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The Effect of Problem-Based Collaborative Learning Model on Motivation and Problem-Solving Ability In Social Studies Learning for 5th Grade Elementary School Students

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Abstract

This research is motivated by the lack of variation in learning models applied by teachers in social studies in elementary school. Teachers generally only use lecture methods and other methods that do not develop students' ability to think creatively and solve problems. The purpose of this research is to find out the picture of motivation and problem-solving skills in ips learning of 5th grade elementary students using a problem-based collaborative learning model. The study used quasi-experimental methods with nonequivalent control group design research design. The population in this study was all 5th grade students in Moncongloe District of Maros Regency with a total of 280 people. Using simple random sampling techniques, the sample in this study was a student of UPTD SDN 201 Inpres Tammu-Tammu as a control class of 30 people and UPTD SDN 55 Pamanjengan students as an experimental class of 30 people. Data collection techniques through test instruments, questionnaires, and documentation. Analysis of test results data to find out students' motivation and problem-solving skills in social studies learning using the SPSS 22.0 application through the Manova test which shows that the results of the student's motivation questionnaire and problem-solving ability test have a sig (tailed-2) of 0.000 which is smaller than the value sig 0.05 which means Ha was accepted and Ho was rejected so it can be concluded that there is an influence of problem-based collaborative learning models on motivation and problem-solving skills in ips learning of grade V elementary students in Moncongloe District of Maros Regency.

Keywords: *Collaborative, Problem Solving, Motivation, Social Studies*

Abstract

Penelitian ini dilatarbelakangi oleh kurangnya variasi model pembelajaran yang diterapkan oleh guru dalam pembelajaran IPS di SD. Guru pada umumnya hanya menggunakan metode ceramah dan metode lainnya yang tidak mengembangkan kemampuan siswa untuk berpikir kreatif dan memecahkan masalah. Tujuan penelitian ini untuk mengetahui gambaran motivasi dan kemampuan pemecahan masalah dalam pembelajaran IPS siswa kelas V SD dengan menggunakan model pembelajaran kolaboratif berbasis masalah. Penelitian ini menggunakan metode kuasi eksperimen dengan desain penelitian *nonequivalent control group design*. Populasi dalam penelitian ini adalah seluruh siswa kelas V di Kecamatan Moncongloe Kabupaten Maros dengan jumlah 280 orang. Penelitian ini menggunakan teknik *simple random sampling* dan sampel yang terpilih secara acak adalah siswa UPTD SDN 201 Inpres Tammu-Tammu sebagai kelas kontrol berjumlah 30 orang dan siswa UPTD SDN 55 Pamanjengan sebagai kelas eksperimen yang berjumlah 30 orang. Teknik pengumpulan data melalui instrumen tes, angket, dan dokumentasi. Analisis data hasil tes untuk mengetahui motivasi dan kemampuan pemecahan masalah siswa dalam pembelajaran IPS dengan menggunakan aplikasi SPSS 22.0 melalui uji Manova yang menunjukkan bahwa hasil angket motivasi dan tes kemampuan pemecahan masalah siswa mempunyai nilai *sig.(tailed*-2) sebesar 0,000 yang lebih kecil dari nilai signifikansi .0,05 yang berarti Ha diterima dan Ho ditolak sehingga dapat disimpulkan bahwa terdapat pengaruh model pembelajaran kolaboratif berbasis masalah terhadap motivasi dan kemampuan pemecahan masalah dalam pembelajaran IPS siswa kelas V SD di Kecamatan Moncongloe Kabupaten Maros.

Kata Kunci *:* Kolaboratif, Pemecahan Masalah, Motivasi, IPS

PRELIMINARY

Education is the main requirement that must be owned and developed in facing the current condition of the Indonesian nation where the times require students to have the skills to achieve success, be able to compete

and not be left behind by change. The 21st century is a time that has resulted in a much better understanding of the learning process. The main 21st century skills that must be possessed by individuals are critical, collaborative, communicative, creative and innovative thinking skills, self-direction, global connections, local connections and the use of technology (Warsono and Hariyanto, 2016).

Social studies, as one of the lessons taught at the elementary school level, functions to develop basic knowledge and skills to see the social realities faced by students in everyday life and foster a sense of pride in the development of society since the past and present. Social studies has a very noble and noble goal, namely to understand the development of social studies learning and develop knowledge, values, attitudes, social skills, citizenship, facts, events, concepts and generalizations as well as being able to reflect on the life of society, nation and state.

But the reality in social studies learning is considered too difficult for students to understand and even many students are less interested in participating in the lesson. The complexity of the material and the many alternative models that can be developed can create obstacles for teachers because it is difficult to find the right form and model for social studies learning. The social studies education learning process at the school level, both at the primary and secondary education levels, needs serious reform, because in fact so far there are still many learning models that are still conventional, there is no visible improvisation in learning, far from modern learning models in accordance with the demands of the times and environmental conditions where students are.

One of the important components of 21st century education is problem solving ability (Wismath et.al, 2014). In addition, the mandate of the 2013 curriculum in elementary school education is to include 21st century skills in learning by applying the 4Cs (*communication, collaboration, critical and problem solving, creative and innovation*), as well as honing higher order thinking skills (HOTS) (Ministerial Regulations). Education and Culture Number 103, 2014). In the 2013 curriculum learning, students not only receive knowledge transfer from the teacher but learn to find concepts through the stages of analyzing and solving problems. Thus, one of the skills that need to be honed in elementary education is problem solving skills. This is in accordance with the mandate contained in the Regulation of the Minister of National Education Number 21 of 2006 which is that education must be given from an early age because it aims to develop basic skills so that they have problem solving abilities that are used in everyday life.

One of the learning models that can lead students to think at a higher level is the problem-based collaborative learning model. Collaborative model is a group learning model for cooperation in constructing knowledge and each student has a contribution to the group. Collaborative learning is learning that demands to work together in groups to achieve shared learning goals (Barkley, et al., 2016). Problem-based collaboration can encourage students to learn by doing and emphasize the authenticity of a collaborative learning environment, students become participants in an active learning process, with an emphasis on independent thinking and problem solving skills. The goals of problem-based collaboration include not only developing problem-solving skills but also guiding the development of learners' collaboration and communication skills (Amin, 2020). Widjajanti (2008) explains the steps in the problem-based collaborative learning process namely as follows: 1)

learning begins with giving challenging problems; 2) students are given the opportunity to identify and design solutions to these problems individually before they study in groups; 3) students study in small groups consisting of 4-6 people to clarify their understanding, criticize the ideas of friends in their group, make conjectures, choose settlement strategies, and solve problems given by arguing with each other; 4) students present the results of problem solving obtained; 5) students solve problems in the form of exercises given individually.

In Al-Qur'an Ali Imran verse 159 it is also explained that humans are taught to find out or put their trust in solving problems, for example through deliberation. As in problem solving, in the process of solving the problem students find out the solution by digging up information through books, asking questions, or discussing with someone who is an expert in their field.

Problem solving ability is a person's skills in an effort to overcome the problems being faced using a set of rules or procedures, methods or strategies, based on the knowledge and skills gained from previous experience and observations to find something new. (Ayu Wardhani, 2019). Problem solving ability is the ability of individuals to use their thinking processes to solve problems through collecting facts, analyzing information, compiling various alternative solutions, and choosing the most effective problem solving (Preisseisen, in Martinis Yamin, 2007).

Indicators of problem-solving ability used are: a) students are able to understand the problem; b) students can identify various problems that arise; c) students can formulate problems; d) students can select, search and identify materials that are considered important in solving problems; e) students can provide problem solving solutions.

With problem solving skills, students can solve their own problems and do not always depend on others to solve the problem. The problem-solving ability in question is problem-solving ability in working on questions or answering questions from the teacher in understanding social studies material.

In this regard, social studies learning is designed in such a way that it can guide and reflect students' abilities in living a good life in society, nation and state which are always changing and developing continuously. Teachers are required to be able to motivate students to be active, creative, and systematic towards various existing problems, able to provide solutions based on the knowledge and understanding possessed by the teacher, for example by applying a problem-based collaborative learning model.

It is undeniable that learning motivation is one aspect that plays a significant role in the process of achieving learning objectives and learning motivation will also influence and be influenced by cognitive, affective and psychomotor aspects of students. So it can be said that these aspects have a correlation. Learning motivation acts as a stimulus to stimulate students' interest and passion for learning, especially in elementary schools.

According to Sardiman (2017), the motivation that exists in each person has the following characteristics: 1) diligent in facing tasks (can work continuously for a long time, never stops before completion); 2) tenacious in the face of adversity and never give up; 3) show interest in various problems for adults, (d) prefer to work independently; e) get bored quickly on routine tasks or things that are mechanical, just repeating themselves so that they are less creative; f) can defend his opinion; g) it is not easy to let go of what he believes in; h) likes to find and solve problems.

Although there have been several studies conducted to determine the effect of problem-based collaborative learning models, this learning model has not been widely used in social studies lessons, especially at the elementary school level, especially in elementary schools in Moncongle District. In addition to this, in connection with the complexity of the social studies learning problems of elementary school students, the researchers were encouraged to conduct a research entitled "The Effect of Problem-Based Collaborative Learning Models on Students' Motivation and Problem-Solving Ability in Social Studies Learning for 5th Grade Elementary School Students in Moncongloe District, Maros Regency." By using a problem-based collaborative learning model, it is expected to increase motivation and problem-solving abilities in social studies learning for fifth grade students because the problem-based collaborative learning model requires students' active participation in groups to develop problem-solving skills.

RESEARCH METHODS

This research is a quasi-experimental research, using quantitative data analysis. The research design is a quasi-experimental type of *Nonequivalent Control Group Design.* This design is almost the same as the type of *Pretest-Posttest Control Group Design* (Ibrahim, et.al, 2018). In this design, two groups were given a *pretest* to determine the initial state, is there a difference between the experimental group and the control group. Sugiyono (2017) explains that a quasi-experimental is a type of research conducted to obtain information that does not allow to control all external variables that affect the implementation of the experiment.

The population in this study were students of class V (five) in Moncongloe District, Maros Regency, which consisted of 8 schools with a total of 280 students. In this study, *simple random sampling was* used because the sample was taken in a simple way, namely by taking samples from the population at random without regard to the strata in the population.

Based on the sampling technique, the samples in this study were 30 students from UPTD SDN 201 Inpres Tammu-Tammu as a control class and 30 students from UPTD SDN 55 Pamanjengan as an experimental class.

This study uses primary data sources from teachers and students as well as secondary data sources in the form of documentation, questionnaires, *pre-test* and *post-test results.* For data collection, researchers used tests to measure problem solving abilities because they were still in the cognitive realm. The test was given to the control class and the experimental class with material on the form of human interaction with the environment and its influence on the social, cultural, and economic development of Indonesian society in the form of descriptive questions with predetermined score criteria. The student's completeness score is based on the school KKM that has been determined at the two schools, namely 70 with the categorization of the acquisition of solving ability test scores as follows:

Table 1
Categorization of Problem Solving Ability of Class V Students

Interval Class	Category
91-100	Very high
81-90	Tall
71-80	Enough

<70	Not enough

Source: Permendiknas, 2014

Students' learning motivation is measured using a closed questionnaire because the answers have been prepared, students just have to choose the points that match their character. The Likers scale is used to measure attitudes, opinions and perceptions of a person or group of people about social phenomena.

Table 2
Questionnaire Assessment Score

Response	Positive Score	Positive Score
Strongly agree	5	1
Agree	4	2
Doubtful	3	3
Don't agree	2	4
Strongly disagree	1	5

Source: Sugiyono, 2017

The data analysis technique used in this quantitative research is descriptive and inferential data analysis in the form of normality test, homogeneity test, and hypothesis testing using the manova test.

RESULTS AND DISCUSSION

Students' problem solving abilities were described based on the results of the *pre-test* and *post-test. Pre-test* was given to the experimental class and control class before participating in the social studies learning process. After the learning process was carried out, *a post-test was conducted* on the experimental class that received treatment and also on the control class that did not receive treatment. This *post-test activity* aims to measure the level of success of students after participating in the main lessons on the content of social studies lessons in class V (five). The next step is to compare the *post-test results* from the two classes.

The description of the research data in the experimental class for *pre-test* and *post-test* can be seen in the following table:

Table 3
IPS Problem-Solving Ability *Pretest* and *Post-test* Results

		Pre-test	*Post-test*
N	Valid	30	30
	missing	0	0
mean		44.00	88.33
median		44.00	90.00
Mode		68.00	90.00
Std. Deviation		19.65	6,127
Minimum		10.00	70.00
Maximum		68.00	96.00
Sum		1318	2650

(Source: SPSS Data Analysis Version 22, 2021)

Based on the table above, the results of the *pre-test data* in the experimental class show that there is a significant difference in the students' average scores during the *pre-test* and *post-test*. The frequency distribution of scores in the experimental class can be seen in the following table:

Table 4
Frequency Distribution of Experimental Class IPS Troubleshooting Ability

Score	Pre-test		Post-test		Category
	f	%	f	%	
91-100	0	0	9	30	Very high
81-90	0	0	17	57	Tall
71-80	0	0	3	10	Enough
<70	30	100	1	3	Not enough
Amount	30	100	30	100	

(Source: Processed Primary Data Analysis, 2021)

Based on the table above, data is obtained that when the *pre-test was carried out* in the experimental class, no one scored above 70. Meanwhile, at the *post-test* , 87% of students scored in the high and very high categories. In this case, the problem solving ability in the experimental class is greatly improved.

The description of the research data in the control class can be seen in the following table:

Table 5

***Pretest* and *Post-test* Results of Control Class social studies Problem Solving Ability**

		Pre-test	*Post-test*
N	Valid	30	30
	missing	0	0
mean		42.40	72,20
median		42.00	72.00
Mode		30.00[a]	76.00
Std. Deviation		12.96	6,975
Minimum		10.00	62.00
Maximum		72.00	88.00
Sum		1272	2167

(Source: SPSS Data Analysis Version 22, 2021)

The scores of students in the control class, based on the table above, show that there is a difference in the average scores of students during the *pre-test* an d *post-test*. However, this average is close to the school's KKM score of 70. The distribution of the frequency of scores in the control class can be seen in the following table:

Table 6
Frequency Distribution Control Class IPS Troubleshooting Ability

Score	*Pre-test*		*Post-test*		Category
	f	%	f	%	
91-100	0	0	0	0	Very high
81-90	0	0	1	3	Tall
71-80	1	3	14	47	Enough
<70	29	97	15	50	Not enough
Amount	30	100	30	100	

(Source: Processed Primary Data Analysis, 2021)

Based on the table above, it shows that when students were given a *pre-test* in the control class 97% of students scored below 70, while at the *post-test* there was a change in grades but there were still 50% of students who scored below 70, which means that social studies learning have not been completed classically or in this case, the problem solving abilities of students in the class have not developed.

Meanwhile, a learning motivation questionnaire was given to students in the experimental class after the learning process was carried out using a problem-based collaborative learning model. Data on students' learning motivation was obtained from the results of questionnaires as a measuring tool for how much students' motivation in participating in social studies learning in class V by using a problem-based collaborative learning model.

The frequency distribution of student learning motivation questionnaires in the experimental class can be seen in the following table:

Table 7
Frequency Distribution of Learning Motivation Questionnaire

Interval Class	Category	Frequency	Percentage
81-100	Very high	24	80%
61-80	Tall	6	20%
41-60	Currently	0	0%
21-40	Low	0	0%
1-20	Very low	0	0%
	Amount	30	100%

(Source: Processed Primary Data Analysis, 2021)

The data obtained from the questionnaire scores indicate that the categorization of the results of the student motivation questionnaire using the problem-based collaborative learning model tends to be high or even very high. The results of the learning motivation questionnaire obtained by students showed that in general students were diligent in learning and facing social studies tasks and were independent in work and also most of the students expressed interest in social problems and were able to find solutions and solve these problems.

For the differential analysis, the hypothesis prerequisite tests were carried out, namely the normality test and the homogeneity test. If the

prerequisite testing has been met, then the analysis for testing the research hypothesis can be carried out.

The normality test was conducted to determine whether the data were normally distributed or not using the Kolmogrrav Smirnov test. The normality test of a data variable is said to be normally distributed if the significance value is > 0.05 and vice versa if the significance value is less than 0.05 then the distribution is declared abnormal. In this study, the results of the *One-Sample Kolmogorov-Smirnov Test for normality* were obtained using *Asymp. Sig. (2-tailed)* for problem solving is 0.481 and motivation is 0.316. The values of 0.481 and 0.316 are greater than and equal to 0.05 , so the two data are normally distributed.

After the normality test was carried out, the next step was to perform a homogeneity test to find out whether the data from the research sample in the experimental class and control class had the same variance or not. A distribution is said to be homogeneous if the significance level is > 0.05, otherwise if the significance level is < 0.05 then the distribution is declared not homogeneous. If the homogeneity test is met, it can proceed to the Manova test stage.

Based on the results of the homogeneity test, the *Levene Statistics* questionnaire on learning motivation in social studies learning shows that the significance value is 0.302. A value of 0.302 means greater than and equal to 0.05. If the significance value is greater than and equal to 0.05, the data on the results of the questionnaire on students' learning motivation in social studies learning is declared homogeneous. Furthermore, the data on problem-solving abilities in social studies learning above, it can be seen that the significance values in the experimental class and control class are 0.208 and 0.311. Values 0.208 and 0.311 mean greater than and equal to 0.05. If the significance value is greater than and equal to 0.05, the data on the problem-solving ability test results in social studies learning are declared homogeneous in the control class and the experimental class.

If the normality test and homogeneity test have been met, then the next step is to test the hypothesis using the Manova test to determine the effect of using a problem-based collaborative learning model on motivation and problem-solving abilities in social studies learning for fifth grade elementary school students in Moncongloe District. The provisions for testing the hypothesis are that if the significant level is <0.05 then H0 is rejected and Ha is accepted, and if the significant level is > 0.05 then H0 is accepted and Ha is rejected.

The results of the calculation of the hypothesis test using the SPSS 22.0 program application can be seen in the following table:

Table 8
Manova Test Results

	t	df	Sig. (2-tailed)
Problem solving skill	79,257	29	,000
Motivation	70.581	29	,000

(Source: SPSS Data Analysis Version 22, 2021)

Based on the results of the hypothesis test above using the Manova test, it can be seen that the students' solving ability and learning motivation showed a significance value of 0.000. Value 0.000 <0.005 which means Ho is rejected and Ha is accepted. Based on the significance value, it can be concluded that there is a significant effect in the use of problem-based collaborative learning models on the motivation and problem-solving abilities of fifth graders in Social Studies in Moncongloe District, Maros Regency.

This is also supported by the theory put forward by Forgatty (Rosman, 2018) and according to Dewey (Wina Sanjaya, 2006). The two figures provide several problem solving indicators including students being able to find problems, identify problems, formulate problems, gather information and find problem solving solutions. In this study, the materials and problems given to students were those related to human interaction with the social and natural environment.

The results of this study are also in line with the results of research conducted by Andayani (2018) which shows that there are

differences in the problem-solving abilities of students between those who take part in learning with problem-based and conventional learning models in class IX students of SMP Negeri 5 Tabanan.

Meanwhile, students' learning motivation as one of the dependent variables in this study indicates that the results of the student learning motivation questionnaire tend to be high. The results of the learning motivation questionnaire show that students tend to be diligent in learning social studies, students are able to complete tasks independently given by the teacher and students say they are happy and excited to work in groups when completing tasks related to problem solving solutions.

CONCLUSION

The social studies learning motivation of fifth grade elementary school students in Moncongloe District is in the high category after the problem-based collaborative learning model is applied.

The problem solving ability of students in social studies learning has increased after using a problem-based collaborative learning model.

There is an effect of using a problem-based collaborative learning model on motivation and problem-solving abilities in social studies learning for fifth grade elementary school students in Moncongloe District, Maros Regency.

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