

Application of the Make a Match Learning Model in Innovation Development Learning Card on Improving the Knowledge of Nursing Students Facing the National Competency Exam

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ABSTRACT

Introduction: Cooperative learning, one of the widely applied active pedagogical methods, aims to improve students' abilities. This approach is based on the concept that learning occurs in a social context, involving interaction between individuals, the environment, and peers. However, research on this active method is still limited, especially in the context of higher education and communication. **Research shows** that cooperative learning can improve students' social and intellectual development, help them hone their interpersonal skills, and increase their sense of accomplishment, productivity, and psychological well-being. **Methods:** This study used a quantitative approach with a pre-test and post-test One Group Design experimental design, involving 104 respondents and a total sampling technique. The instruments used for data collection are learning cards and knowledge questionnaires. **Results:** The study showed a significant difference in students' knowledge before and after applying the "Make a Match" learning model using learning cards, with an average overall score of 3596, a standard deviation of 4654, and a p-value < 0.05. Based on these findings, it can be concluded that the "Make a Match" learning model that uses learning cards is more effective in increasing student knowledge than methods that do not.

INTRODUCTION

Through the renewal of the education system and improving the curriculum, Indonesia needs reliable and qualified human resources to face challenges arising from global competition and the democratization process. Significant changes in the life of the nation and state occur in line with the advancement of Technology and science in the current era of globalization (1). Education in Indonesia is considered one of the means to increase understanding, as stated in the 2001 National Education System Bill, which states: "National education seeks to shape Indonesian society as a whole, namely individuals who have faith and piety in God Almighty, have high morals, are democratic, support human rights, master knowledge, technology and art, maintaining physical and mental health, having a strong, independent, creative, and socially and nationally responsible personality to create a fair and competitive life in a global context" (2).

Cooperative learning, included in the type of active pedagogy often used, is a learning method that aims to improve students' abilities. The basic concept of collaborative learning focuses on learning in a social context, where individuals learn through interaction with their environment and peers. However, research on applying this method in the context of higher education, especially in the field of communication, is still limited (3). Cooperative learning has been shown to improve students' social and intellectual development, hone interpersonal skills, and increase their sense of accomplishment, productivity, and psychological well-being.

One alternative to cooperative learning that can be applied is the make-a-match method, which involves students finding a pair of cards that serve as a question or answer within a specified time. Those who successfully match the cards will earn points. This technique allows students to collaborate and learn the material in a fun atmosphere (4). Cooperative learning can be defined as a process in which students work in small groups to achieve a common goal. This learning includes individual responsibility, personal communication, interaction between members, and assessment of group processes (5).

Previous studies have tested this cooperative learning method to improve communication and teamwork between nurses and nursing students. Some of the techniques used in the study include simulation-based team training (4), interprofessional education with a hybrid approach (6), and Team STEPPS Resources. This method

relies heavily on a team approach to development, where team building as a clinical innovation technique can improve group efficiency(7). One of the cooperative learning models used is the make-a-match method with learning cards to improve student learning activities. This model is expected to improve student learning outcomes. As revealed in the study(8), the make-a-match card game can help students think critically, analytically, and evaluatively, with 80% positive responses and 20% negative responses from participants.

Based on the results of a preliminary study conducted at STIKES Pasapua Ambon and STIKES Maluku Husada, namely with interviews from several Nurse Profession students, they said that so far, they have never done learning using the match method by using a Learning card in facing the National Competency Exam, usually what students get is in the lecture and tutoring method from various pieces of training. In addition, the researcher chose the students of the Nurse Professional Study Program because this study focuses more on increasing the knowledge of Nurse professional students in facing the national competency exam.

From the results of an interview with one of the heads of the nurse profession study program, the student pass rate in the national competency exam is low, around 60%; therefore, this study can help students facing the national competency exam. From the researcher's findings, the researcher is interested in conducting a research titled "Application of the Make A Match Learning Model in the Development of Learning Card Innovation on Increasing the Knowledge of Nursing Professional Students Facing the National Competency Exam". Therefore, this study aims to determine the application of the Make-A-Match Learning Model in the Development of Learning Card Innovation to Improve the Knowledge of Nursing Professional Students Facing the National Competency Exam.

METHOD

This study will adopt a quantitative approach with pre-experiment, pre-test, and post-test Group Design (9). This design has a similar characteristic, where the sample is randomly selected. This study involved two groups: the post-test group that received special treatment, namely the make-a-match learning model using learning cards, and the pre-test group that received conventional therapy with a simple cooperative learning model in the form of lectures. The following is the Pre-test and Post-test One Group Design research design schematic. This research was carried out at STIKES Pasapua Ambon and STIKES Maluku Husada, involving students of the Nurse Professional Study Program. The sample consisted of two groups: Group A, with 52 students, and Group B, with 52 students, for a total of 104 students. The sampling technique used was total sampling (9).

The inclusion criteria in this study include all students of the Nurse Professional Study Program at STIKES Pasapua Ambon and STIKES Maluku Husada who are willing to participate as respondents and are present during the implementation of the research. The exclusion criteria are students who are not present at the time of the study and students who do not complete the questionnaire given. This study's data analysis uses frequency distribution, normality test, homogeneity test, and Paired Sample T-Test. This research was carried out after obtaining an ethical permit from the Health Research Ethics Commission of STIKES Nani Hasanudin on 13/08/2024, registration number 214/STIKES-NH/KEPK/VIII/2024.

RESULT AND DISCUSSION

RESULT

Characteristics of Respondents

Table 1. Results of Student Frequency Distribution

Characteristics	Total	
	n	%
Age		
	17-25 Years	27
	26-35 Years	77
Gender		
	Female	44
	Male	60
Religion		
	Islam	24
	Christian	59
Semester		

Semester I	41	39,4
Semester II	63	60,6

Based on the results of the frequency distribution in Table 1. It is known that the majority of respondents are 26 to 35 years old, amounting to 77 respondents (74.0%); in the Reponden gender, the majority are women with a total of 60 respondents (57.7%), and in the religion of the respondents the majority of respondents are Christians amounting to 60 respondents (57.7%) and the majority of students in semester 2 amounting to 63 respondents (60.6%).

Table 2. Results of Student Knowledge Frequency Distribution

Student Knowledge		(n=104)	
		n	%
Pre-Test	High	50	48.1
	Low	54	51,9
Post-Test	High	80	76.1
	Low	24	32,1

Based on Table 2. It is known that most pre-test students' knowledge is low, with only 54 respondents (51.9%). Meanwhile, most post-test students' understanding is highly knowledgeable, with only 80 respondents (76.1%).

Table 3. Normality Test

Varele	Shapiro-Wilk		Information
	Pre-Test Statistic	Post-Test Sig.	
Student Knowledge	0,101 - 0,120	0,200 - 0,060	Normal

Based on the data normality test table in Table 3. It is known that the pre-test and post-test data of student knowledge have a significant value > 0.05 , so it can be concluded that the data is usually distributed.

Table 4. Results of the Student Knowledge Homogeneity Test

Variable	Levene's Test for Equality of Variances		Information
	F	Sig.	
Student Knowledge	0,704	0,403	Homogeneous

Based on table 4. It is known that the results of the homogeneity test of the post-test and post-test knowledge variables with significant values of $0.403 > 0.05$ can be concluded that the data have the same or homogeneous variance.

Table 5. Results of the Paired Sample T-Test of Student Knowledge (n=104)

Variables	Mean (n=52)	Std. Deviation (n=52)	P value
Student Knowledge	3.596	4.654	0,001

Based on table 5. It is known that the results of the paired test on the knowledge of pre-test and post-test students are known to have a value of $p = 0.001 < 0.05$, so it is concluded that there is a significant difference in student knowledge before and after being given the treatment of the make a match learning model using learning cards.

DISCUSSION

Make A Match Learning Model in the Development of Learning Card Innovation

The Make a Match collaborative learning model aims to actively engage students in a fun learning process and allow them to discuss various issues with their peers (10). This discussion process creates persuasive

communication that can change individual attitudes, beliefs, and behaviors. This learning is beneficial for students in developing communication skills, both individually and in groups, as well as increasing their confidence.

The study's results by (11) showed that 75.8% of the respondents had good knowledge after using the Make a Match learning method, which increased student participation in the learning process. The current learning process is centered on lecturers with more passive students, which can lead to boredom and lack of engagement. Therefore, cooperative learning models such as Make a Match, which emphasizes the active participation of students in achieving common goals, are a practical solution(12). This model focuses on cooperation between group members to independently improve each member's knowledge, attitudes, and skills (13).

Research by Rosa (2023) shows that card game-based learning significantly assists students in comprehending the material and improving their communication skills and teamwork abilities. The test results showed a value of $p = 0.000$, which indicated significant differences in teamwork skills and learning abilities among students who used card games compared to those who did not(14). The Make-a-Match learning method uses learning cards as a fun and effective means of learning(3). One advantage of this method is that college students can find their study card pairs while studying a given concept or topic (5).

Modifying this learning model using learning cards containing words or pictures can stimulate new ideas during the learning process. Learning cards encourage students to write stories, find concepts, and solve problems. In addition, the learning card also invites students to think creatively, which indirectly helps them find the ideas that the lecturer has taught. This model also improves students' creative thinking and oral and written skills.

The application of the Make A Match learning model in the development of learning card innovations to improve the knowledge of nursing students facing the National Competency Exam.

The hypothesis test results showed a significant difference in student knowledge before and after implementing the make-a-match learning model using learning cards. The calculation resulted in an overall average score of 3596 and a standard deviation of 4654, with a p -value of < 0.05 , indicating a significant change in students' knowledge after implementing the learning model. Students with low cognitive skills will hinder students' ability to realize ideas so students will experience difficulties in learning (15). The research conducted (1) showed that nursing students had a knowledge score of 20.07 (66.97%) in antenatal examination practice, while as many as 54 nursing students (84.3%) did not have adequate knowledge about antenatal examination. One of the factors that affect knowledge is information. If someone is given the convenience of obtaining information, it can help them gain new knowledge. Information obtained from informal and formal education can have an immediate impact, resulting in an increase in knowledge (16).

The results of this study also support the research by Pattimura (2024), which revealed that the development of learning cards to improve teamwork and student knowledge showed significant test results. Testing of the experimental and control groups showed significant differences in the mean scores, both in teamwork ($p = 0.000 < 0.05$) and knowledge ($p = 0.000 < 0.05$). These findings show that using learning cards increases teamwork and student knowledge at STIKES Maluku Husada(17). Meanwhile, according to (18), the process of gaining knowledge can occur from the respondent getting the material (module) first and then doing role-play or role-playing between individuals according to the scenario that has been made. Therefore, providing standard simulations with good scenarios can also provide significant knowledge to respondents.

In line with the findings it also shows that card games can simulate clinical scenarios and teach various skills, such as communication, teamwork, and technical skills. Playing card games encourages participants to come together and try to respond to scenarios. The game card can be used in all scenarios or with a group of healthcare providers in simulation. In this study, the student's experience in the clinical environment was used in other games, such as Talking-in-Pairs, Health Travel Game, and Brain Storming Game.

In contrast to the previous study using Tabletop Disaster Exercise (TDE) learning on the knowledge of S1 Nursing students, overall, the difference in the average difference in knowledge scores in the control group and treatment after being given the intervention showed a value ($p=0.000$) where ($p < 0.05$). This means there is a significant difference in the mean knowledge score after being given standard simulation interventions and tabletop disaster exercise (TDE) in the control and treatment groups (16). Some studies say that simulations using certain media, such as media cards, games, and audiovisuals, will have a more significant effect than standard simulations. In line with the above statement, the results of a research survey (19) stated that the application of simulation methods

in nursing education in California in 2006 reached 75%. Most nursing education institutions use this method, which is believed to have a significant effect if developed to improve students' knowledge and skills.

CONCLUSION

The "Make a Match" learning model using Learning Cards significantly improves students' knowledge. The test results showed a significant difference between students' knowledge before and after being given treatment, with a $p\text{-value} < 0.05$. This method not only helps improve knowledge but also encourages collaboration, communication skills, and creativity of students in a more interactive and fun learning atmosphere. This model effectively increases student active engagement and contributes positively to their learning outcomes.

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