of the ICT Competence questionnaire analysis can be seen in the figure below.

Figure 2

The result of Participants' ICT Competence

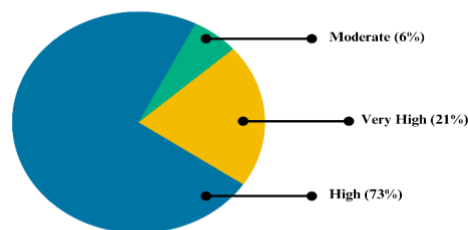


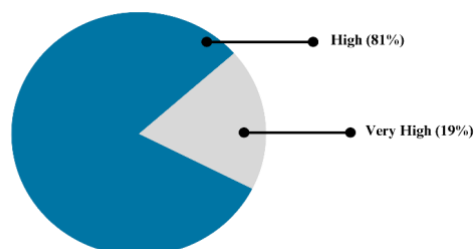
Figure 2 indicates that 73% of participants fell into the "High" category, 21% into the "very high" category, and 6% into the "moderate" category. The participants' average score for their overall level of ICT competence is 3.74, which is considered to be "high". The results showed that the level of students' ICT competence, self-efficacy, and learning autonomy is found to be at a "high" level.

Participants' Self-Efficacy

The results of the questionnaire analysis regarding students' Self-Efficacy can be displayed in Figure 3.

Figure 3

The result of Participants' Self-Efficacy



According to Figure 3, the majority of participants (81%) were classified as having a "very high" level of self-efficacy, while the remaining 19% were labelled as having a "high" level. The average participant's "self-efficacy" score was 3,81, which is regarded as "high."

The Contribution of ICT Competence to Learning Autonomy

To find out if there is any contribution of ICT competence to learning autonomy, the simple linear regression test was used. The result of the test is presented in Table 1.

Table 3

Simple Linear Regression of ICT Competence to Learning Autonomy

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	96.158	8.571		11.219	.000
	ICT Competence	.467	.069	.465	6.817	.000

a. Dependent Variable: Learning Autonomy

Based on Table 3, the significant value is 0.000 which is smaller than 0.05. In other words, there is indeed a significant contribution of participants' ICT competence to learning autonomy. It can also be seen that the coefficient value is (positive) 0.467. It implies that ICT competence has a positive contribution to learning autonomy. The regression equation of this regression is $Y = 96.158 + 0.467X$, in which Y is learning autonomy and X is ICT competence. This means that learning autonomy will rise by 0.467 for every unit increase in ICT competence.

Table 4

ICT Competence's Contribution to Learning Autonomy

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.465 ^a	.217	.212	18.135

a. Predictors: (Constant). ICT Competence

Another thing to point out, based on Table 4, it can be seen that the value of R square is 0.217. From that statement, it can be determined that ICT competence has a 21.7

percentile contribution to the learning autonomy of English Department students at public universities in Pekanbaru–Riau Province.

The Contribution of Self-Efficacy to Learning Autonomy

Same as the previous, the contribution of participants' self-efficacy to learning autonomy using the simple is determined the simple linear regression test was used. The result of the test is presented in Table 5.

Table 5
Simple Linear Regression Test on Self-Efficacy to Learning Autonomy

Model		Coefficients ^a			t	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	63.049	8.106		7.778	.000
	Self-Efficacy	.768	.068	.658	11.319	.000

a. Dependent Variable: Learning Autonomy

Based on Table 5, the significant value is 0.000 which is smaller than 0.05. This means that there is a significant contribution of participants' self-efficacy to learning autonomy. Apparently, the coefficient value turned out (positive) 0.768, which indicates that self-efficacy has a positive contribution to learning autonomy. The regression equation of this is $Y = 63.049 + 0.768X$, in which Y is learning autonomy and X is self-efficacy. Hence, for each increment of 1 unit in self-efficacy, there will be a corresponding rise of 0.768 in learning autonomy.

Table 6
Self-Efficacy's Contribution to Learning Autonomy

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.658 ^a	.433	.429	15.434

a. Predictors: (Constant). Self-Efficacy

Another thing to point out, based on Table 6, it can be seen that the value of R square is 0.433. From that statement, it can be determined that self-efficacy has a 43.33 percentile contribution to the learning autonomy of English Department students at public universities in Pekanbaru–Riau Province.

The Contribution of ICT and Self-Efficacy Simultaneously to Learning Autonomy

For this particular test, a multiple linear regression test is used. since there are two independent variables. The result of the test is presented in Table 7.

Table 7
Multiple Linear Regression Test

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	32087.535	2	16043.768	69.689	.000 ^b
Residual	38446.441	167	230.218		
Total	70533.976	169			

a. Dependent Variable: Learning Autonomy
b. Predictors: (Constant). Self-Efficacy. ICT Competence

Based on Table 7, the significant value is found to be 0.000 which is smaller than 0.005. In other words, ICT competence and self-efficacy simultaneously have a significant contribution to the learning autonomy of English Department students at public universities in Pekanbaru – Riau Province.

Table 8
Coefficient of Variables in Learning Autonomy

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	53.819	8.717		6.174	.000
	ICT Competence	.175	.067	.174	2.613	.010
	Self-Efficacy	.664	.078	.569	8.544	.000

a. Dependent Variable: Learning Autonomy

It is possible to determine the regression equation based on table 6. The regression equation is $Y = 53.819 + 0.175X_1 + 0.664X_2$. This indicates that learning autonomy will rise by 0.175 for every unit increase in ICT Competence and by 0.664 for every unit increase in self-efficacy.

Table 9
Independent Variables' Contribution to Learning Autonomy

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.674 ^a	.455	.448	15.173
a. Predictors: (Constant). Self-Efficacy. ICT Competence				

Table 6, shows the value of R square, in which aimed to determine how much the two independent variables contribute to the dependent variable. The R square value is 0.455. Based on that, it can be concluded that ICT competence and self-efficacy contribute as much as 45.5 percentile to the learning autonomy of English Department students at public universities in Pekanbaru – Riau Province.

Discussion

This study sought to determine the impact of ICT competence and self-efficacy on the development of learning autonomy among English Department students at public universities in Pekanbaru–Riau Province. The population consisted of first-year students from two public universities in Pekanbaru, Riau. All data was acquired by distributing a questionnaire, which 170 students completed. The collected data consisted of participants' levels of ICT competence, self-efficacy, and learning autonomy. The data the analyzed using descriptive and inferential analysis, specifically using the regression correlation technique.

The analysis shows that ICT competence can add up to 21.7 per cent of participants' learning autonomy on its own. The findings are consistent with those of several other investigations. (e.g. Budianto, 2014; Karampelas et al., 2013). It is thought that the ability to use technology in learning helps students manage their learning. The availability of various resources on the internet is another factor that encourages students to study English independently.

Participants' self-efficacy contributes as much as 43.4 percentile to their learning autonomy. Self-efficacy and learning autonomy might not be separated. As Benson (2013b) mentioned, one of the factors that influence one's learning autonomy is the cognitive process. The cognitive process itself is included in how students acquire self-efficacy. To sum it up, self-efficacy takes place in one's mental, where one has to believe that he/she is able to do something. As they acquire the belief, one can implement the idea

of learning in action, or autonomous learning. This hypothesis result is in line with studies done by Tilfarlioglu & Ciftci (2011) and Mojoudi & Tavatabaei (2014).

The participants' ICT competence and self-efficacy were found to contribute up to 45.5 per cent to the participants' learning autonomy, which was demonstrated by the R square is 0.455. The remaining 54.5 per cent originated from a variety of other aspects that were not taken into consideration in this particular research endeavour. By these results, it can be concluded that ICT competence and self-efficacy, individually and simultaneously, have a positive contribution to students of the English Department in public universities in Pekanbaru's autonomous English learning. It can be interpreted that improving students' ICT competence and self-efficacy would also boost students' autonomy in learning English. A higher level of learning autonomy can be helpful for both students and teachers or lecturers. The students must collaborate with their classmates and with the assistance of the instructors (Le, 2009). Teachers and lecturers may not be able to deeply control and assist the process of learning of each student. With the direction of teachers, students who acquire learning autonomy would be able to manage their own learning to reach certain goals.

CONCLUSIONS

The objective of this study was to investigate the role of ICT competence and self-efficacy in promoting learning autonomy. The study involved first-year students enrolled in the English Department at public universities located in Pekanbaru, Riau Province.

It was discovered that the English Department students at public universities in Pekanbaru-Riau Province had "high" levels of ICT competence, self-efficacy, and learning autonomy. Furthermore, the ICT competence and self-efficacy, individually, contributed positively to the learning autonomy of English Department students at public universities in Pekanbaru, Riau Province. ICT competence contributes up to 21.7%, while self-efficacy adds up to 43.4% to their learning autonomy. Simultaneously, ICT competence and self-efficacy of English Department students at public universities in Pekanbaru-Riau Province contribute positively to their learning autonomy by up to 45.5%.

Institutions or teachers shall integrate ICT tools inside or outside the classroom with more variety. Therefore, it may improve students' ICT competence. Teachers shall be available as facilitators to the students in the process of learning, rather than creating a situation where the students are dependent on them. Future researchers are recommended to conduct research regarding how students' English learning autonomy can be improved by the contribution of other factors.

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