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Application of the Cooperative Learning Model Using the Type of Group Investigating on Student Learning Outcomes

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ABSTRACT

Educational problems always arise, such as an imbalance between society's demands which change easily compared to the capabilities of educational services. This research aims to test and analyze the relationship between the application of the cooperative learning model and the group investigating type on student learning outcomes. Data collection in this research was carried out by conducting a pre-test and post-test on two treatments, namely the control class and the experimental class, each with 30 students. Data analysis was carried out using the SPSS program, including homogeneity, normality, n-gene tests and hypothesis testing. The research results showed that the posttest scores between the control class and the experimental class showed different scores. The learning outcomes of students in the Pancasila and Citizenship education study program at Muhammadiyah University of Bengkulu improved further after implementing the group investigating learning model. The conclusion of this research shows that the cooperative learning model using group investigating has a positive and significant effect on student learning outcomes.

Keywords: Cooperative Learning Model, Group Investigation Method, Student Learning Outcomes

INTRODUCTION

Reviewing Law No. 20 of 2003 concerning the national education system, it is stated that education is an effort and planned to create a learning atmosphere and learning process so that students can actively develop their potential and have religious spiritual strength, self-control, noble morals, intelligence and skills that are useful for themselves, society and the country.

According to the results of his review of the law, there are several important parts that can be criticized from the existing concept of education. First, Education is a conscious and planned effort, the second is a planned educational process that aims to create a learning atmosphere and learning process. Third, the learning and learning atmosphere is directed to develop one's potential. Finally, the end of the education process is the ability of children to have religious, spiritual, self-control, noble morals, intelligence and skills that are useful for themselves, society and the country. It can be concluded that aspects of attitude, intelligence and ability are the goals that must be achieved in the learning process. He further mentioned that a superior generation can be realized by implementing education that prioritizes quality. (Syahrir, 2022) (Sudiana, 2022)

Cooperative learning is a part of science that includes theory, practice and research in the scope of education that aims to achieve learning goals, the model is considered successful if students in the group are able to achieve learning goals together and is considered failed if only some students are able to achieve their learning goals. He further mentioned that in the last three decades, the cooperative learning model has been adopted by various countries as one of the methods that is widely applied, both in the scope of formal and non-formal schools. (Johnson et al., 2010) (Dees, 1991) (Johnson et al., 2000)

Collaborative learning provides students with an excellent opportunity to grow during the learning process. Self-development is carried out for personal learning needs and the development of individual skills in constructing knowledge. In addition, in the context of socio-constructivist theory, collaborative learning can encourage students to acquire in-depth information through group interaction during the implementation of social activities. The hallmarks of collaborative group investigation are investigation, interaction, interpretation, and intrinsic motivation. Group investigations can encourage students to overcome Common challenges. Group work can also encourage students to actively participate in the learning process. Students can benefit from group investigations. Individually, they can gain confidence in expressing their opinions, ideas, and questions, and then exchange them with other students. Through group investigations, students inspire each other to develop learning systems that are meaningful and fun and have an impact on their critical thinking skills. (Deslauriers et al., 2019) (Zhilova et al., 2015) (Abbas et al., 2023)

Based on the above considerations, it is necessary to implement a learning model that is able to involve the active role of students as a whole so that learning activities are no longer dominated by certain students. One of the learning models that involves the active role of students is the cooperative learning model. Cooperative learning is a learning model that is often used to realize teaching and learning activities that focus on students (*student-centered*), most importantly and especially to overcome problems that are often found by teachers or lecturers in making students active who cannot cooperate with other students. Cooperative learning has several types. In this research, the researcher tries to study and analyze the cooperative learning model with the type of *group investigation* in learning to improve student learning outcomes. The reason for using this type of learning is that in the observation of researchers, researchers found a lack of students' ability to communicate and students' skills in the group learning process. Another reason, namely the cooperative learning model with the group *investigation* type is considered to be able to improve students' ability to communicate well and improve students' skills in group cooperation (*group process skills*) so that it can create effective learning and improve student learning outcomes.

Over the past 100 years researchers have focused on outcomes as diverse as achievement, high-level reasoning, retention, task time, learning transfer, achievement motivation, intrinsic motivation, continuous motivation, social and cognitive development, moral reasoning, perspective taking, interpersonal attractiveness, social support, friendship, reduction of stereotypes and prejudices, respect for differences, psychological health, self-esteem, social competence, internalization of values, quality of the learning environment, and many other outcomes. The diverse and positive results produced simultaneously from cooperative efforts have sparked many research studies on cooperative learning that focus on the prevention and handling of various social problems such as. (Carafka & Aghazadeh, 2015; Mendo-Lázaro et al., 2022; Silva et al., 2022)

This study has also become the concern of many researchers in Indonesia, for example. In general, the educational problem that always arises is the imbalance between the demands of the society that are easy to change compared to the ability of educational services owned, and directly this demand emphasizes educators to be able to think variously in the application of the learning system and directly according to all education organizers to make changes that are adjusted to the conditions of the environment, behavior and the change of the times themselves. Another problem that has emerged is that various ways of operationalizing cooperative learning have been implemented in schools and universities, but there has not been a comprehensive review of research evidence that validates cooperative learning methods. Therefore, the aim of this review is to test empirical support that validates the effectiveness of various cooperative learning methods. Especially the (Arifin & Laili, 2022; BP, 2022; Luh & Armidi, 2022; Mulyati et al., 2022; Sukara, 2021) *cooperative learning* model using *group inevtgation.*

METHOD

The type of research used in this study is a type of pseudo-experiment. Pseudo-experiment is a study that groups samples into 2 groups, namely (experimental class and control class). The design of the experimental and control classes is given a pretest at the beginning of learning. The experimental class obtained cooperative group *investigation learning* while the control class obtained learning by discussion method. Furthermore, the experimental class and the control class were given a posttest. This study aims to find information about the effect of the implementation of cooperative learning using the type of group investigation on learning outcomes in PPKN subjects.

The research was conducted from early January to May 2024. The place of this research is carried out at Muhammdiyah University Bengkulu. The population in this study is all students of the PPKN study program at Muhammdiyah University Bengkulu. Which consists of four classes totaling 120 people. The research sample was selected from a part of the population of two classes using *the cluster random sampling* technique, as many as 30 students of the Pancasila and Citizenship Education Study Program of Muhammdiyah University Bengkulu.

The instrument used in this study is a learning outcome test consisting of 21 questions. Student learning outcomes are validated using validity tests. The preparation of this research instrument follows the cognitive realm of Bloom's revision of the taxonomy by Anderson. In this study, there is an experimental class and a control class. In the control class, only a direct/conventional learning model will be implemented, while in the experimental class, it will be determined by an Investigation Group type cooperative learning model. Before being given a lesson, students are asked to do a pre-test after that at the end of the lesson students are given posttest questions. The difference in learning outcomes between the experimental class and the control class was used as an indicator of student learning success by using an investigation-type cooperative learning model in mathematics learning.

This study uses an analysis technique procedure with the provision that the data will be analyzed with a gradual system. Several tests will be carried out, namely hypothesis tests, N-Gen tests, normality tests and homogeneity tests. The use of normality tests and homogeneity tests is carried out as a fulfillment of the requirements of hypothesis tests. In hypothesis testing, the independent t-test method was taken from the results of the posttest between the experimental and control classes.

RESULTS AND DISCUSSION

This study conducted several data analyses, the first analysis result is a validity test which can be seen in the following table 1:

Table 1 Validity Test Results

Item	Calculate	Table	Information
Question 01	0,699	0,361	Valid
Question 02	0,544	0,361	Valid
Question 03	0,781	0,361	Valid
Question04	0,788	0,361	Valid
Question 05	0,601	0,361	Valid
Question06	0,692	0,361	Valid
Question07	0,599	0,361	Valid
Question 08	0,660	0,361	Valid
Question09	0,692	0,361	Valid
Question 10	0,629	0,361	Valid
Question 11	0,601	0,361	Valid
Question 12	0,752	0,361	Valid

Question 13	0,660	0,361	Valid
Question 14	0,371	0,361	Valid
Question 15	0,607	0,361	Valid

Source: primary data processed in 2023

Based on the results of the analysis in table 1, it was obtained that all the calculated values were greater than the r-table, thus all data was declared valid.

This study also analyzes the results of the reliability test, the results of the reliability test analysis can be seen in the following table 2:

Table 2 Reliability Test Results

Reliability Statistics			
Variable	Cronbach's Alpha	Nof Items	Ket
Learning Outcomes (Y)	.877	15	Reliable

Source: primary data processed in 2023

Based on the results of the analysis in table 2 above, it can be concluded that the Cronbach alpha value of 0.877 is greater than 0.66, so the data is said to be reliable.

Table 3 Sample Homogeneity Test Results

Class	Fcal	Ftabel	Ket
Eksperimen Control	5.17	4,17	Homogeneous If Fcal < Ftabel at the level of significance

Source: primary data processed in 2023

Based on table 3 above, the calculation of the homogeneity test analysis in the pretest value obtained that the F value$_{of\ 5.17}$ was smaller than that of the F_{table}, which was 4.17. So it can be concluded that the samples in this study are homogeneous.

Table 4 Results of Postest Data Normality Test

Class	t	Sig	Conclusion
Eksperimen	0,227	0.000	Normally distributed
Control	0,315	0.000	Normally distributed

Source: primary data processed in 2023

Based on the results of data analysis in the normality test above, a t-value of 0.227 was obtained greater than the significant value of 0.000, then in the control class a t-value of 0.315 was obtained greater than the significant value of 0.000. Thus, it can be concluded that the results of the postest for the control class and the experimental class are normally distributed.

Table 5 N-Gen Test Results

Class	N-Gain	Criterion
Eksperimen	0,61	Keep
Control	0,47	Keep

Source: primary data processed in 2023

Based on table 5, the results of the analysis of the N-Gen test in the experimental class and the control class obtained different values, the results of the N-gene test in the experimental class were obtained 0.61 or in the medium category, and in the control class a value of 0.47 or

in the medium category. This means that the learning outcomes of students in the experimental class are greater than those of students in the control class.

Table 6 Hypothesis Test Results

Class	Number of Students	Mean	signifikan
Eksperimen	30	88,3	13,8
Control	30	74,0	6,8

Source: primary data processed in 2023

Based on table 6 above, the calculation of the analysis of the hypothesis test was obtained that the average score in the experimental class was 88.3, while the control class was 74.0. Therefore, it can be concluded that between the two classes, namely the experimental class and the control class, there is a significant difference.

This study aims to analyze the relationship between the application of the learning model using group investigating to student learning outcomes, based on the results of data analysis, it was obtained that there was a difference in student posttest results between the control class and the experimental class, which overall the results of this study showed that the learning model using group investigation had a positive and significant effect on student learning outcomes. This is in accordance with research conducted by which states that the group investigative type cooperative learning model (Handayani et al., 2021; Liwa et al., 2020; Lodan, 2020; Malisa & Barutu, 2019; Richardo, 2015) has a positive and significant effect on learning outcomes. In addition, his research also concluded that cooperative learning in the group investigating type has an influence on student learning outcomes, this model can make students much more active and increase cooperation between students. (Faujiah et al., 2020)

The results of the posttest of the experimental class taught with a cooperative model of *the group investigation* type showed an increase in student learning outcomes. The increase in student learning outcomes in the experimental class is due to the cooperative model *of the group investigation* type where students are allowed to share ideas with each other, and interact with each other so that in investigative activities, students are involved in determining topics and how to obtain data, and students are involved in planning so that students have the opportunity to learn from start to finish.

In this learning model, lecturers and students have the same status in solving problems with different roles. What distinguishes *group investigation* from other types of cooperative learning is that group investigation involves the ability of students to learn through investigation or investigation. The role of lecturers in the class of applying *the group investigation model*, lecturers act as resource persons and facilitators. The effectiveness of the application of this model will allow students to gain knowledge from the problem-solving process so that it is hoped that students will be able to solve problems in the learning process.

In addition, another investigation group model is also mentioned by Van Ingen & Ariew, (2015) Group investigation with a data research-based learning model also demands the development of students' academic activities through digital communication media and digital collaboration to solve a problem creatively so that students increasingly appreciate the ability to reflect and collaborate with others. Activities in group investigation with a data research-based learning model are designed in groups so that students can exchange knowledge with each other. Research activities can be new for students so that students' understanding depends on cultural factors, emotional intelligence, leadership skills.

The implementation of cooperative learning using the groupinvestigating model is expected to be able to contribute theoretically and practically. Theoretically, this application can help students to build their own knowledge; Fostering a sense of responsibility, confidence, and openness of students in groups; and to improve critical thinking skills that are useful for

children's brain development. Practically this application can train students to think critically, foster ideas and creativity, and improve their ability to communicate with teachers and friends. By providing syllabus, lesson plans, learning resources, and learning media based on the POE strategy with the GI model, teachers can use them to improve the quality of student learning and activities, as well as improve the quality of schools with more professional teachers. innovative, and creative in learning activities and students who are intelligent, active, creative, in accordance with the educational goals to be achieved.

CONCLUSION

Based on the results of data analysis and discussion above, this study concludes that the cooperative learning model using group investigating has a positive and significant effect on student learning outcomes. This is shown through the results of the posttest values between the control class and the experiment class showing different values. In the experimental class or class that uses the group investigating model, the score is higher than the control class or the class that does not apply the group investigation model. The learning outcomes of students of the Pancasilan and Citizenship Education Study Program of the University of Muhammadiyah Bengkulu have increased after the implementation of the investigation group learning model.

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