THE EFFECTIVENESS OF FLIPPED CLASSROOM LEARNING MODEL IN MEDICAL SURGICAL NURSING COURSES

ABSTRACT

Introduction: During Covid-19 pandemic and the demands of the 4.0 era, nursing education requires educators to innovate learning in the form of blended learning, one of which is the flipped classroom. The purpose of this study is to identify the effectiveness of the implementation of the flipped classroom learning model in medical surgical nursing courses.

Method: The research design used a quasi-experimental design with the pre-posttest control group. The implementation of the flipped classroom learning model will be applied in medical-surgical nursing courses, at level II nursing undergraduate students as many as 75 students, selected by proportional random sampling, consisting of 38 students in the intervention group and 7tudents in the control group. The Metacognitive Inventory Nursing Students (MINS) questionnaire measures student learning outcomes.

Results: The results of this study indicate that there is a significant effect of flipped classroom learning model in the medical surgical nursing course [p=0,00; Z = -5,40].

Conclusions: The results of the study are promising as the course can have a direct effect on the nursing education system, especially in improving the quality of learning models. This model may be used as a way to improve student skills in medical surgical nursing courses.

Keywords: *flipped classroom, learning model, medical surgical nursing*

INTRODUCTION

The Covid-19 pandemic has changed the order of all aspects of life, including education. Online learning directly or indirectly has an impact on changes in learning methods. This is

because the previous learning methods are no longer adequate for dealing with the complexities of today's public health care needs. The FC learning model is one of the learning strategies that encourage the ability to think critically, and encourage student activity and involvement in the learning process. Several approaches in this FC model include PBL, TBL, Simulated-Based Learning (SBL), and role play[1-6].

Education faces competition and professional needs in the 4.0 revolution era, which is faced with the challenge of being able to adapt to technological developments. One of the innovative methods that can be used is the flipped classroom (FC) learning model (Barbour & Schuessler, 2019)[7-8].

The FC learning model is one of the learning strategies that encourage the ability to think critically, and encourage student activity and involvement in the learning process. Several approaches in this FC model include PBL (Problem-based Learning), TBL (Team-Based Learning) and role play[10].

Several previous studies have proven the success of the FC learning model. Kim & Jang (2017) in their research found that the group with the FC learning model scored high in academic achievement, ability to work in a team, and level of satisfaction, including content knowledge and competence in clinical nursing practice compared to the control group [11]. Other studies were conducted by Park & Lee (2018) with 102 third-level nursing students as respondents, who were divided into two randomly selected groups, namely the FC learning group and the traditional learning group, which was carried out for one week, 45 hours of practical learning [12].

The purpose of this study was to improve the quality of learning in undergraduate nursing classes, especially in medical surgical nursing courses through the application of the flipped classroom learning model and to improve student learning outcomes in cognitive, psychomotor,

and affective aspects in analyzing cases both conceptually and related to learning in the laboratory.

METHOD

Study Design

This study used a quasi-experimental design with pre- and post-measurements in the control and intervention groups. The implementation of this study was measured before the intervention was carried out in both groups. Next, the researcher applied the "Flipped Classroom" intervention and then evaluated it through return measurements post-intervention.

Population, Samples, and Sampling

The population in this study were all students who contracted medical surgical nursing classes. The sample used in this study was the proportional random sampling technique Samples size in this study was taken from as many as 75 respondents. The sample used in this study was 38 people in the intervention group and 37 people in the control group.

Instruments

Instruments that were used in the study were The Metacognitive Inventory Nursing Students (MINS) Scale. The Metacognitive Inventory Nursing Students (MINS) questionnaire based on Hsu's research (2010) has been tested and reliably obtained Cronbach's Alpha value of 0.94[38].

Procedure

The intervention process using the Flipped classroom Learning method will last for two weeks. Filling out the questionnaire was carried out by the respondent and accompanied by a

researcher or data collection assistant to facilitate if the respondent did not understand the questions in the questionnaire. The researcher gave the MINS questionnaire sheet after the intervention

Data Analysis

Data used in this study were analyzed using analysis computer statistical SPSS 20. Because of the data was not distributed normally, the Wilcoxon test was used to see the difference in the learning outcome in the intervention and control groups.

Ethical Clearance

This research has passed the ethical clearance test at the ethics committee of UNISA Bandung with Number: 93/Kep.01/UNISA-BANDUNG/VI/2022, also paying attention to ethical principles during the study so that it can be used to convince respondents that respondents get protection from all things.

RESULTS

Table 1 describes the characteristics of the respondents. The results found that female (90,7%) was more dominant than male (9,3%). Based on the age of the order, the most respondent were 20 years old (81.3%), 19 years (10.7%), and 21 years old (6%). Meanwhile, based on domicile, most of the respondents live in Bandung City (70.7%) and the rest live outside of Bandung City (29.3%).

Table 1. Demographic Data Characteristics of Student, May 2022 (n=75)

Characteristics	f	%
Gender		

Male	7	90,7
Female	68	9,3
Age		
19 Years	8	10,7
20 Years	61	81,3
21 Years	6	8
Domicile		
Bandung City	53	70,7
Out of Bandung City	22	29,3

The results of the normality test of the pre-test and post-test data are known to have a significance value of less than 0.05 (p 0,000), so it can be concluded that the data in this study were not normally distributed. Then the bivariate analysis used the Wilcoxon test.

Table 2. Pre Test and Post Test Class Implementation of Conventional Models and Flipped Classroom (n=75)

Group	Pre-Test			Post-Test			
	n	Mean	sd	n	Mean	sd	p
Conventional	37	50,5	3,9	37	62,2	5,03	**0,000**
Flipped Classroom	38	53,1	2,6	38	65,3	1,89	**0,000**

The results of the Wilcoxon test showed that $p < 0.05$ (p 0,000) which indicated that there was an influence from the application of the Flipped Classroom and conventional models on students' cognitive learning outcomes. However, the mean of learning outcomes with the application of Flipped Classroom is higher than the application of the conventional model. This is as shown in Table 2.

DISCUSSION

The results showed a significant increase in the average value of the KMB Subject teaching achievement in the FC group, as well as the domain in which KMB subjects were taught. This finding suggests that the FC learning model improves students' critical thinking skills. Previous research has also shown that FC has positive results on learning outcomes.

The significant improvement in the mean scores of the overall KMB Learning and its engagement domain after using FC in this study can be attributed to the fact that FC combines active student-centered self-learning and constructivist principles of the paradigm, uses different educational technologies, and facilitates student lecturers relate in a mixed manner. The FC model provides an active learning environment for students by involving them in the process of solving problems that arise during class discussions, as well as using previous assignment materials. This creates a more effective learning environment for students. This is so that students in the class already understand the basics of making family nursing care.

The student-centeredness and flexibility of FC can help enhance critical thinking as a requirement for nursing practice [29]. In addition, FC provides students with opportunities to put their knowledge into practice and to actively engage in participatory activities and group discussions 30. Research conducted by Mi-kyoung, Ju & Joo (2017) shows that as student-centered pedagogy-based teaching, the FC model is an effective strategy to improve academic performance and core competencies[21].

Another study related to nursing student's perceptions of the application of FC learning found that students felt that the FC learning model was more interesting than conventional lectures. A further perception expressed by students is that the application of the FC model gives me more opportunities to communicate with other students/friends [31].

Kushairi (2021) stated in a systematic review of research that the FC learning model supports more effective learning and improves teaching quality. This study recommends that nursing learning should use FC in the teaching and learning process [32]. The results of this systematic review are also in line with the previous meta-analysis research conducted by Goedhart (2020), where overall, the findings generated in this meta-analysis refer to the FC method. which is applied in radiology education and has advantages over passive pedagogical-based traditional lecture methods in promoting theoretical and practical performance [33]. In addition, student preferences are also achieved in the FC process. To get a detailed understanding of the unique power of this emerging teaching-learning model, the explanation can be listed as follows; FC makes full use of modern techniques and platforms to transform "cramming teaching" into "active learning," which completely replaces the unidirectional situation of transmitting knowledge from lecturers and fundamentally stimulates student self-study motivation in radiology[34].

The interesting thing about learning changes during the Pandemic is that students' motivation to learn is better in the flipped learning method, compared to traditional learning [16]. This study is like a review of research that found that nursing students prefer the FC learning approach to traditional classroom [37]. Another explanation is the availability of more active learning time in class to help increase students' understanding of the subject matter. With the FC model many learning activities can be carried out by students in their respective places without meeting face to face but still being able to complete assignments and group discussions that have been given in accordance with the allotted time. Many in-class activities such as small group discussions encourage student-peer interaction. Reviewers and assessors of assignments and lecturers also feel they have more opportunities to provide more feedback during in-class sessions. There are also greater opportunities for students to apply their knowledge in the classroom.

CONCLUSION

The Flipped Classroom (FC) model is an effective strategy to improve academic performance and core competencies. FC involves students in the process of solving problems that arise during class discussions, as well as using previous assignment materials. It can help enhance critical thinking as a requirement for nursing practice. The FC learning method was found to be significantly more effective than traditional teaching in improving the knowledge and practice of midwifery students. This study recommends that nursing learning should use FC in the teaching and learning process. The strength of FC implementation is in the promotion of learning, consolidation of learning, and unlimited learning opportunities.

CONFLICT OF INTEREST

The Author(s) declare(s) that there is no conflict of interest.

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