Ann PUBLISHER
Journal of Education Sciences (Edusci)
e-ISSN : xxxx-xxxx
p-ISSN : xxxx-xxxx

Application of Project Based Learning to Improve Learning Outcomes in Class IV Object Change Material at SDN 1 Cikunir

Ai Nur Asiah Jamil[1], Nurkholis[2], Neneng Lia Marliani[3]

[1]Universitas Muhammadiyah Cirebon, Indonesia, email: ainurasiah09@gmail.com,
[2]Universitas Muhammadiyah Cirebon, Indonesia, email: nurkholis@umc.ac.id
[3]SDN 1 Cikunir, Indonesia, email: nenenglia20@gmail.com

Abstract. This research is based on the problem of students not yet mastering the material on Changes in Form of Objects. This research aims to improve science learning outcomes regarding changes in the shape of objects through the Project-based Learning learning model for class IV students at SDN Cikunir 1. The type of research used is collaborative classroom action research; the subjects in this research are class IV students, with a total of 24 students. This research consists of four stages: planning, action, observation, and reflection. Data collection techniques are carried out by observation and tests. Data collection tools use observation sheets and written test questions. The data analysis technique was carried out quantitatively and descriptively, and the nature of the research was collaborative. As for the difference in the average score of student learning outcomes in cycles I and II, it shows an increase in the ability of students' learning outcomes with the Project Based Learning learning model, as shown by the increasing evaluation results in each cycle. In cycle I, the average was 54%; in cycle II, the average learning outcomes were obtained at 82%. Therefore, applying the project-based learning model can improve student learning outcomes in Class IV Changes in Form material at SDN 1 Cikunir.

Keywords: Natural Sciences, Changes in the Form of Object, Project Based Learning

INTRODUCTION

The curriculum is a reference for educators in carrying out learning because learning outcomes must be achieved in every learning. Ministry of Education and Culture (2023), the curriculum that is currently in the process of equitable distribution is the independent curriculum; this independent curriculum is a curriculum with extracurricular learning where the content will be more optimal so that students can learn according to their interests and needs by the values of Pancasila. In achieving this, of course, there are several subjects studied by students, one of which is science subjects. Science subjects combine natural and social knowledge that have become integrated into one form of subject. However, in their

implementation, educators can carry out integrated science learning, not separated into different subjects.

The purpose of this learning in elementary schools is to educate students in mastering facts, concepts, principles, discovery processes, and attitudes of scientific helpful information for students in the lives of both themselves and the surrounding environment (Sapriati, 2009, p. 103). Success in each subject, especially science, is determined by success in the teaching and learning process. Therefore, it is necessary to realize a quality learning atmosphere through improvements in various aspects of learning, one of which is through learning models; teachers need to use various learning models to achieve learning goals with a comfortable and fun process (Israwati, 2023).

Based on the results of observations carried out on the date, science learning could be more optimal because the book contains concepts and practices. More than ever, the achievement of material concepts obtained from books and learning videos is needed to provide students with an understanding and experience of the material. Piaget's theory is that the development of children aged 7 to 11 years is considered in the operational stage of Tikrit, which uses logical thinking and must correspond to natural or physical objects, so this study provides real experience to students as learners' thinking process. The model used in this study is the project-based learning (PBL) model.

This PjBL helps students learn knowledge and skills achieved through tasks in learning so that it can provide students' personal experience of their' object skills (M.Nur, Fahrunnisa, 2016). In carrying out PjBL-based learning, researchers use practicum methods so that students directly practice, vary, and directly observe a change. The practicum method is one of the teaching methods that involves practicing directly with students so that students can prove a concept that has been learned (Sulfiyah, 2021).

The concept of IPAS material is currently denser because the material in the previous curriculum was in class V. For this independent curriculum, the concept has begun to be introduced in grade IV. Hence, teachers have obstacles in delivering science learning to students because science learning is not only having to know theories and concepts but must also be balanced with best practices; the goal is to improve the competence of the student process, implement concepts with direct proof to increase student learning motivation and students unwittingly experience a process of behavior change resulting from interaction with their environment (Handayani, 2022).

The implementation of practice from the concept of the material learned can be carried out by using tools and materials to avoid waste that is not used and by using the school environment as a learning resource for students. Learning resources are everything that can provide convenience to students in obtaining information and increasing knowledge and skills (Khanifah, 2012).

METHOD

This research uses Classroom Action Research (PTK) with a collaboration system with teachers at SDN 1 Cikunir. This research was conducted during the research, namely as a teacher in the learning process. Rustiyarso and Wijaya (in Suyuti et al., 2022) stated that Classroom Action Research or PTK (*Classroom et al.)* is a type of research teachers conduct through specific actions to improve learning processes and outcomes. Action procedures will be carried out in this study using the spiral of action research design model by *Kemmis* and *McTaggart* (2014, p.18), including planning, implementation, observation, and reflection. If the results of the first cycle do not show success based on predetermined indicators, then the second cycle can be carried out in the same sequence of steps as the first cycle. Thus, the number of cycles required to solve a problem depends on the time from solving the problem to solving the problem; Kemmis and *McTaggart* model the class action research design as follows:

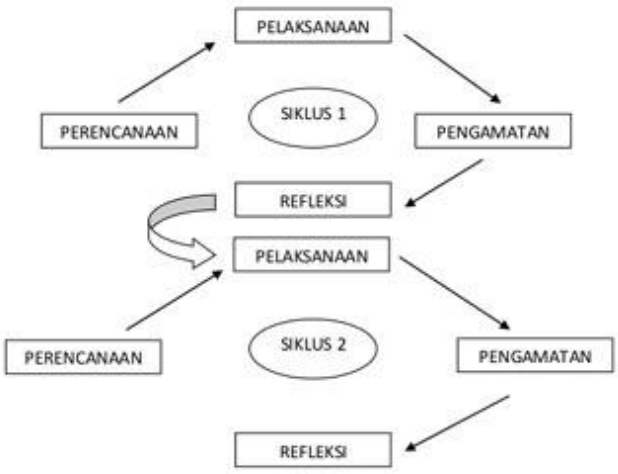

Figure 1. Design PTK *Kemmis* and MC.*Taggart*

The research was conducted from August to September 7, 2023 at SDN I Cikunir, Singaparna District, Tasikmalaya Regency, West Java. The class used in this study was class IV with a total of 24 students.

DISCUSSION

Research results from two research cycles using Kemmis and MC PTK designs—Taggart, which consists of planning, execution, observation, and reflection. In cycle 1, learning activities can be broken down into several stages; in the first stage of planning, researchers design learning tools that will be implemented in cycle 1 learning consisting of Teaching Modules, Learning Media, Teaching Materials, LKPD, and the preparation of tools for evaluating student learning outcomes. In the second stage of this implementation, researchers carry out learning activities according to the tools prepared in the previous planning stage.

The learning activities are adjusted to Project Based Learning; the project made or carried out by students is to play a role in the game "guessing the transformation of objects." The third stage is observation; at this stage, researchers observe student activities during the learning activity process and collect student learning results through evaluation at the end of learning. The fourth stage is reflection; in this stage, it is carried out to review whether the learning that has been carried out is good or there are still things that must be improved. If the reflection results show that the criteria set are successful, it is not continued with the next cycle. Conversely, if it has yet to succeed in the initial cycle, researchers must continue to the next cycle. Researchers carry out the first cycle research according to planning, the results of this first cycle research are illustrated in the table below:

Table 1. Recapitulation of Learning Outcomes Cycle 1 of Science subjects
Class IV Object Change material at SDN 1 Cikunir

Success Criteria	Number of Students		Percentage (%)
80-100	2		8,3%
66-79	2		8,3%
56-65	10		42%
40-55	8		33%
30-39	2		8,3%

The results of cycle one show that the acquisition of student learning outcomes on the material changes from with the number of students as many as 24 people, students in the perfect criteria there are two people with a percentage of 8.3%, students in the good criteria as many as two people with a percentage of 8.3%, students in the criteria are enough as many as ten people, students in the criteria are less as many as eight people with a percentage of 33% and students in the criteria fail as many as two people.

In cycle 2, learning activities are carried out with the same stages as cycle one activities adjusted to the syntax of Project Learning; it is just that in cycle II, there is no role-playing, but a simple practicum is carried out using tools and materials around the student environment and carrying out practicum outside the classroom. Tools and materials used are candles, matches, camphor, sand, cans, supports, ice cubes, plastic cups, and pens. Researchers carry out the second cycle research in accordance with the plan, the results of the second cycle research are illustrated in the table below:

Table 2. Recapitulation of Learning Outcomes Cycle 2 of Science subjects Material for Changes in the Form of Objects at SDN 1 Cikunir

Success Criteria	Number of Students	Percentage (%)
80-100	12	50%
66-79	7	29%
56-65	5	20%
40-45	0	0%
30-39	0	0%

The acquisition of learning outcomes of class IV students on the material of changing the form of objects from 24 students there are no students included in the failed and less categories, students in the sufficient category there are 5 people with a percentage of 20%, students in the good category there are 7 people with a percentage of 29% and students who are included in the very good category as many as 12 people with a percentage of 50%.

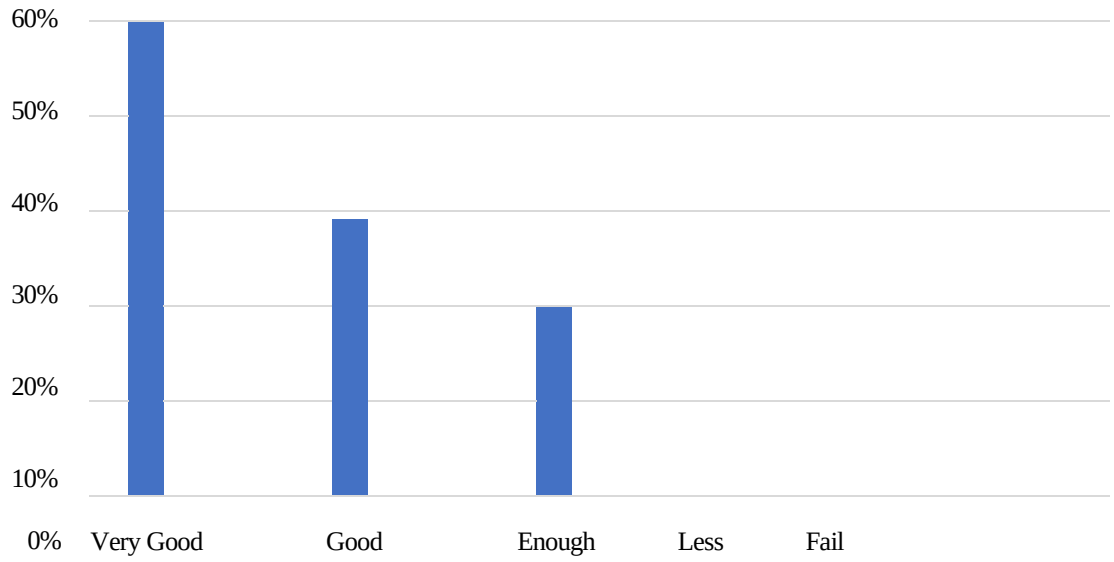

Figure 2. Cycle learning outcomes percentage diagram

Based on research findings, it is known that there is an increase in learning outcomes using the project-based Learning learning model in the Class IV object change material, as shown from the evaluation results in each cycle that increases. In the first cycle, an average learning outcome of 54% was obtained, while in the second cycle, an average learning outcome of 82% was obtained, an increase in learning outcomes from cycle I and cycle II of 28%. The following are presented: the average learning outcomes from Cycle I and II.

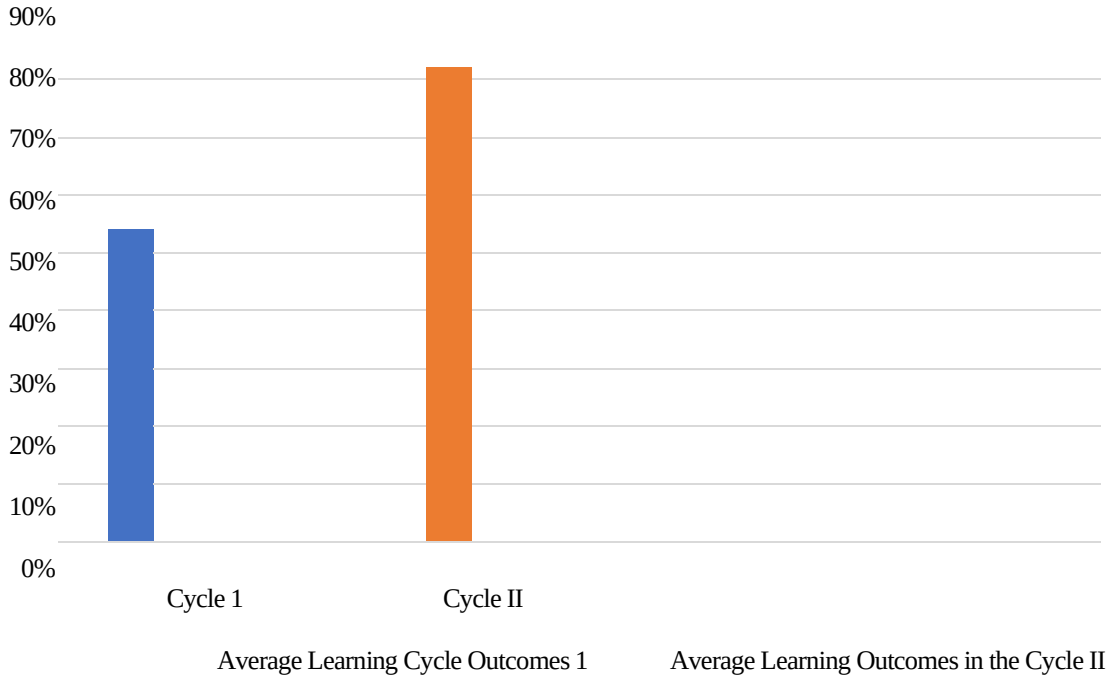

Figure 3. Diagram comparing the average learning outcomes of cycle I with cycle II

Improving learning outcomes proves that students follow an excellent learning process to improve the learning outcomes. According to Djamarah and Zain in Supardi (Dakhi, 2020), the indicators of learning success can be seen from the absorption of students and the behavior that appears in students. The intended learning outcomes are the achievements students achieve with predetermined criteria or values. In addition, improving learning outcomes obtained through the Project Based Learning model also provides real experience to students in relating concepts with observations. Students will find their concepts according to the results obtained during learning (Wandini, 2022).

In addition, students will also have a sense of pleasure because the things they do are related to everyday life. Children's abilities do not develop in their daily activities. Instead, they are developed through introduction, training, and continuous learning, which allows students to progress at different speeds depending on the type of content they are learning (Windari, 2023).

CONCLUSION

Based on the study's results, Project Learning can improve students' learning outcomes in Change of Objects class IV SDN 1 Cikunir. As for the difference in the average score of student learning outcomes in cycles I and II, it shows that there is an increase in the ability of student learning outcomes with the application of the Project Learning Model, which is shown from the evaluation results in each cycle, which always increases. Cycle I obtained an average of 54%, and cycle II obtained an average student learning outcome of 82%, the difference in increasing student learning outcomes from cycles I and II with an average of 28%.

In the implementation of this research, the author is inseparable from the disadvantages and advantages; the advantages of this implementation are that students experience improved learning outcomes, motivate students to learn, and facilitate students in finding concepts adapted to the environment of daily life. The shortcomings in this study are that the students in this research are not all in the sound and excellent categories, so in the future, this research can be continued until students are in the outstanding category.

BIBLIOGRAPHY

Arikunto. 2007. *Prosedur Penelitian, Suatu Pendeatan Prati*. Rineka Cipta:Jakarta. Cahyaningsih, U. (2021, October). Pengaruh Penggunaan Metode Praktikum Terhadap Prestasi Belajar Ipa Siswa Kels Iv Sekolah Dasar. In *Prosiding Seminar Nasional Pendidikan* (Vol. 3, pp. 271-275)

Dakhi, A. S. (2020). Peningkatan hasil belajar siswa. *Jurnal Education and development*, *8*(2), 468-468.

Handayani, L. (2022). Peningkatan motivasi dan hasil belajar perubahan wujud benda melalui metode Cooperative Script siswa Kelas III semester I SDN 2 Pengkolrejo Tahun Pelajaran 2021/2022. *Widyasari-Press. Com*, 129-40

Kementrian Pendidikan dan Kebudayaan (2023). Kurikulum Merdeka (online) diakses melalui https://ditpsd.kemendikbud.go.id.

Kemmis, S.,McTaggart,R.,&Nixon, R.(2014). *The Action research Planner (doing Crtical Participatory Action research)*.Singapura:Spinger

Khanifah, S., Pukan, K. K., & Sukaesih, S. (2012). Pemanfaatan lingkungan sekolah sebagai sumber belajar untuk meningkatkan hasil belajar siswa. *Journal of Biology Education*, *1*(1)

Israwaty, I., & Asdar, A. (2023). Penerapan Model Pembelajaran Project Based Learning (PjBL) Untuk Meningkatkan Hasil Belajar Siswa Materi Perubahan Wujud Benda Di Kelas V UPTD SD Negeri 111 Barru. *Juara SD: Jurnal Pendidikan dan Pembelajaran Sekolah Dasar*, *2*(2), 250-259

Marinda, L. (2020). Teori perkembangan kognitif Jean Piaget dan problematikanya pada anak usia sekolah dasar. *An-Nisa':Journal of Gender Studies*, 1391),116-152

Nur, F. M. (2016). Peningkatan Hasil Belajar Siswa Kelas Iv Sd Negeri 7 Bireuen Melalui Model Pembelajaran Projek Based Learning (Pjbl) Pada Materi Perubahan Wujud Benda. *JUPENDAS (Jurnal Pendidikan Dasar)*, *3*(2)

Rosarina, G., Sudin, A., & Sujana, A. (2016). Penerapan model discovery learning untuk meningkatkan hasil belajar siswa pada materi perubahan wujud benda. *Jurnal Pena Ilmiah*, *1*(1)

Sapriati, Amalia dkk.2009. Pembelajaran IPA di SD. Jakarta:Universitas Terbuka

Suyuti,F.W., Ridlo .L, & Riwanto. M.A. (2018).Penggunaan Media Rak Telur Rainbow dalam Meningkatkan Hasil Belajar Matematika Materi Perkalian Dan Pembagian Kelas II SD Negeri Karangasem 01. Jurnal PANCAR, 2(2), hlm. 38-39

Wandini, R. R., Harahap, E. Y., Mutia, C. M., Adila, N. A., Amalia, A., & Sari, R. Y. (2022)

Penerapan Model Eksperimen untuk Meningkatkan Hasil Belajar Siswa pada Materi

Perubahan Wujud Benda. *Jurnal Pendidikan dan Konseling (JPDK)*, *4*(3), 2032-2035

Windari, P., & Guntur, M. (2023). Pengaruh Model Pembelajaran Project Based Learning Terhadap Peningkatan Hasil Belajar Siswa Materi Ipa. *JKPD (Jurnal Kajian Pendidikan Dasar)*, *8*(1), 64-71.