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Measuring EFL students' self-efficacy levels in online learning

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ABSTRACT

The rapid development of technology and the integration of technology into the education system have made several educational institutions begin to introduce and begin to apply it in their teaching and learning processes, one of which is by applying distance/online/remote learning methods that are considered flexible and convenience. The purpose of this study was to measure the level of self-efficacy that EFL students in higher education have regarding the use of online learning methods in their teaching and learning activities. The data in this study were taken through an online survey technique of 60 higher education EFL students. The instrument used is Self-Efficacy for Online Learning (SeQoL) which contains 20 statements with 3-point Likert-type scale. The findings in this study found that the level EFL learner self-efficacy in online learning was in moderate level (M= 2.22; SD= .59). Based on this result, EFL students need to adapt more to online learning methods so that they are able to master online learning experiences to get high self-efficacy.

Keywords: *Self-Efficacy; EFL students; Online learning*

1. Introduction

Online learning has grown significantly over the past few decades. The rapid progress of this learning method has been driven by innovation in the education system that continues to evolve following the advances in information and communication

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technologies. The application of technology in online learning is intended to improve the quality of teaching and learning. In addition, online learning has generated a need to transform the way students learn by using more modern, efficient, and effective alternatives (Lee et al., 2014). Hence, online education has become technologically and operationally feasible (Palvia et al., 2018).

In recent years, numerous higher education institutions are starting to adopt the online learning model in order to realize different educational benefits (Farahat, 2012). The benefits offered such as high interconnectedness between students and educators, high retention, more flexible, and convenience are believed to be able to change students' learning styles from passive acceptance to more active self-oriented learning (Castro & Tumibay, 2021; Chun, 2015; Shih et al., 2013). However, despite all current reports championing online education, researchers are still questioning its student's efficacy in balancing the learning process when the learning method is applied, particularly to English as a foreign language learners (Paul & Jefferson, 2019; Ramsin & Mayall, 2019). Learners' perceived self-efficacy is a significant issue in English language learning. Knowing the level of learners' self-efficacy in the learning process is requisite to determine the best way to continue implementing learning approaches such as online learning (Ramsin & Mayall, 2019).

Several studies have been conducted on the measurement of students' self-efficacy in online learning (e.g. Namaziandost & Çakmak, 2020; Rahmania, 2020; Zarei & Naghdi, 2017). However, there are still a few studies investigating the EFL learners as a specific target participant with measuring instrument using based on the sources of self-efficacy. Thus, the literature on online self-efficacy in the EFL context based on the sources of self-efficacy remains underexplored, making the current study relevant to fill in the gap.

Self-efficacy is defined as an individual’s belief in his or her own capability to organize and perform actions necessary to attain a certain outcome (Bandura, 1997). This concept is a reflection of how individuals might feel, think, and be motivated and therefore how they act and behave under certain conditions. The level of student self-efficacy can affect student participation in the learning process. According to Schunk (2012), there are information sources that researchers used to measure self-efficacy. These sources are performance accomplishment (i.e., students experience successes and failures in learning), vicarious experiences (i.e., experience from colleagues for their achievements), forms of social persuasion (i.e., feedback from others), and affective states (i.e., emotion, mood, dealing with stress and anxiety during learning). Moreover, the self-efficacy concept itself has been used to assess the effectiveness of learning innovations to determine how the learning innovations can be associated with students’ development of their own belief in their ability (Punyasettro et al., 2021).

Students with high self-efficacy would choose to engage in learning, expend greater effort, persist longer, and especially during difficulties (Schunk & DiBenedetto, 2021). Otherwise, students with low self-efficacy beliefs usually have low motivation,

lower academic expectations, and show less academic performance (Sembiring et al., 2018). Ensuring online learners develop self-efficacy within a course means that they should continue to be successful online learners into the future (Taipjutorus et al., 2012). Hence, measuring the self-efficacy of EFL students related to the online learning method used will provide information about the level of student acceptance of the learning model. Therefore, this study aims to measure the level of self-efficacy of EFL students during the application of the online learning model. Furthermore, based on the background described previously, this study attempts to address the following research question "How is the level of self-efficacy of EFL students when online learning is used in the teaching and learning process?"

2. Literature review

2.1. Sources of the self-efficacy

Bandura (1995) designated four principal sources that can influence individuals' efficacious, including mastery experiences, vicarious experiences, social persuasion, and affective states.

2.1.1. Mastery experience

Mastery Experience is the result of an individual engaging in a task and achieving what they perceive to be a positive outcome (Power et al., 2020). For instance, learners with lacking mastery experience in learning environments have limited exposure in which to experience mastery in learning and have not been afforded the opportunity to develop efficacious beliefs of performance abilities. Moreover, when an individual is able to do a task, the level of efficacy in carrying out the activities will increase. In contrast, when an individual fail to do the task, the level of efficacy with respect to that activity will decrease. The negative impact of common failures will be lessened, even then failure is overcome by certain efforts that can strengthen self-motivation if one finds through experience that even the most difficult obstacles can be overcome through constant effort. This information then becomes the base for developing beliefs of proficiency and continuing to engage in various tasks (Husain, 2014).

2.1.2. Vicarious experience

Individuals can be inspired to attain their goals by seeing their colleagues succeed. A student's sense of self-efficacy is more positively impacted by others who experience success (Lestari et al., 2020). In other words, vicarious experience is a process of comparison between a person and another person as a model. A student may have concerns about doing something even if he/she has the capacity to do it, but when he/she sees other students being competent or successful in doing something where he/she has the same ability, his/her efficacy increases. Furthermore, how successfully somebody does a task may be measured by others. In some activities, there may be no measure of whether something was done well or not. As a result, one must assess his/her own skill

by examining the outcomes of others. Therefore, Fong and Krause (2014) stated that seeing individuals similar to one's self succeed can increase perceived efficacy: if someone similar to the learner is capable, the learner can come to believe that she or he is capable of learning as well.

2.1.3. Social persuasion

Constructive feedback from others can increase individual capabilities. The effectiveness of social persuasion and constructive feedback has been proven to maximize if learners consider the sources of information as reputable and reliable (Zarei & Naghdi, 2017). Social persuasion, including advice, counsel, and guidance so, as to increase his confidence about the abilities possessed that can help achieve the desired goals. Individuals who are convinced verbally tend to try harder to achieve success. When praise is perceived as realistic and authentic, students often try harder to succeed in response to positive feedback. Moreover, according to Fong and Krause (2014), effusive praise may be perceived as trivial by the student, who may interpret the instructor as having lower expectations and appraisals of the students.

2.1.4. Affective states

Emotional problems can negatively affect self-efficacy, for instance, stress can reduce a person's confidence in his abilities. However, positive emotions can increase one's self-confidence and skills. Emotional and physiological states that a student feels in certain learning situations give rise to the shape of an individual's behavior. Rising emotions as well as tension and pressure on a person will show the appearance of the behavior, he/she does. Affective states are important in behavior because they can determine how a person's behavior will be carried out. The student who tends to have high efficacy will be able to overcome the emotional state they have when doing a task in learning. In contrast, a student with low self-efficacy tends to be tense and unable to cope with their emotional state during a learning activity. they have when confronted with certain behaviors. However, the physical or affective response is not the sole cause that can affect a sense of self-efficacy, but it is the cognitive interpretation of these bodily and emotional states that ultimately regulates self-efficacy (Fong & Krause, 2014).

2.1.5. Online learning

Online learning is a type of learning that is carried out without going through face-to-face by utilizing the web as a classroom. This learning method utilizes technology and information (ICT) as the medium for distributing the learning material via any electronic media such as the internet, intranet, extranets, satellite broadcast, audio/videotape, CDs, video conferencing, and computer-based training (Castro & Tumibay, 2021). Furthermore, online learning or E-learning is the result of the systematic integration of technology components with teaching and learning activities that are characterized by the interaction of learning across time and space. Therefore, research on learning techniques

leads to a comparison of the outcomes of various online learning methods, namely asynchronous and synchronous learning.

Synchronous learning is the online learning environment that is going through in real-time, namely where the teachers and students meet online and carry out two-way communication directly. As stated by Amiti (2020), a synchronous class model is a learning model in that teachers and students are all gathered in one videoconference site. The teacher offers the instructions first, and the students then receive all of the attention. However, synchronous learning is highly dependent on technical aspects. For example, on the state of internet quotas for students, the stability of the internet network, and even the state of the device (battery condition, memory, and so on) since the learning takes place in real-time.

Besides, asynchronous learning is part of an online environment that is carried out using LMS (Learning Management System), where the material has been prepared by the teacher so that it can be accessed by students anytime and anywhere. As stated by Perveen (2016), asynchronous environments provide students with readily available material in the form of audio/video lectures, handouts, articles, and PowerPoint presentations. This material is accessible anytime anywhere via a Learning Management System (LMS) or other channels of the sort. However, the asynchronous downside is that it tends to remove the touch of social contact, such as talking and disagreeing with other students. Asynchronous learning can also lead to student disinterest because there is no immediate response from the teacher.

Although there are shortcomings in both online learning techniques, some of the benefits of online learning have received serious attention from experts in their research. Nguyen (2015) found that about 92% of all distance and online education studies find that distance and online education is at least as effective, if not better, than traditional education. Moreover, You and Kang (2014) found that online learning encourages students to be self-regulated in online learning. Self-regulated leads learners to allocate enough time to complete tasks or to prepare for tests, review material regularly, put sufficient effort into studying, and also maintain their initial motivation throughout the learning process. Besides, Castro and Tumibay (2021), and Chun (2015) state students can elect their own pace, place, and time that is suitable for study, encouraging self-confidence, being more talkative and active and boosting the effectiveness of education.

3. Method

This research was a descriptive quantitative study based on the distribution of a questionnaire to a plenty number of EFL learners. Descriptive quantitative research is a research method that attempts to collect quantifiable information for statistical analysis of the population sample. In this study, the researchers used the Likert-type scale method survey for collecting data. The survey method is structured questions that respondents complete by filling out a form.

3.1. Participants

The participants of this study were 60 EFL college students (7 men, 53 women) from the English Education Study Program at Hamzanwadi University. The study represented a proportional sampling as seen from gender and grade levels. Of the total group, 17 students were seniors, 16 juniors, 4 sophomores, and 4 freshmen. With confidence in the learning process, all of the participants used full online learning methods for one year (2021 to 2022), since the pandemic required the institution to use the online learning model.

3.2. Research Instrument

This research used a questionnaire as an instrument for collecting the data. The instrument in this study is adapted from the SeQoL questionnaire conducted by Shen et al., (2013) in their research to investigate the role of self-efficacy in an online learning environment. We then modified the questionnaire so that it became a group based on the sources of self-efficacy, namely as follows: mastery experience (5 items, $\alpha = 0.62$), vicarious experience (5 items, $\alpha = 0.65$), social persuasion (5 items, $\alpha = 0.79$), affective states (5 items, $\alpha = 0.65$). According to Ursachi et al., (2015), 0.6-0.7 indicates an acceptable level of reliability.

3.3. Data collection

The data collection technique in this research was by distributing the questionnaire using Google Forms at beginning of the semester in early 2022. A total of 20 statements were given to the 60 students. Furthermore, after the data is collected, the researcher checked each incoming answer to ensure the data is not defective and filled in properly. The next step was the researcher collected all responses from the participants and then the data was evaluated using Microsoft Excel.

3.4. Data analysis

In data analysis, the researcher used descriptive statistics in analyzing the data. This researcher calculated the mean score and standard deviation using Microsoft Office Excel 2016. According to Fraenkel (2012), Excel is a software program that can be used to analyze data using tables and formulas to calculate many of the descriptive statistics in the text including means and standard deviation. Furthermore, the researchers measured the mean score and standard deviation, which showed an indication of the student's efficacy, and then compared it with the three-point Likert standard. The research score criteria are categorized into three, namely low, moderate, and high.

Table 1

Three point-scale categories.

Likert Scale	Interval	Category
Almost never	1.00 - 1.66	Low

Sometimes	1.67 - 2.33	Moderate
Quite often	2.34 - 3.00	High

Source: Pimentel, (2019)

The purpose of categorization is to know the spread of the score on each item that gives meaning to each individual score. Categorization is done by finding the average value of each variable which is then matched with a standardized Likert interval.

4. Findings

As an initial stage in data analysis, a statistical description of each variable indicator consisting of mastery experience, vicarious experience, social persuasion, and affective states have been tested. Statistical descriptions such as mean and standard deviation were used to interprete the scores based on predetermined interval scores. Furthermore, the results of the study are described in the following explanation:

Table 2

Data result mastery experience.

No	Statements	Mean	SD	Interpretation
1	Create a plan to complete the given assignments	2.22	.55	Moderate
2	Evaluate assignments according to the criteria provided by the instructor	2.07	.60	Moderate
3	Complete an online course with a good grade	2.27	.60	Moderate
4	Keep up with course schedule	2.28	.69	Moderate
5	Initiate discussions with the instructor	2.08	.64	Moderate
	Average	2.18	.62	Moderate

As shown in table 2 above, the average value of respondents' responses to the mastery experience variable number one is (M= 2.22; SD= .55). This shows that students tend to make assignment plans to complete the task but not too often. While the second statement obtained an average value (M= 2.07; SD = .60) which explained that students sometimes evaluate their learning achievement targets based on specific criteria or standards given by the lecturers that must be achieved. Moreover, statement number three scored (M= 2.27; SD= .60) indicating that the success of students in completing online learning was not minimal but also did not get a high score. The next is statement number four which gets an average score (M= 2.28; SD= .69) which explained that students are once in a while checking the course schedule. The last is statement number five which gets a score (M= 2.08; SD= .64) indicating that discussion activities between students and lecturers are sometimes on the initiative of the students themselves.

Thus, the mastery experience variable which describes the experience of students in the online learning process in order to encourage their learning achievement gets an average value (M= 2. 18; SD= .62) which is interpreted as moderate.

Table 3

Data result vicarious experience.

No	Statements	Mean	SD	Interpretation
1	Pay attention to other students' social actions	2.23	.64	Moderate
2	Actively participating in online discussions	2.22	.63	Moderate
3	Understand complex concepts	2.13	.53	Moderate
4	Reply to others' messages in a discussion board	2.17	.61	Moderate
5	Post a new message in a discussion board	1.92	.74	Moderate
	Average	2.13	.63	Moderate

As shown in table 3 above, the average value of respondents' responses to the vicarious experience variable for statement number one which shows that the average value of respondents' answers is (M= 2.23; SD= .64). This shows that sometimes students take each other as a model in learning which has an effect on the emergence of motivation in learning. The second statement obtained an average value (M= 2.22; SD= .63) which explained that students periodically participate in online learning discussion activities. Moreover, the third statement scored (M= 2.13; SD= .53) meaning that students are sometimes in some conditions able to understand complex learning materials explained online, although infrequently. The next is statement number four which gets an average score (M= 2.17; SD= .61) which explained that students sometimes respond to arguments or opinions from other students regarding ongoing online discussions. The last is statement number five which gets a score (M= 1.92; SD= .74) indicating that students sometimes respond to discussions consistently even by sharing new messages about the material being discussed.

Thus, the vicarious experience variable which describes the experience of student observations of other students as a symbolic model to motivate in order to encourage their learning achievement gets an average value (M = 2.13; SD= .63) which is interpreted as moderate.

Table 4

Data result social persuasion.

No	Statements	Mean	SD	Interpretation
1	Initiate social interaction with classmates	2.55	.56	High
2	Apply different social interaction skills depending on situations	2.23	.59	Moderate
3	Develop friendship with my classmates	2.57	.62	High
4	Effectively communicate with my classmates	2.43	.59	High
5	Express my opinions to other students respectfully	2.30	.56	Moderate

Average	2.42	.58	High

As shown in table 4 above, the average value of respondents' responses to the social persuasion variable for statement number one which shows that the mean score of respondents' answers is (M= 2.55; SD= .54). This shows that social interaction between students is still intertwined in online learning although individuals do not interact directly. The second statement obtained an average value (M= 2.23; SD = .59) which explained that students moderately interact and communicate with others using different communication skills in any situation in online learning. The third statement shows that the mean score of respondents' answers shows (M= 2.57; SD= .62). This shows that online learning that separates them physically does not prevent students from developing their friendship bonds. Moreover, statement number four scored (M= 2.43; SD= .59) indicating that the students effectively communicate and express opinions to their peers in the online learning process, so that the delivery of opinions or messages can be easily achieved. The last is statement number five which gets a score (M= 2.30; SD= .56) which explained that students are wise enough to convey their arguments or opinions in online discussions.

Thus, the social persuasion variable which describes students' direct and indirect feedback to others that can boost their confidence and motivation in learning., gets an average value (M = 2.42; SD= .58) which is interpreted as high.

Table 5

Data result affective states.

No	Statements	Mean	SD	Interpretation
1	Timely inform the instructor when unexpected situations arise	1.93	.65	Moderate
2	Request help from others when needed	2.38	.52	High
3	Willingly adapt my learning styles to meet course expectations	2.25	.54	Moderate
4	Seek help from instructor when needed	2.15	.48	Moderate
5	Clearly ask my questions to instructor	2.13	.59	Moderate
	Average	2.17	.56	Moderate

As shown in table 5 above, the average value of respondents' responses to the affective state variable for statement number one which shows that the mean score of respondents' answers is (M= 1.93; SD= .65). This shows that students tend to be rare in expressing unexpected needs or difficult classroom situations to lecturers during the learning process. The second statement obtained an average value (M= 2.38; SD= .52) which explained that students often ask for help from other students when experiencing difficulties in learning. The third statement shows that the mean score of respondents' answers is (M= 2.25; SD= .54). This shows that students are sometimes willing to adopt new learning styles in order to achieve learning expectations. Moreover, statement

number four scored (M= 2.15; SD= .48) indicating that the students sometimes but do not often ask the lecturer for help to solve their problems in learning. The last is statement number five which gets a score (M= 2.13; SD= .59) which explained that students infrequently ask questions to the lecturer about a material that is not clear or least understood.

Thus, the affective states variable which describes the recognition of students' own feelings, collects and analyzes the information obtained, formulates thoughts and opinions, and acts in the learning process, gets an average value (M = 2.17; SD= .56) which is interpreted as moderate. in the affective domain, students are fairly capable of managing their habits and behavior during online learning.

Based on the average value of each self-efficacy variable described above, it can be shortened to a table as below:

Table 6

Recapitulation of the mean score of self-efficacy sources.

Self-Efficacy Source	Mean score	SD	Category
Mastery Experience	2.18	.62	Moderate
Vicarious Experience	2.13	.63	Moderate
Social Persuasion	2.42	.58	High
Affective States	2.17	.56	Moderate
Average	2.22	.59	Moderate

As shown in table 6 above, the recapitulation of all the mean scores of each variable, the grand mean for self-efficacy of EFL students who use online learning methods in their learning activities is in the interval of 1.67 - 2.33 namely M= 2.22 and SD .59 which shows that the self-efficacy of EFL students in online learning is at the level of moderate.

5. Discussion

This study was conducted with the aim of answering research questions related to the level of self-efficacy of EFL students who use online learning methods in their learning activities. The result of this study revealed that the level of self-efficacy of EFL students in online learning was moderate. This result is supported by several previous studies which also found a medium level of self-efficacy in EFL students during online learning activity (Han et al., 2021; Ucar & bozkaya, 2016; Yang, 2016). This can be expected because students' mastery of the online learning experience is minimal. The students need more online learning experience to have higher self-efficacy since mastery experience has been shown to be the strongest and best predictor of self-efficacy (Ramsin & Mayall, 2019). Moreover, the moderate level of the vicarious experience variable is related to the students have not been able to highlight themselves as a role model since they are experiencing a few obstacles to getting a high efficacy predicate when the new

model learning is applied. This perceived similarity may lead to the individual belief because they were similar to the role-mode student. In this way, learners are exposed to several models of students with recognized similarities in their abilities and circumstances (Wilde & Hsu, 2019; Zarei & Naghdi, 2017).

However, students' social persuasion who got high category shows that constructive communication and feedback between fellow students were well established with the result that their self-efficacy in online learning is high. The research conducted by Peechapol et al., (2018) also found a strong agreement on the effect of online communication and interactions as an important resource that can help individuals improve their self-efficacy. Furthermore, in the affective domain, students are fairly capable of managing their habits and behavior during online learning. They are also able to control difficult situations during learning, exert effort to understand the material, and are willing to optimize engagement with new learning methods. Chun (2015) found that students were intrinsically goal oriented and understood that they were responsible for their own learning.

6. Conclusion

The measurement of the self-efficacy of EFL students in online learning is intended to determine how many aspects of the self-efficacy theory have been formulated by experts such as mastery experience, vicarious experience, social persuasion, and affective states achieved by students. Therefore, the results obtained in all aspects show that student self-efficacies are at a moderate rank in online learning. Moreover, the development of online learning requires students to be able to adapt quickly to new learning models that have thrived over the past decade. It also requires students to develop different learning skills and to be efficacious related to their own abilities in balancing the learning model. High self-efficacy will have an impact on the stronger students' self-confidence in making more or maximum efforts, the higher the acquisition of learning achievement. On the other hand, if students have low self-efficacy, the lower their learning achievement will be.

However, there are some limitations in this study which cannot be denied that the limitations of the respondents and the methods in collecting data are limited, affecting the results of this study. Therefore, it is necessary to use interview techniques and increase the number of respondents in further research so that the results obtained are greater for interpretation.

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