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The Effectiveness of Project-based Learning Model to Develop Students' Social Skills

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Abstract

The objective of this study is to describe the use of project-based learning model to enhance students' social skills of the fourth graders at SDN 1 Sedonglor and SDN 1 Panongan of Dewi Sartika after participating in project-based learning. This study was a classroom action research using project-based learning and adapting Kemmis and McTaggart model. The subject of this study was the fourth graders SDN 1 Sedonglor and SDN 1 Panongan of Dewi Sartika with the total of 72 students. Students' social skills were measured based on the improvement in the percentage of students' social skills during learning process. The research instrument used in this study was observation sheet of social skills. From the results of the study, it can be concluded that project-based learning can enhance students' social skills of the fourth graders SDN 1 Sedonglor and SDN 1 Panongan of Dewi Sartika in the animal life cycle lesson. Students' social skills improved from 67.91 before the treatment to 82.15 after the treatment. The results show that PjBL is effective to enhance students' social skills.

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INTRODUCTION

Enhancing education quality should be followed by strengthening students' social skills to think critically and creatively, communicate, collaborate, and compete in this 21st century (Musa, 2012). It is also in line with four competencies that students should possess in this 21st century, called 4C (Creativity and Innovation, Critical Thinking and Problem Solving, Communication Skills, and Collaboration) to build global wisdom in every student (Sarwi *et al*, 2019a). Furthermore, the education goal is to prepare students with analytical abilities, problem solving skills, and critical thinking skills so that students can perform Higher-Order Thinking Skills (Brierton *et al*, 2016). To support this effort, there is always a development in curriculum as an essential element in education. The current curriculum applied in Indonesia is the 2013 Curriculum, which does not only emphasize the cognitive aspect but also develops three aspects including attitude, knowledge, and skill. The 2013 Curriculum is expected to create students' good characteristics (Simamora & Sudarma, 2017; Shafa, 2014).

The Regulation of Ministry of Education and Culture No 20 Year 2016 of Graduate Competence Standard of Primary and Secondary Education stated that Graduate Competence Standard is a criteria of graduate competence qualification including attitude, knowledge, and skill. Students basically possess the competence, but each student has different levels (Muslich, 2014). To support the Graduate Standard Competence, learning process does not only focus on delivering materials but also students' active role in learning as well as students' competence in completing a project. Therefore, teachers must be able to select an appropriate learning model. The appropriate learning model is project-based learning.

Project-based Learning (PjBL) emphasizes students' abilities in completing a project for an individual or in a group (Lenz *et al*, 2015). PjBL involves students in a given task and requires them to collaborate and learn independently (Dado & Bodemer, 2017; Bas, 2011), provide meaningful learning experience, (Afriana *et al*, 2016; Bell, 2010), and include numerous students' skills (Capraro, *et al*, 2013; Fajarwati *et al*, 2007). Moreover, students can be actively engaged in the inquiry process and decision making by improving their practical thinking (Harris, 2002). PjBL scientifically develops through students' processing skills. Therefore, students who develop their scientific processing skills are able to give a solution for their scientific problem by posing questions, discussing ideas, doing observation and prediction, conducting experiment, collecting and analyzing data, as well as drawing a conclusion.

From the elaboration, Project Based Learning (PjBL) can enhance students' thinking ability (Anazifa, 2017), improve cognitive skills (Baran & Maskan, 2010; Alhassan, 2014; Prabawa & Zaenuri, 2017; Efstratia, 2014; Kizkapan, 2017; Insyasiska *et al.*, 2015), questioning skills (Sasson, 2018), developing students' social skills (Dewi *et al.*, 2016; Murniyetti, 2016), encouraging students to love nature (Kim, 2015; Kılınç, 2010; Tseng, *et al.*, 2013; Maharani, 2014), fostering scientific skills (Özer & Özkan, 2012), and developing processing skills (Milla, 2019; Wulandari, 2016). PjBL can be implemented in every lesson, particularly science.

Science is basically a product and process, so it is immense potential to develop the 4Cs skills. Through several suitable approaches, science learning is expected to encourage students to master science and technology, think logically and critically, argue rationally, act comprehensively and solve various problems in the real life. However, if investigated further, science learning in Indonesia has not been conducted as expected. Science learning, in general, is still carried out using lecturing method and drilling to accomplish the lesson and achieve the score targeted for the national exam. Students only memorize knowledge, but do not try to do scientific process to develop their processing skills related to the 4Cs skills.

The learning objective should be directed to 4Cs skills built through a series of activities in

science learning. To realize science learning that can enhance 4Cs skills, a suitable learning model is needed. One of the learning models that can be implemented is Project-Based Learning (PjBL). In PjBL, students experience a wider inquiry process to respond more complex questions, problems, or challenges. Through these series of learning activities, students are expected to possess 21st-century skills, particularly for 4Cs aspects.

Social skills are someone's or citizen's abilities to interact with others and abilities to solve problems, so the man gains a harmonious adaptation in society or at schools. It can be concluded that social skills are human abilities to live, and the whole activities are well accepted in the social environment. It can be concluded that social skill is a human life skill to make all activities can be accepted in the social environment.

Social skills have several characteristics, they are (a) interpersonal behavior, is a behavior related to the skills performed during social interaction, social behavior between two or more people which indicates the processes appear as a result of positive interaction, (b) Self behavior, is a behavior of someone who can manage himself in the social situation, (c) academic behavior, is a social behavior shown because of demand and obligation to reach social achievement, (d) peer acceptance, is a behavior related to the acceptance of peers, and (e) communication skills, are skills required to build a good social relationship.

Therefore, this study intends to investigate the effectiveness of project-based learning model to develop students' social skills during science learning process in the fourth grade.

METHODS

The research design employed in this study was experiment with pretest-posttest design. In this design, only a group was given pretest and posttest (Sugiyono, 2014). The design can be described in the Table 1.

Table 1. One Group Pretest-Posttest Design

Pre-test	Treatment	Post-test
O_1	X	O_2

Information:
O_1 : pre-test score (before treatment)
O_2 : post-test score (after treatment)
X : the given treatment (by applying project based learning model)

The type of this study was quantitative. Sugiyono (2014) stated that quantitative study can be defined as a research method based on positivism philosophy, used by researchers in a population or certain sample, the data collection employed research instrument, the data analysis was quantitative/statistics, with the aim to test the hypothesis.

The population of this study was the fourth graders of SDN 1 Panongan and SDN 1 Sedonglor. The sampling technique employed in this study was simple random sampling. The reason for selecting simple random sampling was because it was assumed that the population was homogeneous. The sample of this study was the fourth graders of SDN 1 Panongan and SDN 1 Sedonglor.

The research procedure consisted of three stages including preparation, implementation, and final stage. Preparation stage included (1) conducting interview and observation of fourth-grade teachers of state elementary school A, (2) preparing the research instrument, including questions for pretest and post test as well as lesson plan, (3) checking the validity of research instrument, (4) revising research instrument, (5) conducting try out of the questions in another school, which was elementary school B, having the same school accreditation "B", (6) analyzing the data of try out to investigate the reliability, difficulty level, and distinguishing power of each test item, and (7) using the questions to collect necessary data.

The second stage, implementation, consisted of (1) determining research schedule in line with the schedule of science subject, (2) providing pre-test to investigate the students' precondition, (3) carrying out learning activities with project-based learning, and (4) providing post test. Eventually, final stage comprises (1) giving score for pre test and posttest,

(2) calculating the average students' learning outcomes, (3) calculating Standard Deviation, (3) checking data normality, (4) testing the hypothesis by using t-test formula, (5) investigating the impact of effect size formula, and (6) drawing conclusion.

The data collected on this study was the questionnaire result of science learning by implementing project-based learning model. The pretest data before the treatment and the posttest data were used to investigate students' improvement after treatment.

The data were analyzed using Pearson Product Moment in *AnatesV4* Program to measure their validity. Moreover, calculation using *Alpha – Cronbach* formula was conducted to ensure the reliability. For the questionnaire result, each response scale scored differently from 1-5, then the total score was processed to find out the improvement in students' social skills.

RESULTS AND DISCUSSION

The results of this study were obtained from the pretest and posttest results. The pretest and posttest results, average score of the questionnaire in the experimental class of SDN 1 Sedonglor and SDN 1 Panongan is presented in Table 2.

Table 2. Result of Social Skills Questionnaire

Type of data	Experimental class	
	Pre-test	Post-test
Total	4.890	5.915
Maximum score	80	95
Minimum score	50	75
Average	67.91	82.15

Table 2 shows that there was improvement in the questionnaire score during the pretest and the posttest. The minimum score in pretest was 50, while in the posttest it was 75. Moreover, the maximum score in the pretest was 80, while in the posttest it was 95. The average score of social skills questionnaire before the treatment was 67.91, and after the treatment, it was 82.15.

There are 5 indicators of social skills investigated in this study, including (1) skills related to peers, (2) self-management skills, (3) academic skills, (4) obedience skills, and (5) task skills. Each of the indicators consisted of several items with certain score. The score in the pretest and posttest were then compared to examine the improvement in the students' social skills. The improvement of each indicator can be seen in the following figures.

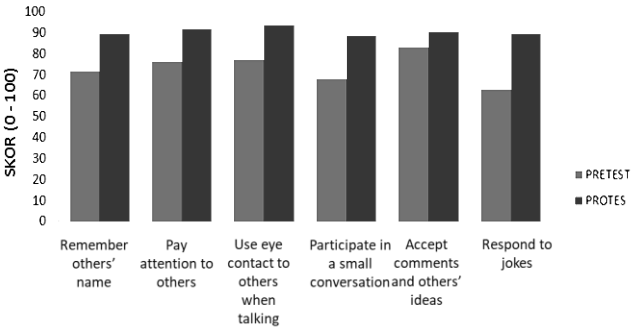

Figure 1. Peer Skill

The improvement in self-management indicator is presented in Figure 2.

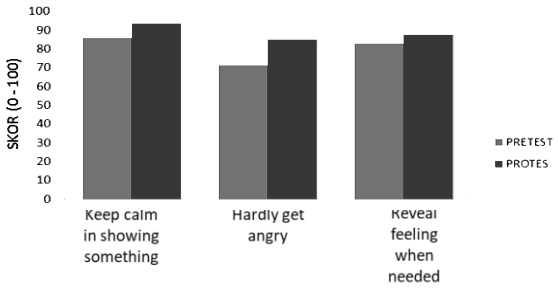

Figure 2. Self-management Skill

The improvement in academic indicator is presented in Figure 3.

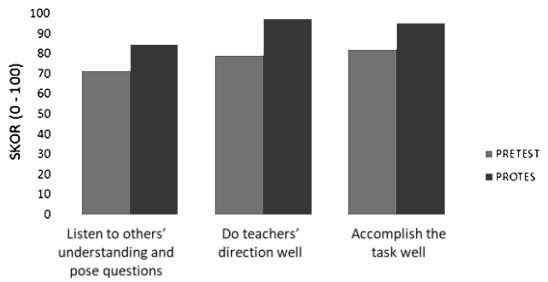

Figure 3. Academic Skill

The improvement in obedience skill indicator is presented in Figure 4.

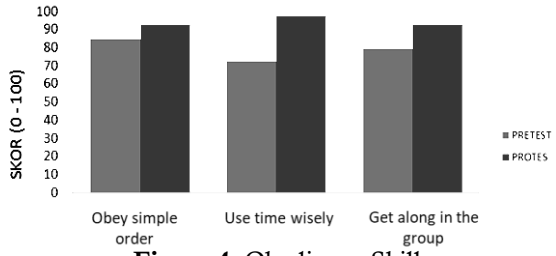

Figure 4. Obedience Skill

The improvement in task skill indicator is presented in Figure 5.

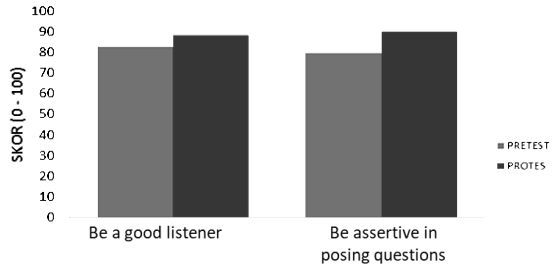

Figure 5. Task Skill

In Figure 1, we can see that the skills related to peers obtained a positive response from the students. In the pretest, it was 74%; while in the posttest, it was 90%, meaning that there was improvement in this indicator. The similar result found in the second indicator, which was self-management skills. Students' response increased from 80% to 89%. In the third indicator, which was academic skills, the positive response during the pretest was 77%, while in the posttest, it increased to 92%, meaning there was improvement. Moreover, the score of the fourth indicator, which was obedience skills, improved from 79% to 94%. The fifth indicator, task skills, obtained 81% positive response during the pretest and 90% during the posttest. It means that there was slight enhancement of students' social skills in this indicator.

This study was conducted in the fourth grade SDN 1 Panongan and SDN 1 Sedonglor in the academic year 2018/2019 with 72 students. Learning process was carried out for two meetings, each of which limited to 2 x 35 minutes by implementing project based learning model in the science learning for animal cycle lesson. Learning using project-based model was firstly conducted at SDN 1 Panongan at SDN 1 Sedonglor.

Based on the above results, it can be seen that there is improvement in the students' social skills. This indicates that project-based learning model highly affects students' learning outcomes in the science learning of the fourth grade SDN 1 Panongan and SDN 1 Sedonglor. This result is in line with the studies by Dewi *et al* (2016) and Yuniarti (2015) elaborating that project-based learning can enhance students' involvement and students' social skills. Through project-based learning, students can develop their social skills, such as collaborating with their friends, interacting smoothly, sharing ideas and experience, as well as controlling themselves. In particular, Pratiwi *et al* (2018) pointed out that project-based learning can improve the collaboration skills of primary school students, and she found a significant difference in terms of students' collaboration in the experimental group and the control group.

Based on the obtained data, Project-based Learning can enhance students' intention to follow the classroom discussion enthusiastically by implementing their social skills. It is also supported by Dado and Bodemer (2017) who asserted that the core activity of PjBL is accomplishing a project through collaboration among the students. As elaborated by Senyuva (2014), social skills affect the success of social relationship and encourage individuals to collaborate with others effectively. Khairat (2013) emphasized that social skills must be possessed in early childhood to be able to interact with others, so the individuals can be accepted by society in the future.

CONCLUSION

Based on the study which has been conducted, it can be concluded that project-based learning can develop students' social skills in the fourth graders of SDN 1 Sedonglor and SDN 1 Panongan.

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