An Analysis of Prospective Teacher's Learning Independence Based on Gender Through the Utilization of Moodle-Based E-Learning

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Abstract - *Face to face meeting is not always effective in learning because there are some situations during which it cannot be conducted, such as during the pandemic that we have felt together for these 2 years and even now. Therefore, we need to work around this by learning online through the use of Moodle-based e-learning. This research was conducted at the Faculty of Teacher Training and Education (FKIP) Samawa University with the aim of knowing how gender influences the learning independence of prospective teachers through the use of Moodle-based e-learning. The research sample amounted to 42 students who were divided into 21 males and 21 females. The research data was obtained by distributing a learning independence questionnaire containing 20 statement items that have been adjusted to the indicators of learning independence and calculated using a Likert scale of 1 to 5. The results showed that the significance level value was 0.37, which was greater than 0.05. Therefore, it can be concluded that gender does not affect the learning independence of prospective teacher through the use of Moodle-based e-learning.*

INTRODUCTION

Gender is a term used to describe the differences between men and women both in terms of values and behavior. Their behavior in doing activities during the learning process is also different. There have been many discussions and researches on gender in learning. In general, male and female sexes obtain different learning outcomes and fulfill specific gender roles both at school and in society (Grossman, Herbert & Suzanne, 1994).

Gender factor is considered as the main element in understanding inequality and identity in modern society. In addition, gender can be used to determine differences in the learning independence of students as prospective teachers through the use of technology. Venkatesh & Bala (2008) stated that gender is a major component for understanding the perceived benefits and usefulness of technologies such as E-learning. In addition, the use of e-learning by male and female students certainly differs, both in terms of perceptions and student mastery. Hence, it can affect the level of each student's learning independence. Male and female students have different levels of learning independence. These differences are in the form of behavior, attitudes, learning methods, views, and the learning process between students.

Independence can be characterized as a process of self-control, a state of being independent of others, ability to make decisions independently, and initiatively and confidently completing tasks (Sulistyani et al., 2020). The level of student independence can also be used as a means to see how teachers and parents conducted their own learning process. Learning is a process of discovering, understanding, and knowing

what is not yet known (Ashadii & Suhaeb, 2020). Learning independence is very important to achieve learning outcomes. If you have to study at home, the pandemic also demands independent learning (Kusuma, 2020). Learning is needed to organize, control, and direct oneself to complete different tasks during the learning process (Harahap & Harahap, 2020). Students can be characterized as independent in the learning process, showing that they can control themselves in the learning process and control their independence from the learning process (Etika Rahmawati et al., 2021).

The high level of learning autonomy among students allows students to measure the learning outcomes they want to achieve. This independence is a habit of students in planning their learning activities (Rozi & Lana, 2021). It is important to know that learning independence is necessary because this ability is an aspect that must be achieved in order to produce achievements which in turns are ready for further achievements (Fitriani et al., 2020). The results of the research by Geng et al., (2019) stated that independent learning affects students' cognitive abilities. This will support students to study online, use their technology more independently and be more active.

Inherently, each student has different learning independence, be it male or female students. Gumilar & Hermawan (2021) stated that one of the factors that influence learning independence is gender. The difference in independent learning between male and female students is supported by the results of research by Nur & Palobo (2018) which states that gender is a characteristic that distinguishes students in learning and processing information.

Based on research conducted during the learning process, it was found that some students tend to not be interested in learning

in class while some other are interested in learning in class. This can be seen from the less active students in class. Another problem is the level of discipline, for which female students are better than male students. Hence, it is necessary to analyse the learning independence of student as prospective teachers by utilizing e-learning.

E-learning is an innovation that makes a major contribution to the change process, that is, a learning process in which students do not listen to explanations from lecturers, but also carry out other activities such as: observation, implementation, demos, etc. (Hapsari & Srianto, 2019).

At the present time, e-learning in learning is utilized through the use of a Learning Management System (LMS), which includes Moodle. Moodle is an internet-based website and software package. Moodle offers features that support online learning such as quizzes, materials, discussion columns, attendance, and reviews. The use of Moodle-based e-learning is very useful in a situation such as that of the present day, where more online learning is conducted, compared to the offline one. This is because face-to-face learning has not been effective enough to be carried out during the current pandemic. The use of Moodle-based e-learning can also facilitate the learning needed by students with its existing features. With the facilitation of the student learning process, it can be said that their learning independence can also be facilitated through the use of this Moodle-based e-learning.

RESEARCH METHODS

This type of research is quasi-experimental. This research was conducted at the Faculty of Teacher Training and Education (FKIP) Samawa University. Research respondents encompassed 42 people, 21 men and 21 women who came from physics and biology education, as well

as educational technology study programs. The sampling technique used was purposive sampling with the consideration that the sample used was half of each study program. The research instrument used a questionnaire with a Likert scale of 1 to 5. The questionnaire used contained 20 statements, both with indicators of student learning independence. At the end of the questionnaire, a comment column is provided which is useful for obtaining supporting information for the statement given. The data analysis technique used include classifying data, tabulating data, scoring respondents' answers, processing the number of respondents' answer scores, calculating the percentage of questionnaire answers for each item, calculating the average percentage of the questionnaire, visualizing the data in the form of pictures, and the proportion of overall questionnaire answers. The data obtained in qualitative form is then quantified using the following equation

$$\text{Gained value:}$$
$$N = \frac{total\ score\ obtained}{maximum\ score} x100$$

The final results obtained are interpreted into an interpretation scale, that is according to (Riduwan, 2011) as in Table 1.

Table 1. Score Interpretation Criteria

Scale	Category
81-100	Very High
61-80	High
41-60	Moderate
21-40	Low
0-20	Very Low

To determine the effect of Moodle-based e-learning on the learning independence of prospective teacher students, a hypothesis test was carried out with the ANOVA test.
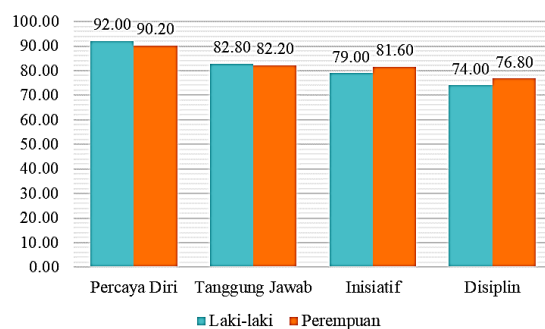
RESULTS AND DISCUSSION

The results of the research that have been carried out are shown in Figure 1 and Figure 2. The data in Figure 1 shows that female teacher candidates have higher learning independence than male teachers.
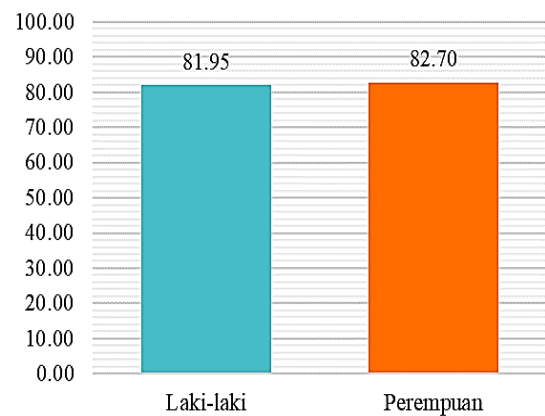
Figure 1. Learning Independence

In addition to learning independence data in general, the gains for each indicator are shown in Figure 2.

Figure 2. Learning Independence Based Gender for Each Indicator

In Figure 2, it can be seen that on two indicators (Confidence & Responsibility) male teacher candidate students get a higher score and on the other two indicators (Initiative & Discipline) female teacher candidate students get a higher score. To see whether Moodle-based e-learning has an effect on the learning independence of prospective teacher students, a hypothesis test is carried out using the ANOVA test parametric test which is known based on the results of the prerequisite test using the homogeneity test and normality test. The

results of the homogeneity test are presented in Table 2 with the conclusion that the data obtained are all homogeneous. Table 3 shows the results of the normality test which states that the data is normally distributed:

Table 2. Homogeneity Test

Levene Statistic	df1	df2	Sig.
.805	1	40	.375

Table 3. Data Normality Test

		Learning Independence
Most Extreme Differences	Absolute	.286
	Positive	.286
	Negative	-.143
Kolmogorov-Smirnov Z		.926
Asymp. Sig. (2-tailed)		.358

After being declared homogeneous and normally distributed, the hypothesis is tested using the ANOVA test. The results of this test are presented in Table 4.

Table 4. Hypothesis Testing

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.714	1	7.714	.278	.601
Within Groups	1109.905	40	27.748		
Total	1117.619	41			

Based on the hypothesis test, it was discovered that the significance value was greater than 0.05 which could be concluded that the learning independence of male and female prospective teachers was not significantly different. This shows that student learning independence is not influenced by gender. In line with this, Wigati (2021) states that there isn't a big difference in the mastery of e-learning between male and female students.

The results of this study differ from previous findings which state that gender can affect student learning independence in online learning.

Male and female teacher candidates have differences both in terms of learning methods, backgrounds, and other characteristics. Ulfa et al., (2020) explains that gender differences make each individual different from other individuals: men are different from women in many aspects including in terms of intelligence, interest, memory, emotion and will. Based on research conducted by Shahzad et al (2020); Ong & Lai (2006) found that boys and girls have different levels of using e-learning; female students are better in finding information without being limited to online communities, and have more ideas, whereas male students are better in managing time to take online classes (Martha et al., 2021).

From the acquisition of learning independence scores between male and female students, it can be seen that female teacher candidates have higher scores than the male ones. However, the scores for both women and men are in the very high category. The high score of female teacher candidate students is because female students are able to express themselves and have better self-confidence so that it has a positive impact on their learning (Sari et al., 2006). Sanrock (2012) states that women's ability to explore themselves is better than men's, and female students are better in adapting when compared to men (Baron & Donn, 2004). The results of the research by Sharma & Sharma (2018) state that women get higher and better ratings in activities and discussion forums than men. Female students are significantly better than their male counterparts in learning (Wigati, 2020).

Students should have an independent attitude in order to be able to sort out what is good and bad for themselves. Students who have high learning independence: are able to distinguish what is best for themselves; are aware; and are able to make decisions during lectures (Mafrudhoh et al., 2020). If the learner has learning independence, then the student is able to not rely on others so he can control himself well and independently.

Hence, he is able to achieve his learning goals. On the contrary, students who have low learning independence does not have a good level of self-confidence, are dependent on others, and are not responsible for the tasks that have been given. Therefore, the learning process using the E-learning system can make it easier for students to achieve independent learning goals or improve their ability to do their jobs in the world of work as prospective teachers.

CONCLUSION

The use of e-learning in the learning process is very helpful for prospective teachers in obtaining information independently in the learning process. It can be concluded that the gender differences of prospective teacher students at FKIP Samawa University have no effect on their learning independence through the use of Moodle-based e-learning. It is hoped that future researchers will see the effect of gender on student learning outcomes for prospective teachers through the use of Moodle-based e-learning with independent learning as a reinforcing variable.

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