Implementation of Project Based Learning (PJBL) in Improving Learning Outcomes of Grade IV Students on the Material of Plant Body Parts at SD Negeri 1 Sidoluhur

Ahmad Abdul Azis
Primary Teacher Education Study Program, Faculty of Education
PGRI Kanjuruhan University Malang
Malang, Indonesia
ahmadabdulazis9@gmail.com

Farida Nur Kumala
Primary Teacher Education Study Program, Faculty of Education
PGRI Kanjuruhan University Malang
Malang, Indonesia

Arnelia Dwi Yasa
Primary Teacher Education Study Program, Faculty of Education
PGRI Kanjuruhan University Malang
Malang, Indonesia

Abstract⸺ Improving the Learning Outcomes of Science and Natural Sciences Material on Plant Body Parts Using the Project Based Learning Model for Grade IV Students of SD Negeri 1 Sidoluhur. This study aims to describe the improvement in the learning outcomes of Science and Natural Sciences material on Plant Body Parts using the Project Based Learning Model Classroom Action with the Kurt Lewin model. The data collection techniques for this study were observation, testing and documentation. The data analysis technique was in the form of qualitative descriptions. The results of the study showed that the use of the Project Based Learning Model can improve student learning outcomes. After the implementation of cycle I with the application of the PjBL model, there was a significant increase. The details of student scores are: 2 students scored 70; 4 students scored 75; 10 students scored 80; 2 students scored 85; 7 students scored 90. A total of 23 out of 25 (92%) students have achieved or exceeded the KKM. This shows that the PjBL model encourages better student involvement and understanding compared to the previous method. Further improvements occurred in cycle II. Learning outcomes showed that 7 students scored 80; 10 students scored 90; and 8 students got a score of 100. All students have achieved KKM (100%), with the class average increasing significantly. In this study, it only reached cycle II because the percentage of learning outcomes was more than 75%, which indicates that the research was successful. This shows that the application of the project based learning model can actually improve the learning outcomes of science on plant body parts material for fourth grade students at SD Negeri 1 Sidoluhur.

Keywords— Learning Outcomes; IPAS; Project based learning model

I. INTRODUCTION

Natural Science (IPAS) learning in elementary schools has an important role in shaping students' understanding of the surrounding environment, including plant body parts. One of the important materials in grade IV IPAS learning is "plant body parts". The importance of understanding

plant body parts is the basis for developing ecological awareness and concern for the surrounding environment. Therefore, innovative and effective learning improvement efforts are needed so that students can understand the concept deeply and enjoyably.

The results of the initial evaluation showed that students' understanding of the material on Plant Parts was still low. Most students had difficulty understanding the concept of plant parts. This was exacerbated by the learning approach which was still conventional and lacked active student involvement. Conventional learning models that were centered on teachers and verbal explanations were less able to answer students' needs. It would be easier for students to understand the material if it was presented concretely.

To overcome these problems, a learning strategy is needed that can activate students cognitively, affectively, and psychomotorically. One approach that is considered relevant is the Project Based Learning (PjBL) model. PjBL encourages students to learn through meaningful and contextual projects, so that they can build knowledge actively and independently. According to Thomas (2000), PjBL is a learning model that involves students in real projects, encouraging collaboration, exploration, and active problem solving. PjBL is also in line with the constructivist approach, which emphasizes that knowledge is actively built by students through experience and social interaction (Trianto, 2010; Hosnan, 2014). In the context of an inclusive class, PjBL also provides space for differentiation of instruction according to the abilities and needs of each student, including students with special needs so that all students can participate optimally.

Thus, this classroom action research aims to improve the learning outcomes of fourth grade students of SDN 1 Sidoluhur on the material of Plant Body Parts through the PjBL learning model. The focus includes improving students' academic achievement and active student involvement. It is hoped that this approach can create fun, contextual, and inclusive learning for all students.

II. METHOD

This research is a type of qualitative research with the Classroom Action Research (CAR) method. Described in the Kurt Lewin model CAR cycle consisting of a series of four activities carried out in a repetitive cycle. The four main activities carried out in each cycle are: (1) Planning, (2) action or action (acting), (3) Observation, and (4) reflection. This research was conducted for 2 cycles. Each cycle consists of 1 learning meeting carried out in the same way. The research was conducted at SD Negeri 1 Sidoluhur, Lawang District, Malang Regency. The subjects in this study were 25 students in grade IV of SD Negeri 1 Siodoluhur consisting of 11 male students and 14 female students. The data collection technique used in this classroom action research used a qualitative method. The qualitative data collected were observation, tests and documentation. Data analysis of this research was carried out in each action cycle. Data were analyzed descriptively using percentage techniques to see the tendencies that occurred in learning activities. Learning outcomes by analyzing the value of learning achievement. The indicator of research success is if there is a change in student learning outcomes that previously became more improved. And the results of student activity observations have reached the active criteria or are very appropriate to the research reference guidelines (PAP) in table 1.

Data collection was carried out through several techniques, namely learning outcome tests to measure students' understanding of the material, observation of student activities to assess their level of involvement in the learning process, field notes and documentation to record the course of the action, and interviews with students and teachers to enrich reflection. The data obtained were then analyzed descriptively using quantitative and qualitative approaches. Quantitative data came from test results and observation sheets, while qualitative data were analyzed using the Miles and Huberman model which included data reduction, data presentation, and drawing conclusions. The success of the action can be seen from the increase in the average score of student learning outcomes and the increase in student engagement scores from the first cycle to the second cycle. Thus, this study aims to provide a clear picture of the effectiveness of the implementation of PjBL in improving learning outcomes and student engagement in science learning.

III. RESULTS AND DISCUSSION

Student learning outcomes in the pre-cycle show that most students have not reached the KKM. The KKM value is 75. Of the 25 students, only 5 achieved the KKM (20%), while the other 20 were still below standard. The details are: 10 students scored 50; 6 students scored 60; 4 students scored 70 and 5 students scored 80. This shows that students' understanding of the material "Parts of plant growth" is still low and needs to be improved.

After the implementation of cycle I with the application of the PjBL model, there was a significant increase. The details of student scores are: 2 students scored 70; 4 students scored 75; 10 students scored 80; 2 students scored 85; 7 students scored 90. A total of 23 out of 25 (92%) students have achieved or exceeded the KKM. This shows that the PjBL model encourages better student involvement and understanding compared to the previous method.

Further improvement occurred in cycle II. The learning outcomes showed that 7 students got a score of 80; 10 students got a score of 90; and 8 students got a score of 100. All students had achieved the KKM (100%), with the class average increasing significantly.

Project-based learning provides a concrete and enjoyable learning experience for students. The application of PjBL provides a real-life context that reduces the abstraction of the concepts of "rotation" and "revolution". Krajcik & Blumenfeld (2006) emphasized that when students are involved in making a solar system diorama, they move knowledge from a theoretical level to the manipulation of physical objects, so that understanding becomes deeper and more durable. Bell (2010) also showed that "learning by doing" allows students to build a more solid mental construction than just listening to the teacher's explanation. They not only memorize concepts, but also apply them in real forms. This is in line with the theory of constructivism which emphasizes the importance of active student involvement in building knowledge. mature critical thinking skills to face future challenges.

The PjBL approach also creates an inclusive and participatory learning environment that is very important in the context of a class with diverse learning needs. Through collaborative projects, students not only hone their communication and teamwork skills, but also develop an attitude of mutual assistance and foster empathy for differences. The formation of groups with heterogeneous members naturally gives rise to peer tutoring dynamics, where students who need support in understanding can be guided by friends who already have a deeper understanding. Students who have difficulty learning will be more courageous in asking questions and will understand more easily because the language used is a simple verbal language that is easy to understand among them, which in turn will increase their self-confidence.

The results of this study are in line with previous studies that consistently show the effectiveness of PjBL in improving student learning outcomes and developing essential 21st century skills such as collaboration, creativity, and communication (Bell, 2010; Krajcik & Blumenfeld, 2006). Thus, PjBL not only improves understanding of the material, but also equips students with mature critical thinking skills, an important foundation for facing the complexity of future challenges.

IV. CONCLUSION

Learning with the Project Based Learning (PjBL) model has proven effective in helping 4th grade students of SD Negeri 1 Sidoluhur understand the material on plant body parts. Through the project of making miniature plants, students can actively identify, understand the function, and practice their knowledge. In addition, this learning also develops various important skills for students. Based on the results of the research and discussion that have been described, it can be concluded that the use of the project based learning model can improve the learning outcomes of science on plant body parts material for fourth grade students of SD Negeri 1 Sidoluhur. The increase in learning outcomes in cycle I was 20% with 5 students completing it, while in cycle II it increased to 90% with 25 students completing it out of 25 students. So that the increase in learning outcomes from cycle I to cycle II increased by 100%. In this study, it only reached cycle II because the percentage of learning outcomes was more than 75%, which showed that the research was successful. This shows that the application of the project based learning model can actually improve the learning outcomes of science on plant body parts material for fourth grade students at SD Negeri 1 Sidoluhur.

REFERENCES

[1] Arends, R. I. (2012). Learning to Teach. New York: McGraw-Hill.
[2] Anawaty, M. F., & Iftitah, S. L. (2023). Sains Bumi dan Antariksa pada Anak Usia Dini. *Al Abyadh*, 6(1), 752–376
[3] Bell, S. (2010). Project-Based Learning for the 21st Century: Skills for the Future. *The Clearing House*, 83(2), 39–43.
[4] Bell, Y., & Flores, R. (2023). A study of the impact of project-based learning on student outcomes. *Frontiers in Psychology*, 14, 1202728.
[5] Depdiknas. (2008). Panduan Khusus Pengembangan Pembelajaran Inklusif. Jakarta: Direktorat Pembinaan Sekolah Luar Biasa.
[6] Hamalik, O. (2009). Proses Belajar Mengajar. Jakarta: Bumi Aksara.
[7] Huda, M. (2014). Model-Model Pengajaran dan Pembelajaran: Isu-isu Metodis dan Paradigmatis. Yogyakarta: Pustaka Pelajar.
[8] Kementerian Pendidikan dan Kebudayaan. (2013). Kurikulum 2013. Jakarta: Kemendikbud.
[9] Krajcik, J. S., & Blumenfeld, P. C. (2006). Project-Based Learning. In R. K. Sawyer (Ed.), *The Cambridge Handbook of the Learning Sciences* (pp. 317–333). Cambridge University Press.
[10] Miles, M. B., & Huberman, A. M. (1994). Qualitative Data Analysis: An Expanded Sourcebook. California: SAGE Publications.
[11] Miller, R., & Davis, S. (2023). Inclusion by design: Creating project-based learning spaces for neurodiverse students. *Ed-Spaces*.
[12] Rahman, T., & Sari, D. (2023). Building inclusive education in the era of Society 5.0 with the project-based learning method. *ResearchGate*.
[13] Slavin, R. E. (2009). Cooperative Learning: Theory, Research and Practice. Boston: Allyn and Bacon.
[14] Sudjana, N. (2010). Penilaian Hasil Proses Belajar Mengajar. Bandung: Remaja Rosdakarya.
[15] Sugiyono. (2016). Metode Penelitian Pendidikan. Bandung: Alfabeta.