



THE DIFFERENCES OF PROJECT-BASED LEARNING AND COOPERATIVE LEARNING MODELS TO INFLUENCE OF CRITICAL THINKING ABILITY IN STUDENT MEDICAL AND SURGICAL SUBJECT 3RD SEMESTER OF DIII NURSING STUDY PROGRAM

Binarti Dwi Wahyuningsih, Sri Sudarsih, Moch Zainuddin

Stikes Bina Sehat PPNI Mojokerto

Email: Binarti.dwiwahyuni@gmail.com, hanifah_ra@yahoo.com, zenika59@gmail.com

ABSTRACT	Keywords
Maximum academic competition needs to have critical thinking skills. It was influenced by the learning methods applied by the teaching lecturer. Learning of Medical Nursing learning requires cognitive, affective, and psychomotor abilities. Learning methods that were appropriate and easily accepted by students such as project-based methods learning and cooperative learning provide learning experiences in the classroom to think more critically and have a high ability to master the concepts and cause motivation to learn. The purpose of this study was to determine the differences in the effect of Project-Based Learning methods with Cooperative Learning on motivation and Critical Thinking Skills in the subject of Surgical Medical Nursing. The study design used true experimental with Randomized control trial approach, namely pretest group design and post-test only control design. The source population in this study was the student D III Nursing Study program of STIKES BINA SEHAT PPNI Mojokerto Semester III. The sample in this study was the third-semester students, Nursing Diploma Program, as many as 78 students. The data collection techniques of this research were written tests and questionnaire tests. Data analysis was performed with the data normality test with the Kolmogorov Smirnov test, and the results were all data were normally distributed so that the data analysis used different tests, namely Mann Whitney, as well as to determine differences in the effect of each class using the Wilcoxon test. The results showed the Asymp.Sig (2tailed) < 0.05, which is 0.000, which means that there are differences in critical thinking skills between classes that use the project-based learning model and the Cooperative Learning model after receiving treatment. Project Based Learning Method guides students through a problem that is solved by a project so that the ability to think in students is more increased.	Project based learning, cooperative learning, critical thinking, motivation, and medical surgical nursing

INTRODUCTION

The maximum academic competence of a student can be achieved through motivation and critical thinking skills. High motivation will increase student academic achievement. Likewise, the ability to think

critically will also improve the ability of students. Both of these are certainly influenced by the learning methods applied by the teaching lecturer.

Inappropriate learning methods will have an impact on low learning outcomes. The conventional method (teacher center) which is still widely applied, it is time to reduce it, because the lecturer as a learning center, will make students lazy to practice critical thinking, because the learning situation is monotonous and unattractive. Whereas learning in Surgical Medical Nursing requires cognitive, affective, and psychomotor abilities.

Education in nursing is an educational process that aims to prepare and produce professional graduates. Graduates produced are expected to be able to provide nursing services based on nursing knowledge and technology. In implementing the nursing practice, nursing graduates need to master clinical skills, one of which is therapeutic communication that will be used in the provision of nursing care. This ability can only be grown through the learning process. In the learning process, in addition to getting theory in the classroom, students also gain learning experience in the laboratory and on the practical ground in an environment that sustains the growth and development of professional abilities (Nursalam and Ferry, 2008).

Appropriate learning methods and are easily accepted by students such as Project-based learning and cooperative learning methods provide learning experiences in the lecture room to think more critically and have a high ability to master concepts and lead to high motivation. Learning motivation is the driving force and direction of learning. An impulse in the sense of a powerhouse that enables the act of learning to be carried out. Steering in the sense of providing guidance to the learning disparity in the direction of the goals set. Learning objectives are the mastery of a new competency to overcome the problem. Overcoming the problem means avoiding

learning from unwanted circumstances. Various clinical situations certainly will be faced by nurses. Therefore, it is important for nurses to think smart in every situation. To think smart, nurses must develop critical thinking in dealing with each new problem and experience. Critical thinking in nursing is a very important component of professional accountability and one of the determinants of the quality of nursing care. Nurses who have the ability to think critically will show an attitude of confidence, conceptual, creative, flexible, curious, open-minded, diligent and reflective (Fesler-Birch, 2005; Ingram, 2008). Ignatavicius & Workman (2006) support this opinion by expressing that critical thinking is a competency that nurses need to have in order to provide quality nursing care because critical thinking is closely related to decision making and appropriate clinical judgment.

Formulation of the problem

Is there any influence of the Project-Based Learning method with Cooperative Learning on the motivation and ability to think Critically in the subject of Surgical Medical Nursing?

METHOD

In this study the true experimental design of the Randomized control trial approach is proposed, namely the pretest group design and the post-test only control design.

The population of this research is all 85 students of Semester III Study Program of STIKES Bina Sehat PPNI Mojokerto. Sampling with the technique of randomized control trial, random sampling can be done by lottery selecting numbers from the list randomly.

Research variable

Independent variable: Project Based Learning and Cooperative Learning

models. Dependent Variable: Motivation and Ability to think critically

Data Analysis

Data collection techniques, namely questionnaires distributed to respondents during pretest and post-test to obtain motivation and critical thinking skills in learning medical surgical nursing, the test is done before the respondent is given recovery with project-based learning and cooperative learning, while post-test is done after giving lectures using the Project based learning and cooperative learning methods. Before the analysis is done, the data normality test is done with the Kolmogorov mSmirnov test and the results are all normally distributed data so that the data analysis is to find out the learning methods of each class with Wilcoxon and to find out the differences in classes A and B using Mann Whitney test.

RESULT

Prove the difference in the effect of Project Based Learning and Cooperative Learning learning methods on motivation and critical thinking skills in Surgical Medical Nursing subjects.

Special purpose

- Identifying students' critical thinking skills in Surgical Medical Nursing subjects before and after the Project-Based Learning method is provided with Cooperative Learning
- Analyze the effect of the Project-Based Learning method with Cooperative Learning on the ability to think Critically in Surgical Medical Nursing subjects.
- Analyze the differences in the effect of the Project-Based Learning method with Cooperative Learning on the motivation and ability to Think Critically in the subject of Surgical Medical Nursing.

The benefits

- As basic data for educational institutions about the Project-Based Learning and Cooperative Learning learning models in improving students' motivation and critical thinking skills in Surgical Medical Nursing subjects.
- As information for lecturers of Surgical Medical Nursing courses about one of the learning models that can be applied to Surgical Medical Nursing courses

Research Results and Discussion

Table 1 Characteristics of respondents in 2019

No	Variable	Frequency	Percentage
1	<i>Gender</i>		
	<i>Class A:</i>		
	Men	2	5,6
	Women	34	94,4
	<i>Class B:</i>		
	Men Women	9	21,4
		33	78,6
2	<i>Age :</i>		
	<i>Class A:</i>		
	18 years old	0	0
	19 years old	20	55,6
	20 years old	12	33,3
	21 years old	4	11,1
	<i>Class B:</i>		
	18 years old	2	4,8
	19 years old	25	59,5
	20 years old	13	30,9
	21 years old	2	4,8

The results showed in table 5.1 obtained the most respondents from class A and B are female respondents namely class A 94.4% and class B 78.6%, while age shows 19 years is the age of most respondents in class A and B namely class A 55.6% and class B 59.5%.

Table 2, Effects of Cooperative Learning Models on the ability to think critically

	Mean Rank	P value
Pre test – Post test	,00 18,00	,000

Wilcoxon test results obtained the value of Mean Rank 18.00 which shows that the ability to think critically increases after using cooperative learning methods. The p-value is 0,000 <0.05 which indicates that there is an influence of the use of cooperative learning methods on critical thinking skills.

Table 3 Effects of the Project Based Learning model on critical thinking skills

	Mean Rank	P value
Pretest – Post test	,00 21,50	,000

Wilcoxon test results obtained the value of Mean Rank 21.50 which indicates that the ability to think critically increases after using the Project based learning method. A p-value of 0,000 <0.05 which indicates that there is an influence of the use of Project based learning methods on critical thinking skills.

Table 4 Differences in the Effects of Project Based Learning and Cooperative Learning on the ability to think critically

	Mann Whitney U	Z	Asymp. Sig. (2- tailed)
Post test	313,000	-4,489	,000

The results of the Mann Whitney test on the pre test show the Asymp value. Sig. (2-tailed) <0.05 which means that in general there are differences in the ability to think critically between classes that use the Project based learning model and the cooperative learning model after receiving treatment

DISCUSSION

Wilcoxon test results obtained the value of Mean Rank 18.00 which shows that the ability to think critically increases after using cooperative learning methods. The p-value is 0,000 <0.05 which indicates that there is an influence of the use of cooperative learning methods on critical thinking skills. The learning model is a pattern that is used as a guide in planning learning in class, in the learning model there are strategies for achieving student competency with approaches, methods, and learning techniques, (Supriyono, 2009: 45). Slavin (2005) explains that cooperative learning is a learning model where students will sit together in groups to master the material delivered by the teacher. Cooperative learning in the opinion of Artzt and Newman (Nur Asma, 2006: 11) is an approach that includes a small group of students who work together as a team to solve a problem, complete a task or complete a common goal. Cooperative learning model is active student learning that emphasizes the development of students' cognitive abilities combined with full personal development through interpersonal skills (Sanjaya, 2013). This is appropriate according to John Dewey in the book New Paradigm learning. Project Based learning learning model is the interaction between stimulus and response, the two-way learning relationship and the environment, where the environment provides input to students in the form of problems while the brain's nervous system functions to interpret aid effectively so that the problem faced can be investigated, assessed, analyzed and sought for a good solution, so that it gets experience.

In Cooperative Learning according (Lie, 2008: 23) is one of the learning models that uses different task structures and rewards to improve learning in groups, whereas in Conventional learning models

using the lecture method each time teaching, so the learning center is at the teacher, by seeing the above understanding that learning methods Project basic learning is designed and developed to help students with students develop critical thinking skills in solving problems so students are able to learn independently.

The effect of the Project Based Learning model on critical thinking skills

Wilcoxon test results obtained the value of Mean Rank 21.50 which indicates that the ability to think critically increases after using the Project based learning method. A p-value of 0,000 <0.05 which indicates that there is an influence of the use of Project based learning methods on critical thinking skills. According to Clegg (in Amini, 2015) that project-based learning is project-based learning lies in the participation of students in investigations as well as problem solving, activities of other meaningful tasks, and gives students the opportunity to work autonomously in constructing their own knowledge, and achieving the pinnacle to produce real products. Giving opportunities to students is given the widest possible to channel / design products, develop, and enhance their creativity. So this Project Based Learning Method is considered by students as a learning method that makes it easy for students to study Surgical Medical Nursing subjects. The use of the Project based learning model in this research is adapted to the development of student characteristics, namely the stage of concrete operational development and to attract all students to think more critically and be able to participate in the process or learning activities of surgical medical nursing that are taking place in class. The increase in students' critical thinking skills in learning medical surgical nursing courses is known by seeing the results obtained by students

from working on the problems showed that most students experienced an increase. That means that students' critical thinking skills have improved. The learning model has a very important role in the learning process. The method used must be in accordance with the objectives to be achieved. With appropriate learning methods students are expected to be active and can affect student learning outcomes. If students do not have an interest in a lesson or learn something then the student will not succeed well in learning something.

Differences in the Effect of Project Based Learning and Cooperative Learning models on critical thinking skills

Mann Whithney test results on the post test showed the Asymp value. Sig. (2-tailed) <0.05 which means that in general there are differences in the ability to think critically between classes that use the Project based learning model and the cooperative learning model after receiving treatment. Project Based Learning learning model is an innovative learning model that involves project work where students work independently in constructing their learning and culminating in real products. In project work contains complex tasks based on very challenging questions and problems and guides students to design, solve problems, make decisions, conduct investigative activities, and provide students the opportunity to work independently. Strengths of the Project Based Learning Model a) Increase motivation b) Increase problem-solving ability c) Increase collaboration d) Increase resource management skills e) Increased resource-management skills. Cooperative learning method of learning is one of the learning methods that places students as learning subjects (student oriented). Wilcoxon Mean Rank test results obtained in Cooperative Learning is 18.00, while table 5.4 Wilcoxon

Mean Rank test results are 21.50 in Project based learning. Learning from the Wilcoxon test results shows that Project based learning has a higher influence on critical thinking skills students, it is evident from the results of the exams that show better results than classes with cooperative learning techniques. as for the benefits and cooperative learning models 1) facilitate student learning; 2) growing students' awareness to learn to think independently; 3) students can solve the problems given by the teacher, according to Riyanto Yatim (2009) one of the characteristics of the Project based learning method is to practice thinking skills and problem solving skills through cases provided by the instructor, while in Cooperative Learning Lie (2008) one of learning models that use different task structures and rewards, from the above theory, it is clear the difference in practicing critical thinking skills on

CONCLUSION

There is an effect of Project based learning method learning with critical thinking ability results Wilcoxon mean rank test obtained 21.50 values indicates p value 0.00 value ($p < 0.00$), while the effect of cooperative learning with Critical thinking ability Wilcoxon test results mean rank 18.00 values obtained showed p value 0.00 tilapia ($p < 0.00$), and on the results of the Difference between the Effects of Project Based Learning and Cooperative Learning Methods on Critical Thinking Ability in the STIKES Bina Sehat PPNI Mojokerto, the value of $\mu = 0.00$ means less than the value ($p < 0.00$) statistical test concluded that with the Project Based Learning method of learning will improve critical thinking skills in teaching medical surgical nursing in the third semester students of the STIKES Bina Sehat PPNI Mojokerto district

For lecturers or supervisors of the STIKES Bina Sehat PPNI

MojokertoRegency is expected to be closer to their students and often do various learning methods that are preferred by students, namely Project based learning so that students have good critical thinking skills.

For students of the STIKES Bina Sehat PPNI Mojokerto Regency is expected to follow the implementation of the Project Based Learning learning method by doing assignments in the form of Projects provided and following the learning process well so that they can have good critical thinking skills as well as high learning achievement.

For the Institution of STIKES Bina Sehat PPNI MojokertoRegency needs to pay attention to clinical practice guidance at hospital institutions also using Project based learning methods in real cases, namely patients in hospitals, so students increasingly improve their ability to think critically about a health problem suffered the higher the patient so that a nurse in the field of good medical is achieved.

REFERENCES

- Amini, R. 2015. Prosiding Pengaruh penggunaan project based learning dan motivasi belajar terhadap hasil belajar siswa kelas V SD. Malang.
- Lie, A. 2008. *Cooperative Learning*. Jakarta: Gramedia.
- Indriana Fristanti. 2011. Peningkatan Kemampuan Berpikir Kritis Pada Pelajaran IPS Sejarah Dengan Pembelajaran Berbasis Masalah Pada Siswa MTs Nahdlatul Ulama Malang. *jurnal.online.um.ac.id/data/artikel14897* A 63EAE97 CODADI CB79.pdf. diakses tanggal 10 Desember 2013.
- Nur Asma. 2006. *Model Pembelajaran Kooperatif*.

- Jakarta: Universitas Negeri Yogyakarta.
- Slavin, R. 2005a. *Cooperative Learning*. Bandung: Nusa Media.
- Slavin, R. 2005b. *COOPERATIVE LEARNING Teori, Riset, dan Praktik* diterjemahkan oleh Narilita Yusron. Bandung: Nusa Media.
- Sugiyono. 2007. *Statistika Untuk Penelitian*. Bandung: CV Alfabeta.
- Sudijono, A. 2006. *Pengantar Statistika Pendidikan*. Jakarta: PT. Raja Grafindo.
- Supriyono, A. 2009. *Cooperative Learning*. Yogyakarta: Pustaka Pelajar.
- Lie. 2004. *Cooperatif Learning: Mempraktekkan Cooperatif Learning di Ruang-ruang Kelas*. Jakarta: Raja Widia Sarana Indonesia
- Slavin. 2010. *Cooperative Learning: Teori, Riset, and Praktik* (Terjemahan dari Cooperative Suprijono. 2013. *Cooperatif Learning*. Yogyakarta: Pustaka Belajar
- Trianto. 2007. *Model-Model Pembelajaran Inovatif Berorientasi Konstruktivistik*. Jakarta: Prestasi Pustaka.
- Sanjaya,W. 2013. *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Prenadamedia Group
- Eti Nurhayati. 2011. *Psikologi Pendidikan Inovatif*. Yogyakarta: Pustaka Pelajar
- Grant, M.M. 2002. *Getting A Grip of Project Based Learning : Theory, Cases and Recommendation*. North Carolina : Meredian A Middle School Computer Technologies.
- Journalvol.5.
- Kemdikbud. 2013. *Model Pengembangan Berbasis Proyek (Project Based learning)*. <http://www.staff.uny.ac.id>