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Blended Learning Models to Improve Student Learning Outcomes During the Covid-19 Pandemic

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Abstract

The COVID-19 pandemic has affected various aspects of life, one of which is education. Direct face-to-face contact needs to be reduced to prevent transmission of COVID-19, while educational institutions must continue to organize learning courses. This study identifies the effect of the blended learning model on learning outcomes of level II students in child-nursing courses during the COVID-19 pandemic. This study used a pre-experiment, one-group pre-test post-test, the sample was selected using the cluster random sampling method involving 105 students of level II of the Fatmawati Academy of Nursing. Data were analyzed using SPSS-24 software with the Wilcoxon test. The instrument used was a written test consisting of a pre-test and a post-test, a child-nursing procedure skills test. The results showed pre-test mean value is 74.74 and post-test mean value is 80,133. From these results, it can be concluded that there is the use of the blended learning model improved the learning outcomes of child nursing in Fatmawati Nursing Academy students during the COVID-19 pandemic. This can be seen from the average post-test result value, which is higher than the pre-test result value ($p = 0.000$).

Keywords: Blended learning, COVID-19, student learning outcomes, pandemic, learning

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1. Introduction

Currently, the world is experiencing an outbreak of Corona Virus Disease 2019 (COVID-19) which was caused by the SAR-COV-2 virus. COVID-19, has also been determined by WHO since March 11, 2020. The COVID-19 pandemic is a global pandemic, and this pandemic affects all aspects of human life, such as: health, economy, food and clothing and education. The spread of this pandemic has resulted in the closure of public areas in the education sector, namely: schools, madrasas, universities and Islamic boarding schools. UNESCO (United Nations Educational, Scientific and Cultural Organization) on 4

March 2020 suggested the use of distance learning and opened an educational platform that schools and teachers could use to reach learners remotely and limit educational distractions [1]. In connection with these developments, the Ministry of Education and Culture of the Republic of Indonesia also took a policy as a guide in dealing with these diseases at the educational unit level [2].

One of the universities that have felt the impact of this widespread closure is the Fatmawati Nursing Academy. The health crisis caused by COVID-19 has become a stimulus for simultaneous online learning. Online learning tsunamis have occurred worldwide during the COVID-19 pandemic [3]. Educators as an essential element in teaching are required to undertake an unprecedented large-scale migration from traditional face-to-face education to online education or distance education [4].

Distance learning is able to solve the problem of students' delay in acquiring knowledge. Online learning can take advantage of platforms in the form of applications, websites, social networks and learning management systems [5]. These various platforms can be used to support the transfer of knowledge which is supported by various discussion techniques and others. Learning outcomes during the pandemic are also questionable, because educators are required to pay attention to learning outcomes so that the quality of education remains good even during the pandemic.

One learning model that can improve learning outcomes especially during a pandemic is blended learning. Blended learning is a learning model that is carried out by combining direct learning (face to face) in the classroom and indirect learning (outside the classroom). To support this learning model, educators can use the zoom, edlink, google classroom, and what's app, where these applications can be used by students or lecturers outside of the classroom and anytime [6, 7]. This learning activity is an educational innovation to answer the challenges of the availability of various learning resources. The success of a model or learning media depends on the characteristics of the students.

Ika Fitria Elmeida and R. Pranajaya [8] conducted a study entitled The Effect of Blended Learning Methods on Learning Motivation of Midwifery Students at the Tanjungkarang Health Polytechnic. The research design used a quasi-experiment with a non-equivalent control group pretest-posttest design involving 62 students as the sample. This study divides the sample into 2 groups, namely the control and treatment groups. The question formulated in this study is whether the blended learning method can affect student learning motivation? And is there a difference between conventional learning methods and blended learning. The results showed that there was a significant difference between the learning motivation of students who used the blended learning

method and students who used the conventional method. There was a significant increase in motivation due to the application of the blended learning method.

Aditia Rahman, Yusep Sukrawan, and Dedi Rohendi [9] examined the Application of the Blended Learning Model to Improve Learning Outcomes of Drawing 2-Dimensional Objects. This study used a quasi-experimental design with an equivalent time series type. The research sample was taken as many as 29 students from KBK Otomotif S1 Mechanical Engineering Education Class of 2017 with a purposive sampling method. The results showed that the overall response of students, students felt very happy with the application of the blended learning model and enjoyed the learning process. As many as 78% of the students stated that they were interested and liked the blended learning model. The conclusion of this research is that the motivation, interest, and awareness of learners increase after the blended learning model is applied

Based on the study of previous research described above, the position of the researcher between previous studies is different. Current research has differences in terms of both the research location and the data that will be extracted and b ased on the description above, the researchers are interested in examining whether the blended learning model can help improve student learning outcomes during the COVID-19 pandemic in child nursing courses, so that this becomes an evaluation material in the application of various learning models, creating effective online learning in the middle. The COVID-19 pandemic.

2. Methods

This research uses quantitative research. The research design was a pre-experimental one group pretest-posttest, namely providing interventionstudy subjects, then the effect of the intervention was measured and analyzed. In this study there was only one group that functioned as the control group (before the test treatment was introduced) and the experimental group (after the introduction of the test treatment). The sample in this study were 105 students of level II, in the academic year 2019/2020. The sample selection method used in the study was cluster sampling. Cluster Sampling is a group sampling technique. This type of sampling is carried out based on certain groups /areas [10]. The researcher chooses a sample, namely students who will take a child nursing course, so that all level 2 students are involved as the sample

The research location is at the Fatmawati Nursing Academy, Jalan Raya Wildlife (H.Beden) No.25 Pondok Labu, Cilandak, South Jakarta. The research time is from February - July 2020 (even semester). This study applies research ethics such as:

benefit, informed consent, confidentiality, and protecting from discomfort [11, 12]. The data were collected using a research questionnaire consisting of questions with multiple choice answers on the pretest and posttest and one observation sheet in the form of a standard operating procedure (SPO) for child nursing lab skills. This study uses content validity [13]. The results of the content validity are from 75 pretest questions that can be used is 60, from 70 posttest questions that can be used as many as 60, and for skoring is correct score divided by the number of questions. The pretest and posttest questions used use vignete or case questions in the nursing field.

Data analysis used nonparametric Wilcoxon test. In conducting this research, researchers used the SPSS program which is used to simplify calculations. A research result is said to be significant if the value of $p \leq \alpha$ ($\alpha = 0.05$), while a data is said to be insignificant if $p \geq \alpha$ [14]. Learning outcomes that are measured are the cognitive domain, affective domain and psychomotor domain. For measure learning outcomes in the cognitive and affective domains is to use pretest and posttest questionnaires, while to measure learning outcomes in the cognitive, affective and psychomotor domains is to test procedure skills in children's nursing laboratories using trigger cases.

In the early days of the pandemic, learning was still through face-to-face class as many as 7 meetings, then do prestest. When the Indonesian government required learning to be done remotely, learning was carried out online using various applications such as Edlink, google classroom, whatsapp group, and zoom for 7 meetings, then do posttest. The next meeting (about 2 meetings), where the government provided concessions for universities to carry out learning using health protocols, so that the teaching team divided students into small groups and simulated skills in the laboratory while adhering to the use of health protocols such as masks, face shields, maintaining distance and frequently washing hand using soap. After the simulation of children's nursing lab skills, a skill lab test is carried out which is part of the posttest. The test starts with the researcher preparing questions in the form of trigger cases (part of the posttest). Researchers and the teaching team try to create trigger cases so that students can analyze the appropriate skill lab procedures. After students determine the appropriate skill lab procedures, then students prepare tools and carry out procedures in accordance with the standard operational procedures that have been prepared. After students carry out the procedure, students respond or ask and answer questions related to concepts and procedures that can be done face-to-face or online.

3. Result

This research involved students of the Fatmawati Academy of Nursing level II, batch 20 of the 2019-2020 academic year. In the table above, it is known that the majority of respondents are late adolescents (aged 21-23 years), namely 90.48% (95 respondents). The table also shows that the majority of respondents are female, namely 89.52% (94 respondents), and 10.48% (11 respondents) are male.

TABLE 1: Respondent Characteristics Frequency Distribution (n = 105)

Characteristics	N	%
Age		
a. Late Adolescence (17-20 years)	95	90.48%
b. Early Adult (21-23 years)	10	9.52%
Gender		
a. Male	11	10.48%
b. Women	94	89.52%

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TABLE 2: Normality Test of Learning Outcomes (Pretest-Posttest) in Nursing for Student Children for the 2019-2020 Academic Year

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
value_pretest	.117	105	.001	.925	105	.000
value_postets	.140	105	.000	.912	105	.000

a. Lilliefors Significance Correction

The sample was 105 and tested for normality using the Lillefors test and the results were not normally distributed, then the researcher transformed the data with log10 and still found that the data was not normally distributed. Because the data were not normally distributed and did not meet the requirements for using parametric analysis, the researchers then performed the nonparametric Wilcoxon test.

In table 3, it is known that the difference (negative) between the learning outcomes of children's nursing for the pretest and posttest is 24 data (N). This states that there is a decrease in the pretest to posttest scores by 24 respondents and the average decrease in the pretest to posttest scores is 31.23, while the number of negative ranks or Sum of Ranks is 749.50. Positive Ranks or the difference (positive) between children's

TABLE 3: Learning Outcomes of Child Nursing Pretest and Posstest, Academic Year 2019-2020

	N	Mean	Std. Deviation	Minimum	Maximum
value_pretest	105	74.7429	8,41248	44.00	88.00
value_postets	105	80.1333	4,59529	62.00	89.00

		N	Mean Rank	Sum of Ranks
value_postets - value_pretest	Negative Ranks	24a	31.23	749.50
	Positive Ranks	74b	55.43	4101.50
	Ties	7c		
	Total	105		

a. value_postets <value_pretest

b. value_postets> value_pretest

c. value_postets = value_pretest

TABLE 4: Results of the Analysis of the Effect of the Application of the Blended Learning Model on Learning Outcomes of Nursing for Children, Academic Year 2019-2020 (n = 105)

value_postets - value_pretest	
Z	-5.944b
Asymp. Sig. (2-tailed)	.000

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

nursing learning outcomes for pretest and posttest. There are 74 positive data (N), which means that the 74 respondents experienced an increase in children's nursing learning outcomes from pretest to posttest scores. The mean Rank or the average increase is 55.43, while the number of positive rankings or Sum of Ranks is 4101.50. Ties is the similarity of the Pretest and Posttest values, here the Ties value is 7, so it can be said that there is the same value between pretest and posttest on 7 respondents. Based on table 4 above, it is known that Asymp.Sig. (2-tailed) is worth 0.000. Because the value of 0.000 is less than <0.05, it can be concluded that "Ha is accepted". This means that there is a difference between children's nursing learning outcomes for pretest and posttest, so it can also be concluded that there is an effect of the application of the blended learning model on children's nursing learning outcomes in Fatmawati Nursing Academy students during the COVID-19 Pandemic.

4. Discussion

The learning outcomes before and after being given a learning model appeared positive changes, which can be seen from the learning outcomes of 74 students (n = 105).

Blended learning is a learning model that can increase the attractiveness of the face-to-face learning process and is very suitable to be applied in the 21st century era [15]. The implementation of the blended learning model can improve student learning outcomes in cognitive, affective and psychomotor aspects [16].

Children's nursing learning outcomes that have been formulated are measured in the cognitive, affective and psychomotor domains. In order to help students improve learning outcomes even though during the COVID-19 pandemic, the learning process is strived to be interactive, inspiring, innovative, fun, challenging, motivating students to actively participate, so researchers try to apply the blended learning model. The researcher applied face-to-face learning as many as 9 meetings and 7 other meetings held online. Student success can be seen from their achievement or learning outcomes. Learning achievement or learning outcomes are still benchmarks in assessing student competence. Currently, there are still many work institutions that use the learning achievement index as one of the requirements for hiring employees. However, in reality, many students still have low learning achievement. Many things can affect student learning outcomes. Barseli's research on the relationship between student academic stress and learning outcomes shows that stress significantly affects student learning outcomes, besides that the learning process also affects student learning outcomes [17].

The pediatric nursing course began when the corona virus entered Indonesia, so there has been no appeal from the government to close schools or colleges. Online learning has become a demand in the world of education since the last few years [18]. Various platforms can be utilized to support online learning [19], such as: Zoom, edlink, google classroom. The platform allows educators and students to meet and interact virtually with instant message facilities and presentation activities [20].

In the course of online learning invites various kinds of student responses. There are students who remain active as if they were taking lessons in class, but there are also students who are not enthusiastic about carrying out lectures online, because they feel bored for too long at home and admit that they are not optimal in discussions on group assignments. To improve the measurement of learning outcomes in the affective and affective domains, the researcher gave the task of making nursing care papers for children with various health problems using trigger cases. In this case, the lecturer has the role of conducting a review of the students' writings by first submitting the writing procedure [21]. In the context of implementing a student-centered educational paradigm, Corrections are made through a peer review process before being reviewed by the lecturer. In addition, for every online learning, students are required to use

uniforms and lecture attributes like they are in class. It can be said that the motivation of students when participating in online learning varies. High student motivation to learn can be seen based on indicators, one of which is related to concentration [22].

Materials that have psychomotor skills, such as oral gastric tube insertion procedures, provision of nebulizer therapy to children, treatment of laparotomy wounds, treatment of hydrocephalus wounds, colostomy care, kangaroo method care and immunization injections for infants and children are given online, with explanation of the procedure, sending Learning videos for students through the zoom, edlink or google classroom application, then students watch the video that has been given and analyze it again. Changes in knowledge and attitudes will be easier to do through multimedia [23]. The use of video as an educational medium can save time compared to lectures, in addition, the use of video media is also able to maintain the attention of students to pay attention to the material presented [24].

Based on the analysis of this research, it was found that the factors that contributed to the improvement of student learning outcomes during the pandemic were the students' motivation and desire to learn, besides that, the existence of new teaching techniques or learning models for students also made students feel happy. Students feel happy learning online because it can be done anywhere and anytime. However, there are also those who are bored with the online learning model, this is because students think that online learning becomes less supervised and there is less presence of teachers, making it difficult to concentrate and understand what the lecturers say. Hence the application of the model learning that has a significant effect on increasing learning motivation actually become the basic capital for the next response is an increase student's learning outcome.

Other research results found that the majority of respondents based on age in the study were in the late adolescent category, namely 17-20 years old as many as 95 (90.48%) while the rest were in the early adult category. namely aged 21-23 years as many as 10 (9,52%). Late adolescence is a child who begins to see himself as an adult and shows attitudes, thoughts and behavior that are getting older [25]. Late adolescence has been able to make wise decisions and learn to be responsible for themselves and others even though not as a whole.

According to Potter & Perry [26], physical growth in early adulthood has stopped, but changes in cognitive, social, behavior continue to occur in his life. The early adulthood phase is the phase to choose, take responsibility, achieve stability, and begin to have close relationships. According to the Indonesian Ministry of Health [27], the age of the respondents in the results of this study were both in the late adolescent category,

namely 17-25 years. Based on this, it can be seen that there is no difference in the age category of students. The age difference in these students shows that late adolescence and early adulthood are still unstable when they get stressors [28].

The results of this study indicate that the majority of the respondents are female, namely 89.52% (94 respondents), and 10.48% (11 respondents) are male. The majority of students at the Fatmawati Nursing Academy are female. This can be due to multifactors, including: the traits possessed by women, nurses are identical to the art of caring, which requires meekness, and motherhood, where these traits can be found in women; 2) interest in college, generally women who are interested in going to school and working as a nurse; 3) stress levels of women are lower than men and this will affect when giving intervention to patients later [29, 30]. Women are more flexible and better able to handle major stresses.

5. Conclusion

Student learning outcomes are influenced by many factors, one of which is the factor of the education provider, which includes the learning techniques or models used by the lecturers. The results of this study indicate that the blended learning model can be an alternative that can be used by lecturers during the COVID-19 pandemic, because this learning model can be done with an elongated number of learning hours. However, what needs to be considered is the availability of internet networks in areas where students live, and it requires cooperation with telephone providers to facilitate education during the Covid-19 pandemic.

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Conflict of Interest

The authors have no conflict of interest to declare.

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