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APPLICATION OF THE PROJECT BASED LEARNING MODEL IN NATURAL AND SOCIAL SCIENCE SUBJECTS TO INCREASE THE ACTIVENESS

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Abstract Primary education in elementary schools (SD) serves as the foundation for various fields of knowledge to be further developed in subsequent phases. In Indonesia, one of the mandatory subjects in elementary schools is Natural and Social Sciences (IPAS). IPAS is an abstract subject that tends to be challenging for students to comprehend. This research aims to enhance the students' engagement through the implementation of the Project Based Learning (PjBL) model in Grade IV students at SD Sumoroto 02, Ponorogo Regency. The study follows a Classroom Action Research (PTK) approach involving 16 students and is conducted during the even semester of the 2022/2023 academic year, focusing on the topic of Changes in the Form of Payment Instruments. The research employs a quantitative method, utilizing descriptive analysis of percentage data. Data collection techniques involve observing student engagement and administering questionnaires on the implementation of Project Based Learning. The research findings reveal that during the pre-cycle phase, only 18.75% of students were actively engaged in the classroom. However, after implementing the Project Based Learning model in Cycle I, the percentage of actively engaged students increased to 81.5%. In Cycle II, it further increased to 87.5%. These results indicate a significant improvement in student engagement through the implementation of the Project Based Learning model. Based on the positive student response, it can be concluded that the Project Based Learning model has been successfully implemented in IPAS instruction at the elementary school level.

Keywords Project Based Learning, IPAS, activeness

INTRODUCTION

The current development of fully automated and technology-based life is proof that life is always developing and continues to innovate in various aspects, one of which is education. Education plays a role in creating the nation's next generation who are ready to face changing times (Rahmawati & Atmojo, 2021). The support and role of education is expected to increase the nation's competitiveness amidst global competition with the rapid development of information technology (Khasanah & Herina, 2019). Education has an important role in acquiring various new knowledge and skills. Formally, education is carried out from an early age to university level. However, essentially education is carried out from birth until death.

Ki Hadjar Dewantara as the Father of National Education revealed that there is a concept related to the tricenter of education. The tricentre of education means an educational environment which includes education in the family environment, education in the school environment and finally education in the community environment (Febriyanti, 2021). The educational pathway consists of formal, non-formal and informal education which can complement each other and enrich a person's knowledge, this is in accordance with Law No. 20 of 2003 concerning the National Education System Article 13 Paragraph 1. Education carried out non-formally can be carried out in home by the way parents educate their children. However, not everything related to education can be done by parents and the family around them, therefore children have the right to receive continuous formal education to improve their knowledge and skills to keep pace with the demands of the times. Compulsory formal education in Indonesia starts from elementary school (SD).

Elementary school (SD) education is the beginning of the compulsory learning process in Indonesia. Because of this, education in elementary schools requires quality improvement to respond to developments in science and technology. One way to improve the quality of education can be done by improving the quality of learning. Improving the quality of learning can be achieved if teachers have carried out innovative learning by placing students as the center of learning (student centered) so that learning is produced that is fun, effective, efficient and meaningful. One of the subjects that is mandatory and important in the learning content is Natural and Social Sciences (IPAS).

IPAS content is one of the learning content that discusses facts, concepts or principles obtained by applying scientific methods and attitudes which are then applied in everyday life. Science education is part of general education which has an important role, especially in producing

students who are able to think critically, logically, creatively, and have initiative in facing scientific, technological and social developments (Nisah, et al., 2021). The essence of science and science learning is learning that teaches the process of gaining knowledge and skills which often has a bill in the form of learning outcomes, which can be achieved if the teacher is able to create appropriate and optimal learning, one of which is by using appropriate and appropriate learning models (Fahrezi, et al., 2020).

A learning model is a plan or design that describes the process in detail and creates an environmental situation that allows students to interact so that changes occur for the better or development in students in a process that is used as a guide in planning learning in the classroom. One learning model that is student-oriented is Project Based Learning (PjBL).

Fitria et al. (2020) said that the Project Based Learning learning model is an innovative learning model that actively involves students in constructing the knowledge they have independently through the mediation of their peers in a group to complete a project that has been designed by the teacher. Project-based learning is learning that facilitates students to work individually or in groups, which in learning is centered on students and can certainly increase student activity.

Previous research carried out by Nurjanah et al. (2021) revealed that the learning model through Online Project Based Learning is able to increase students' activeness, critical thinking and intellectual skills. In other words, Project Based Learning is a strategy for constructing or growing a competency by using projects as a stimulus as well as focusing on students' learning activities. Research carried out by Fahrezi et al. (2020) regarding the influence of the Project Based Learning learning model on the learning outcomes of students in social studies subjects in elementary schools which shows a significant increase in student learning outcomes, namely 7.01 with an average result of 82.46 from the previous 57.56, p. This shows that the use of the Project Based Learning learning model on the learning outcomes of elementary school students has a positive influence. Apart from learning outcomes, group discussions in the project-based learning process have also been proven to increase student activity.

Preliminary research carried out by researchers revealed the problem that students' activeness in the Natural and Social Sciences (IPAS) class IV SD Sumoroto 02 Ponorogo Regency material on changing the form of payment instruments tended to be less active because students were not directly involved in learning. Based on these problems, the researcher wants to carry out

a project to make a Podcast by implementing the Project Based Learning (PjBL) learning model in groups by collaborating with competent community leaders in their environment so that it is hoped that students can be active in making projects and practice communicating in their social environment.

Based on the explanation written above, the researcher wants to carry out further research regarding "Application of the Project Based Learning Learning Model in Natural and Social Sciences Subjects to Increase the Activeness of Class IV Participants at Sumoroto 02 Elementary School, Ponorogo Regency".

METHOD

This research is Classroom Action Research (PTK) with the application of the Project Based Learning learning model which is carried out in two cycles. The research was carried out at SDN Sumoroto 02 Ponorogo Regency at grade IV level consisting of 16 students, consisting of 10 female students and 6 male students. The research was carried out in the even semester of the 2022/2023 academic year in the Natural and Social Sciences subject on Changes in the Form of Payment Instruments. This research is quantitative research using data in the form of percentages which are analyzed descriptively. The data collection technique is carried out by taking observation scores on student activity to determine the increase in student activity and a questionnaire on the implementation of the Project Based Learning learning model to determine the effectiveness of implementing the learning model. Data from active observation research is in the form of percentages, while questionnaire data on the application of the Project Based Learning learning model is obtained by filling in the check list mark (√) on the answer choices "Yes" or "No", where the assessment is guided by the Guttman scale with the criteria of getting a score of 0 if you answer "No" and get 1 point if you answer "Yes".

$$Percentage\ of\ success\ in\ implementing\ PjBL = \frac{\qquad}{\qquad} x\ 100\%$$

These results are then converted into five groups, as follows:

Table 1. Criteria for success in implementing the Project Based Learning learning model based on student responses

No	Average score (%)	Interpretation
1	00,0 – 20,0	Not successful
2	21,0 – 40,0	Less successful
3	41,0 – 60,0	Quite successful
4	61,0 – 80,0	Succeed
5	81,0 - 100	Very successful

(Riduwan, 2012)

Implementation of the Project Based Learning learning model is categorized as successful according to the table if it obtains a score of ⩾ 80.0% in the appropriate category (Riduwan, 2012).

FINDINGS AND DISCUSSION

Based on the research results, the following data was obtained from observations of student activity in the first cycle of research before the start of the classroom action process in the form of implementing the Project Based Learning learning model. The following is a recapitulation of the results of observations of student activity:

Table 2. Recapitulation of active observations of class IV students at SDN Sumoroto 02 Ponorogo implementing the Project Based Learning learning model

Student Absence	Student Activity Score Cycle I*						Total score	Interpretation
	Aspect 1	Aspect 2	Aspect 3	Aspect 4	Aspect 5	Aspect 6		
1	2	3	1	2	2	2	12	Active
2	3	2	2	2	3	1	12	Active
3	3	2	2	2	3	1	12	Active
4	3	1	2	3	3	1	13	Active
5	2	1	2	1	1	1	12	Active
6	1	1	2	1	1	2	8	Not active
7	2	2	2	3	2	2	13	Active
8	1	3	3	3	2	2	12	Active
9	2	2	1	3	2	2	12	Active
10	2	1	3	2	3	1	12	Active
11	2	1	3	2	2	2	12	Active
12	1	2	1	1	1	1	7	Not active
13	2	3	2	3	2	2	12	Active
14	3	2	2	3	2	2	12	Active
15	1	1	1	1	1	2	7	Not active
16	3	2	3	2	2	2	12	Active

*Scores obtained are based on the assessment rubric in Appendix 1 with a note that if the total score is ⩾12 then the student is categorized as active

Table 3. Recapitulation of observations of the activity of class IV students at SDN Sumoroto 02 Ponorogo after implementing the Project Based Learning learning model

Student Absence	Student Activity Score Cycle II*						Total score	Interpretation
	Aspect 1	Aspect 2	Aspect 3	Aspect 4	Aspect 5	Aspect 6		
1	2	3	3	2	3	2	15	Active
2	3	2	2	2	1	2	12	Active
3	3	1	2	3	1	2	12	Active
4	3	2	2	3	3	1	14	Active
5	2	2	2	3	1	2	12	Active
6	2	1	2	2	3	2	12	Active
7	2	2	2	3	2	2	13	Active
8	2	1	3	2	2	2	12	Active
9	2	2	1	3	3	2	13	Active
10	2	2	1	3	1	1	10	Active
11	2	3	3	2	2	2	14	Active
12	3	2	2	1	2	3	13	Active
13	3	1	1	3	2	1	11	Active
14	2	3	2	3	1	2	13	Active
15	1	2	1	2	1	2	9	Active
16	3	1	3	3	2	2	14	Active

*Scores obtained are based on the assessment rubric in Appendix 1 with a note that if the total score is ⩾12 then the student is categorized as active

Based on the recapitulation of observations, the results of observing student activity after implementing the Project Based Learning learning model were 87.5%, where 14 students were active in the learning process and only two students were declared inactive. These results show an increase in student activity between before and after implementing the Project Based Learning learning model. Prior to the implementation of the Project Based Learning learning model, only 18.75% of students were active in the learning process. There had been an increase in student activity by 81.5%, which indicated that there were positive results from the implementation of the Project Based Learning learning model in cycle 1 in cycle II. another 87.5% increase in active learning

As supporting data and to determine the effectiveness and success of implementing the Project Based Learning learning model, researchers also studied the success of implementing the Project Based Learning learning model based on student responses using questionnaires. The following are the results of the questionnaire:

Table 4. Results of recapitulation of student responses to the application of the Project Based Learning learning model (n=16)

No	Criteria	Percentage (%)	
		Yes	No
1	Learning is student-oriented	100	0
2	The teacher acts as a facilitator/guide	100	0
3	Learning focuses on group discussions	100	0
4	Heterogeneous division of groups	100	0
5	Students have no difficulty in the group learning process	87,50	12,50
6	The teacher provides clear and informative directions for the group discussion	93,75	6,25
7	The teacher goes around checking the progress of the group discussion	100	0
8	The teacher provides guidance to groups who find it difficult	100	0
9	Project-based learning can increase understanding for students	100	0
10	Students interpret each learning process as fun and meaningful	100	0
	Persentase (%)	**98,125%**	
	Interpretation Very successful	**Very successful**	

Data from the recapitulation of students' responses to the implementation of the Project Based Learning learning model shows that the learning model was very successfully implemented in the classroom with a percentage of 98.125%.

Based on the results of data analysis, it shows that: 1) There is an increase in student activity with the implementation of the Project Based Learning learning model and 2) The Project Based Learning learning model is said to be very successfully implemented in learning based on student responses.

The Project Based Learning Model or better known as Project Based Learning (PjBL) is a learning model that develops understanding of concepts through investigating meaningful problems and can produce a real product (Alawiyah & Sopandi, 2015). In this context, the researcher succeeded in placing a project assignment in the form of a podcast which can develop students' understanding regarding the material on Changes in the Form of Payment Instruments. This is proven by an increase in student activity.

Sari et al. (2018) explains that "PjBL is a learning model that emphasizes students' activities in solving various open-ended problems and applying their knowledge in working on a project to produce a certain authentic product." Thus, using project-based learning can provide students with experience in organizing projects, allocating time, and managing resources such as

equipment and materials to complete tasks.

The application of the Project Based Learning (PjBL) learning model can provide many benefits for both teachers and students. The benefits of the Project Based Learning (PjBL) learning model include: 1) Students gain new knowledge and abilities in learning, 2) Improve students' skills in problem solving abilities, 3) Form students who are more enthusiastic in the learning process, 4) Fostering cooperation between students, 5) Students can design their own ideas and can create project assignment frameworks, 6) Students can design processes to achieve results, and 7) Create a class atmosphere that can tolerate mistakes and changes.

Based on a series of research and analysis processes that have been carried out, it can be seen that the characteristics of the Project Based Learning (PjBL) learning model include that this learning model can provide opportunities for educators to process learning in the classroom using project assignments. The project assignments given consist of group tasks based on problems as the initial goal in grouping and organizing new knowledge based on knowledge in real activities and requiring students to carry out design activities, solve problems, create decisions, carry out exploration activities, and provide opportunities. Students can work independently or in groups and the final results aimed at in project assignments consist of oral or written reports, demonstrations or references (Widyantini, 2014).

Based on the explanation that has been presented, it can be concluded that the Project Based Learning (PjBL) learning model is an innovative learning model that uses projects/activities as learning media, so that it can involve participants actively in the learning process and problem solving activities, and students can work with a group and produce a valuable product. By implementing the Project Based Learning (PjBL) model in the learning process, it can improve students' communication skills and activeness in the learning process inside and outside the classroom

CONCLUSION

Based on the research that has been carried out, it can be concluded that: 1) There is an increase in student activity with the implementation of the Project Based Learning learning model and 2) The Project Based Learning learning model is said to be successfully implemented in learning based on student responses.

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