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Virtual Learning Poltekkes (VILEP) as an Alternative Method for Face-to-face Lectures

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Abstract

The concept of e-learning has become a part of the learning method, either as a stand-alone method or as a mixed method combined with other learning methods. Several studies have stated that e-learning is effective in improving learning outcomes. Diploma's III of Midwifery Program in Health Polytechnic Palangka Raya uses the VILEP which is an e-learning service portal at the Health Polytechnic of the Ministry of Health. The evaluation of learning outcomes by le VILEP has never been done. This study aims to analyze the effectiveness of learning with VILEP method on student learning outcomes for the Diploma's III of Midwifery Program of Health Polytechnic Palangka Raya. This research is quasi-experimental research with Nonequivalent Control Group Design. The research sample was 76 respondents who were divided into 2 groups. Analysis of the data in this study using the Mann Whitney test to perform different tests on the two variables, as well as multiple linear regression tests. There was no difference learning outcomes in the two groups ($p>0.05$). The VILEP method has the same effectiveness as face-to-face lectures. VILEP method can be used as a substitute when the lecturer cannot carry out face-to-face lectures.

Keywords : E-Learning, Learning Method, VILEP

Introduction

The use of e-learning, which is defined as an educational intervention mediated electronically via the internet, is steadily increasing among students of healthcare professionals worldwide (Vaona et al., 2018) The concept of electronic learning (e-learning) is part of the learning method, either as a stand-alone method or as a mixed method that is combined with other learning methods or is known as hybrid learning. Several studies have stated that this method is one of the keys to success in classroom learning (Brooks et al., 2016; Jesurasa et al., 2017) .

The implementation of e-learning is related to several factors: interaction and collaboration between students and facilitators; motivation and expectations of students; utilization of user-

friendly technology; and placement of learners as centers of pedagogy (Regmi et al., 2020) . Muharto et al (2017) in his research stated that there were differences in learning outcomes between the e-learning group and the group without e-learning. In the e-learning group, the learning outcomes obtained are better. (Muharto et al., 2017) . Other studies also obtained the same results that learning with web-based e-learning is effective in improving learning outcomes (Pujiastitik, 2019)

In order to improve the quality of the graduates of health polytechnic of ministry of health, the Agency for the Development and Empowerment of Health Human Resources through the Health Human Resources Education Center and the Data and Information Center developed *Virtual Learning of Polytechnic of the Ministry of Health (VILEP)* which is an e-

learning service portal at health polytechnic of Ministry of Health that was integrated under the coordination of the Health Human Resources Education Center, the Health PPSDM Agency

In contrast to the traditional face-to-face learning form where the teacher can observe the behavior and preferences of how students learn, this virtual learning method cannot identify how students learn so that it sometimes affects learning motivation. Students with a supportive environment will be motivated and try their best to obtain a lot of information. In addition, this is also influenced by the tendency of the affective style, cognitive style and learning style of each student (Maaliw III, 2020).

Health Polytechnic of Ministry of Health Palangka Raya has been carrying out learning using the VILEP method in all departement since 2019. The use of VILEP is targeted at 35% per course. Based on the evaluation of VILEP learning conducted at the Poltekkes Palangka Raya in 2019, overall most of the students expressed satisfaction with the VILEP services that had been implemented (Datak, et al. 2019) . The DIII Midwifery Study Program as one of the Study Programs at the Poltekkes Kemenkes Palangka Raya has followed the instructions to carry out 35% of VILEP learning in each course. However, the evaluation of learning outcomes by learning through VILEP has never been done. This study aims to analyze the effectiveness of learning with the VILEP method on student learning outcomes for the DIII Midwifery Study Program, Poltekkes, Ministry of Health, Palangka Raya.

Method

This research is a quantitative research. The design of this research is a *quasi-experiment with Nonequivalent Control Group Design*. In this study, respondents were divided into two groups, namely the treatment group and the control group. Prior to intervention, both groups were pretested. In the treatment group, the respondents in this case were students who were given treatment by participating in learning with the VILEP method in the Community Midwifery Care course as many as 3 meetings, which is 35% of the total face-to-face meetings of the course according to

the VILEP learning target at Poltekkes Kemenkes Palangka Raya and in the control group, learning is carried out by the face-to-face method as usual. At the end of the intervention, a posttest was conducted in both groups.

The study population was all students who took the community midwifery care course in the even semester of 2020, 76 students consisting of classes A and B. Sampling was carried out with total sampling technique. Respondents were divided into case and control groups based on class where the number of respondents per class was the same as 38 students. The data collection instrument used a table of contents and a questionnaire containing 20 knowledge questions for the pretest and posttest which had been tested for validity and all questions were valid with an r value > 0.3 and with the results of the reliability test, Cronbach's alpha value was obtained : 0.942

The dependent variable in this study is the learning method and the independent variable is learning outcomes. In addition, there are several external variables that are thought to affect learning outcomes, namely interest, motivation, learning style, residence and facilities owned by students. Data analysis in this study was carried out with a different test using the *Wilcoxon test* to determine the difference between the results of the Pretest and Posttest because the data are not normally distributed and use the *Mann Whitney* test to perform different tests for the independent and dependent variables, as well as a multivariate test with multiple linear regression

Results and Discussion

Based on the results of the study, the characteristics of the respondents were as follows:

Table 1. The Distribution of Respondents Characteristics

| Characteristics | Frequency (n) | Percentage (%) |
|-------------------|---------------|----------------|
| Interest | | |
| High | 40 | 52.6 |
| Low | 36 | 47.4 |
| Motivation | | |

| | | |
|-----------------------|----|------|
| High | 41 | 53.9 |
| Low | 35 | 46.1 |
| Learning Style | | |
| Visual | 26 | 34.2 |
| Auditory | 16 | 21.1 |
| Kinesthetic | 34 | 44.7 |
| Residence | | |
| With | | |
| Parent/family | 49 | 64.5 |
| boarding house | 27 | 35.5 |
| Facility | | |
| Available | 62 | 81.6 |
| Not available | 14 | 14.4 |

Based on table 1, it is known that most of the students' interest in participating in community midwifery care courses is high (52.6%), motivation related to lectures is high (53.9%), most of the students' learning styles are kinesthetic (44.7%), living with other people, parent or family (64.5%) and have facilities in this case in the form of a laptop (81.6%)

Table 2. Respondents' pretest and posttest results

| Variable | n | mean | media | Min- n | SD Max |
|----------|----|-------|-------|-----------|-----------|
| Pretest | 76 | 46.96 | 47,00 | 7-67 | 9.956 |
| Posttest | 76 | 58.41 | 60.00 | 20-80 | 13,693 |

Based on the table above, it is known that the value of students' initial knowledge before getting the material on average is 46.96 and after getting the material the average value of students is 58.41.

Table 3. Results of Pretest and Posttest on Respondents

| Sample Group | Pretest Mean ± SD | Posttest Mean± SD | p value * |
|--------------------|----------------------|----------------------|-----------------|
| Intervention Group | 46.87±10,617 | 56.84± 16.10 | 0.001 |
| Control Group | 47.05±9.392 | 59.97±10.76 | 0.000 |

* Wilcoxon test

Based on table 3, it is known that there is a significant difference between the students' pretest and posttest scores. There is an increase in value after giving the material both in the intervention group and the control group

Table 4. Results of Differential Tests in the Intervention and Control Group

| variable | Learning outcomes Mean ± SD | p value* |
|---------------|-----------------------------------|----------|
| VILEP group | 56.84±16.102 | 0.666 |
| Control Group | 59.97 ±10.759 | |

Table 4 shows that there is no difference in learning outcomes in the two groups ($p > 0.05$), which means that neither of these two methods is more effective in providing students' knowledge of community midwifery care materials.

Table 5. The results of the different test results of respondents' learning outcomes based on the characteristics

| Variable | Learning outcomes | | p value |
|------------------------|----------------------|--------------|---------|
| | n | Mean Rank | |
| Motivation | | | |
| High | 41 | 39.65 | 0.620 |
| Low | 35 | 37.16 | |
| Interest | | | |
| High | 40 | 39.92 | 0.551 |
| Low | 36 | 36.93 | |
| Learning Style | | | |
| Visual | 26 | 36.67 | 0.747 |
| Audio | 16 | 41.94 | |
| Kinesthetic | 34 | 38.28 | |
| Residence | | | |
| Parent/family house | 49 | 41.89 | 0.068 |
| boarding house | 27 | 32.35 | |
| Facility | | | |
| Available | 62 | 40.85 | |

| | | | |
|---------------|----|-------|-------|
| Not available | 14 | 28.11 | 0.048 |
|---------------|----|-------|-------|

Based on the table above, it is known that there are differences in student learning outcomes with available facilities and those that are not available ($p > 0.05$).

Table 6. Results of linear regression analysis of factors that affect learning outcomes

| Model | Variable | Coefficient | t count | P value |
|-------|-----------|-------------|---------|---------|
| 1 | Residence | -2,697 | -0.661 | 0.511 |
| | Facility | -9,313 | -1.848 | 0.69 |
| | Constant | 73.092 | 14,282 | |

F Count = 4.589 0.013
Adjusted R Square = 0.87

Based on table 6, it is known that the variables of residence and facilities have no effect on learning outcomes ($p > 0.05$). These two variables simultaneously can affect learning outcomes ($p < 0.05$) by 8.7% while the rest comes from factors outside this regression equation or other factors not examined.

Based on the results of the study, it was found that 52.6% had a high interest in community midwifery care courses. But statistically there is no difference in learning outcomes seen from the value of students who have high or low interest. The results of this study are supported by research by Sari and Sumarmin (2019) which states that interest in learning does not have a significant relationship with cognitive learning outcomes. Even in this study, it was found that students with high learning interest got low learning outcomes (Sari & Sumarmin, 2019). Previous research also found the same result that interest had no significant effect on learning outcomes caused by other factors such as the number of students in the class and the number of other subjects that students participated in (Firmansyah, 2015). Swarat et al (2012) wrote that interest must be built through an interesting learning environment because sometimes students do not know what to make them interested in learning (Swarat et al., 2012)

In the motivational variable, 53.9% have high motivation towards community midwifery care courses. Motivation can be related to the

positive attitude carried out by students. Those who are motivated will usually work more efficiently to get effective results. Low motivation can lead to behavior in a negative direction so that the results obtained are not optimal. Many factors affect motivation such as support, rewards and incentives (Ali et al., 2011). The results of this study statistically showed that there was no difference in learning outcomes seen from the value of students who had high or low interest. The results of this study are in line with research by Jamilah and Isnani (2017) which states that there is no positive and significant effect between motivation on learning outcomes (Jamilah & Isnani, 2017). Many other factors that may affect learning outcomes besides motivation.

Most of student learning styles are kinesthetic learning styles. Kinesthetic learning style is a learning style in which students prefer to learn by moving or by touching. Statistically there is no difference between kinesthetic, visual and auditory learning styles on learning outcomes. These results are in line with the research of Chania, et al (2016) which states that there is no relationship between learning styles and learning outcomes in biology. This is thought to be caused by the students' not applying the learning style. (Chania et al., 2016) The more a person is aware of their learning style, the more they should be able to use efficient ways to learn in order to get better learning achievement (Wulandari, 2011). Another study revealed that one learning style is not enough to improve academic performance so that a combination of learning styles is needed and this study found that the best combination is the audio-visual learning style. Apart from this, students are expected to know their respective learning style preferences and use them to improve academic achievement (Cecilia et al., 2019). In this study there was no difference in learning outcomes with various student learning styles, it was possible because students had understood their respective learning styles so that they could obtain the same results with different types of learning styles.

Most of the students live with their parents. The results of the statistical test did not find any difference in learning outcomes for students living with their parents or family with students living in boarding. These results are in line with

research conducted at the University of Palangka Raya which states that there is no difference in learning outcomes between students who live in boarding houses or at parents' homes. Students who live in boarding houses can also manage time to study well, the same as students who live with their parents (Saputra, 2019) . Another study by Akmal et al (2019) also showed the same result that there was no difference between the achievements of students living with their parents and in boarding houses. This is thought to be due to motivational factors in learning (Akmal et al., 2019) . Another study conducted in Turkey also found that there was no problem where students lived either in dormitories, in flats, with parents or other types of housing because the results of statistical tests stated that there was no difference between groups of student residences in learning achievement (Usul, 2017).)

The results showed that most of the students had facilities for learning such as laptops. However, there are some students who claim that they don't have one. The results of statistical tests show that there are differences in learning outcomes between students whose facilities are available and those who are not. This study is in line with several previous studies which state that learning facilities significantly affect learning achievement. Therefore, learning facilities need serious attention to be able to improve learning outcomes (Febriani & Sarino, 2017; Zakaria et al., 2020) . Other research states that learning facilities at home directly or indirectly affect learning outcomes, so it is expected that parents are able to prepare these facilities at home (Susanti & Wahyudin, 2017) .

Based on the results of the study, it was found that there was an increase in knowledge after the provision of learning materials both with the VILEP method and with conventional methods in the classroom. In the intervention group there was an increase in the average score in the class by 9.97 points and in the control group by 12.92 points. When viewed from the difference in mean scores, the control group had a higher improvement than the intervention group, but there was no difference in learning outcomes between the two groups. This result is in line with the results of the analysis conducted by Nadziroh (2017) that learning with methods such as e-

learning is not yet fully effective for improving learning because to be used optimally it requires a stable internet connection and prior training to teachers and students regarding the system that is used. used (Nadziroh, 2017) .

Another study by Hamdani et al (2019), stated that the provision of full online learning was 66.97% effective. There are many aspects that need to be considered in online learning, namely: Convenience by both teachers and students, Teacher's digital literacy ability, Level of learning adaptation by students, Adequacy of devices, Internet connection and costs used for learning (Roni Hamdani & Priatna, 2020) . When viewed from these 6 aspects, the application of learning with VILEP in community midwifery care courses needs to be re-evaluated, especially from the aspect of learning adaptation, adequacy of devices and internet connections. In learning adaptation, it is possible for students with certain types of learning styles to be uncomfortable to study without hearing a direct explanation. In addition, learning with VILEP does not allow students to communicate directly if there is material that is not clear or not yet understood.

In the results of the study, it is known that some students do not have learning facilities (notebook or computer) and from the results of statistical tests it is known that there are differences in learning outcomes for students who have facilities and those who do not. The availability of devices or supporting devices is absolutely necessary for online learning methods such as VILEP. However, in multivariate testing, facilities did not significantly affect learning outcomes, but facilities and living together could affect learning outcomes by 8.7%. The remaining 91.3% factors related to learning outcomes cannot be disclosed in this study such as intelligence abilities, physical conditions during the learning process, and so on.

Based on the description above, learning with the VILEP method in community midwifery care courses has the same effectiveness as conventional face-to-face learning. Thus, this method can be used as a substitute when the lecturer cannot meet face-to-face or is unable to teach directly.

Conclusion

There was no difference in student learning outcomes using the VILEP and conventional methods in community midwifery care courses at the DIII Midwifery study program ($p > 0.05$), this method has the same effectiveness as face-to-face lectures. The VILEP method can be used as a substitute when the lecturer cannot carry out face-to-face lectures.

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