Gender Differences in E-Learning Self-Efficacy during Pandemic Covid-19

*Citra Kurniawan[1], Yerry Soepriyanto[1], Zuhkhriyan Zakaria[2], Fikri Aulia[1]

[1]*Universitas Negeri Malang, Indonesia*
[2]*Universitas Islam Malang, Indonesia*
* *Email: citra.kurniawan.fip@um.ac.id*

ABSTRACT
This study aims to determine the relationship between gender differences and e-learning self-efficacy. One hundred students (72 male; 28 female) were involved using demographic attribute data such as gender, age range, and higher education degrees. Learners participate voluntarily to fill out an online e-learning self-efficacy questionnaire. Students as participants come from various study programs at one university in Malang and attend online lectures in the 2020/2021 academic period. This study found that the variance between groups of attributes differed significantly, and the research data met the homogeneity requirements, which was indicated by the results of Levene's Test with a sig. 0.267> 0.05. This study found that all independent variables (Gender, Age Range, Higher Education Degrees) together did not significantly affect e-learning self-efficacy, Sig. 0.232 > 0.05. Similar results were also obtained for the attributes of gender (Sig. 0.353 > 0.05), age range (Sig. 0.090 > 0.05), and Higher Education Degrees (Sig. 0.923 > 0.05) which did not have a significant effect on e-learning self-efficacy. The results of this study can be caused by a good e-learning readiness factor so that the difference in attributes in this study as a whole does not affect e-learning self-efficacy. The findings in this study are expected to provide a reference study of studies on gender and its implementation in learning.

Keywords: gender, e-learning, self-efficacy, higher education.

1. INTRODUCTION

E-learning is currently an alternative learning strategy that ensures the continuity of learning in the era of the COVID-19 pandemic. Restrictions on face-to-face-based learning make most educational institutions shift their education to online-based learning. The sudden migration of face-to-face learning to e-learning certainly impacts learning anxiety and self-confidence in dealing with online-based knowledge. Self-confidence has a significant influence on the success of e-learning because it ensures the delivery of learning content to students [1]. However, at this time, a big question arises whether all students have good self-confidence to face e-learning?. The self-confidence of both male and female students needs to be investigated, whether there is a relationship between gender differences and e-learning self-efficacy.

When it comes to using technology or computers, one thing to consider is confidence in one's ability to use it—the ability to believe in one's abilities, also known as self-efficacy. Computer self-efficacy is the name given to it in the world of computers (CSE). Computer self-efficacy is a person's belief in their competence to utilize computers. CSE is critical, especially when integrating technology into the classroom [2]. The study's findings on the usage of computers revealed that self-efficacy, attitudes, and beliefs had an impact on the completion of computer-related tasks [3]. Several studies have also demonstrated that students with a high CSE are more likely to succeed in online learning [4]. Learners that have high self-efficacy on the internet are more motivated to engage in web-based learning. As a result, students' self-efficacy influences their use of the internet in online learning. The findings show a significant positive relationship between computer self-efficacy and previous experience with online knowledge, a significant positive relationship between academic self-efficacy and prior experience with online learning, and a significant positive relationship between academic self-efficacy and student satisfaction. To meet these issues, a theoretical

framework, namely the content knowledge framework of technology pedagogy, that leads to research in teachers' use of ICT is required (TPACK) [5]. Teachers must master technology and apply it to content development and learning contexts. Furthermore, teachers must integrate the content to facilitate the learning process. Integrating technology into the learning process improves learning quality and, as it turns out, improves student learning results [6]. Studies related to self-efficacy with gender are fascinating to discuss. Gender variance influences self-efficacy, where females have a higher increase in self-efficacy than males [7]. This variable shows the same correlation index on gender variance. Meanwhile, gender variance does not significantly

affect self-efficacy [8]. Gender studies are needed to describe e-learning self-efficacy according to gender-based on other perspectives.

2. METHODS

This research was conducted in the academic period 2020/2021 for three weeks. The research questionnaire was randomly distributed to 115 students (Undergraduate and Postgraduate students), but 100 respondents returned to the questionnaire. Respondents who voluntarily participate in research come from various study programs at one university in Malang. The research respondents consisted of 72 males and 28 females, as shown in Figure 1.
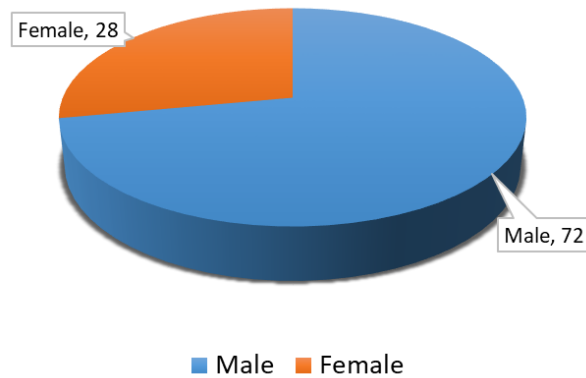

Figure 1 Distribution of Respondent

The research respondents were 72 males (72%) compared to 28 females (28%). The study used a descriptive statistical approach to examine the relationship between gender and e-learning self-efficacy. Respondents' data complements demographic attributes such as gender (Male, Female), age-range (17-20 Years; 21-25 Years; and >25 Years), and higher education degrees (Mean=1.36; SD=0.482).

3. RESULT AND DISCUSSION

Respondents involved in the study had various data distributions in the age range category (1) 17-20 Years; (2) 21-25 Years; and (3) >25 Years. Respondents belonging to the age category 17-20 years were 35 people, followed by respondents aged 21-25 years as many as 49 people. While the respondents in the age category > 25 years were 16 people. The age range of respondents involved in the study is shown in Table 1.

Table 1. The age range of respondent

Ages		Frequency	Percent (%)
Valid	>25	16	16.0
	17-20	35	35.0
	21-25	49	49.0
	Total	100	100.0

The research responses involved in this study consisted of two levels, namely Postgraduate Student and Undergraduate Student. Table 1 shows the distribution of respondents based on the age range of respondents where respondents have a variety of ages when entering the academic period of 2020/2021. Undergraduate students were more involved in this research process as many as 64 people. Meanwhile, 36 postgraduate students were involved in the research.

These two levels of higher education become considerations in this study, where differences in education levels can determine research results other than gender studies which are the focus of research. The descriptive statistical analysis examines the general description of the data presented by gender, age range, and higher education degrees, as shown in Table 2.

Table 2. Descriptive Statistics of Demographic.

Gender	Age Range	Higher Education Degrees	Mean	Std. Deviation	N
		Dependent Variable: E-Learning_Self_Efficacy			
Male	>25	Postgraduate Student	4.1558	.28179	11
	17-20	Undergraduate Student	4.0863	.33700	24
	21-25	Undergraduate Student	3.9524	.63340	21
		Postgraduate Student	3.9687	.32153	16
Female	>25	Postgraduate Student	4.3000	.38927	5
	17-20	Undergraduate Student	3.8312	.32619	11
	21-25	Undergraduate Student	3.8304	.44841	8
		Postgraduate Student	3.7857	.27970	4
Total	>25	Postgraduate Student	4.2009	.31322	16
	17-20	Undergraduate Student	4.0061	.35009	35
	21-25	Undergraduate Student	3.9187	.58302	29
		Postgraduate Student	3.9321	.31561	20

Table 2 shows the mean and standard deviation (SD) in each category (Gender; Age Range; and Higher Education Degrees). Variants between groups need to be analyzed based on the homogeneity of the data. Levene's Test of Equality of Error Variances is used in this study to determine whether there is an equal variance or not in the distribution of data [9], as shown in Table 3.

Table 3 shows the Value (Significance) of Sig. 0.267 where Sig. > 0.05, so it can be said that the variance between groups is significantly different, and the data meets the homogeneity requirements [10], [11]. Based on Sig., which is shown in Table 4, the sample used in this study came from a population with the same data variance. The effect of gender, age range, and higher education degrees needs to be analyzed using a variance analysis technique. The use of analysis of conflict in this study aims to examine the possibility of significant differences between several data groups, as shown in Table 4.

Table 3. Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
	Dependent Variable: E-Learning_Self_Efficacy		
1.283	7	92	.267

Table 4. Variants analysis

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Tests of Between-Subjects Effects					
Dependent Variable: SE					
Corrected Model	1.686a	7	.241	1.360	.232
Intercept	1118.101	1	1118.101	6313.482	.000
Gender	.155	1	.155	.873	.353
Age_Range	.875	2	.437	2.470	.090
Higher_Education_Degrees	.002	1	.002	.009	.923
Gender * Age_Range	.235	2	.118	.665	.517
Gender * Higher_Education_Degrees	.008	1	.008	.043	.836
Age_Range * Higher_Education_Degrees	.000	0	.	.	.
Gender * Age_Range * Higher_Education_Degrees	.000	0	.	.	.
Error	16.293	92	.177		
Total	1615.694	100			
Corrected Total	17.979	99			
a. R Squared = .094 (Adjusted R Squared = .025)					

Table 4 shows the R Squared value of 0.094, so it can be found that the independent variable does not have a strong correlation. The effect of all independent variables (Gender, Age Range, Higher Education Degrees) together does not significantly affect e-learning self-efficacy, which is indicated by the significance value of Sig. 0.232 > 0.05. Furthermore, the value of the dependent variable can change

without being influenced by the existence of the independent variable, implying that the dependent variable can change its value without the effect of the independent variable. For example, Sig. 0.000 denotes significant intercept if Significance (Sig.) 0.05 (Alpha) is Significant [12]. This result is further research that states that female students have higher academic self-efficacy compared to males [13]. Other research findings state that gender variance has a major influence on self-efficacy [14]. This finding is interesting because this study presents results that are different from the findings of previous studies. However, the results of this study are in line with research that states that there is no difference in self-efficacy based on gender variance [15]. Gender has a role in developing self-efficacy, which is characterized by a positive relationship between the characteristics of students and the use of technology [16], [17].

Analysis of gender was also analyzed based on its relationship with e-learning self-efficacy. Table 5 shows that the significance (Sig.) is 0.353 > 0.05, so it can be concluded that gender variance has no significant effect on e-learning self-efficacy. The same results were also obtained in the age range analysis of e-learning self-efficacy. The research findings show that the impact of Age Range on e-learning self-efficacy in the model is Significance (Sig.) 0.090> 0.05, indicating that age range has no significant effect on e-learning self-efficacy. In addition, the other independent variable, higher education degrees, shows no impact of Higher_Education_Degrees on e-learning self-efficacy in the model (Sig. .923> 0.05). Based on the results of the analysis, the alignment of the variables does not affect e-learning self-efficacy. These findings indicate several possible other factors that influence the study in this study. Finally, this study believes that other variables are thought to affect e-learning self-efficacy compared to the variance of gender, age range, and higher_education_degrees. It is necessary to approach different studies to link gender variance with self-efficacy.

4. CONCLUSION

This study aims to examine the relationship between gender and e-learning self-efficacy. In addition, demographic data of respondents in the form of age range and higher education degrees were also analyzed to test whether other variables affect e-learning self-efficacy. Research findings indicate that differences in gender variance do not affect self-efficacy. In addition, the age range is also considered in the study. This study found that the age range did not affect the e-learning self-efficacy of students. This study distinguishes the educational level of students in Postgraduate Student and Undergraduate Student. The results showed that the level of education also did not affect e-learning self-efficacy. All independent variables, gender, age-range, and higher education degrees, together have no significant effect on e-learning self-efficacy.

This study provides findings that gender variance does not have a significant effect on e-learning self-efficacy. Other independent variables were also given the same results, namely age range, and higher education degrees. Based on the research findings, a more in-depth study is needed on the possibility of other variables that affect the formation of e-learning self-efficacy. The limitation of this research lies in the limited involvement of respondents. It is necessary to review this research with a more significant number of respondents. The possibility of the participation of other variables such as student characteristics can be considered for further research. Research findings can be implemented for broader gender studies, such as exploring gender indicators in various fields.

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