



INCREASE STUDENT ACTIVENESS AND LEARNING OUTCOMES USING PROBLEM BASED LEARNING ASSISTED BY IMAGE MEDIA

Inke Oktafiani¹, Gunawan^{2*}, Lukmanul Akhsani³, Wijaya Kusuma⁴, Chumaedi Sugihandardji⁵,
Erni Widiyastuti⁶

^{1, 2, 3, 5, 6}Universitas Muhammadiyah Purwokerto

⁴Universitas Bina Bangsa

*Email: gun.oge@gmail.com

Abstract

The study aims to improve student activeness and learning outcomes using problem-based learning (PBL) assisted by image media in science subjects. The research subjects used were grade IV students of SD Negeri 1 Kedungbanteng. The research method used is classroom action research which consists of planning, action, observation, and reflection stages. The steps of implementing the PBL model with image media are carried out in five steps. The data collection techniques used are non-test techniques in the form of observation and interviews, and test techniques in the form of written tests. Observation sheets and interview guidelines were used to collect data on the application of PBL models with image media and learning activity. There was an increase in the application of PBL with image media to teachers in the first cycle by 84.37%, the second cycle by 90.62%. In the observation of the activities of students in cycle I as much as 82.5%, cycle II as much as 87.5%. The activeness of students in meeting 1 increased from the very high category of 27%, high 43%, increased to the very high category of 43%, high 57% in meeting 2 cycle II. The results of learning science cycle I meeting 1 the percentage of completion on the pretest is 20%, the increase in the posttest is 80% In meeting 2, the percentage of completion of the pretest by 23% increases on the posttest by 87%. In cycle II meeting 1, the percentage of completion in the pretest was 33.33%, an increase in the posttest was 86.67% In meeting 2, the percentage of complete pretest was 40%, increased in the posttest by 90%.

Keywords: *Problem-Based Learning, Learning Activity, Learning Outcomes, Image Media*

INTRODUCTION

In Indonesia, education plays a crucial role in influencing national destiny and promoting social and economic advancement. According to Pristiwanti et al. (2022), education is the intentionally planned creation of an enjoyable learning environment where students may actively acquire the skills and strengths that they need for both society and themselves. Indonesia's efforts to develop graduates with critical thinking, creative, collaborative, and communicative skills are aligned with the launch of the Merdeka Curriculum. In addition to having an impact on students' growth, the idea of an independent curriculum would facilitate teachers' adoption of cutting-edge teaching techniques, claim Manalu et al. (2022).

The learning process can achieve the desired outcomes with the aid of innovative learning. According to Djonmiarjo (2019), learning outcomes are the aptitudes or competencies that students acquire following their participation in educational activities. IPAS is one of the courses in the Merdeka curriculum that places a strong emphasis on the acquisition of skills and abilities during the learning process. Science lessons under the Independent Curriculum, according to Marwa et al. (2023), combine science with social studies.

Students must actively participate in scientific classes in order to gain a deeper understanding of the subject matter. According to Kanza et al. (2020), a learning activity is a process of instruction and learning that calls for active participation from students and improves their behavior. Problem-based

learning is one learning approach that works effectively when incorporated into scientific education (PBL). In Mayasari et al. (2022) state that PBL centers on posing a real-world problem, after which students do a number of studies and investigations in pursuit of answers based on theory and fundamental ideas discovered in a variety of scientific fields. In Yuni et al. (2023) claim that students gain autonomous skills in information gathering, scenario analysis, and solution formulation when using the PBL approach.

Along with adopting learning models that align with science disciplines, students' comprehension of what they are studying is also influenced by the media they choose to watch. Image media is one type of media that can be utilized for education. Setiyawan (2020) defines image media as visual media that serves as an aid in meeting learning markers.

According to the observations, the following information is displayed: (1) teachers have employed engaging learning models, but not all syntax has been applied and has been coherent; (2) learning has not been activated through discussion or group activities; (3) the use of technology to support interactive learning has not been optimal due to limited facilities like LCD; (4) some students still do not participate actively in science classes; and (5) some students think science is a difficult subject to learn because some of the material is difficult to understand. Furthermore, based on the pretest's execution, it is known that six students, or 20% of the total, scored higher than 80, and that 24 students, or 80% of the total, scored lower than 80. In order to boost student engagement and enhance their learning results in science classes, learning models and media that can solve the issues faced in class IV are therefore required.

Researchers are interested in carrying out classroom action research under the heading "increasing student activeness and learning outcomes using problem-based learning models assisted by image media" in light of the challenges that have been described. "Can the problem-based learning model assisted by image media increase student activeness and learning outcomes?" is how the problem was formulated.

METHOD

Classroom Action study (PTK) is the study methodology employed. This study employs the planning, action, observation, and reflection (PTK) approach. Planning, action, observation, or observation and reflection make up the Kemmis and McTaggart paradigm, as stated by Prihantoro and Hidayat (2019).



Figure 1. PTK Kemmis and Mc. Taggart models

The data analysis method for this class action research will make use of quantitative analysis. Thirty-one grade IV students from SDN 1 Kedungbanteng, acting as action actors, are the subjects of this study for the academic year 2023–2024. Written tests and non-test methods such as interviews and observation are the two types of data collection procedures that were employed. According to Zumery et al. (2021), there are several ways to collect data, including through testing, surveys, interviews, documentation, and observation. The data collection methods for the use of PBL models with picture media and learning activities included observation sheets and interview guidelines. The following table lists Bona et al. (2023) criteria for teacher and student participation and activeness.

Table 1. Teacher and Student Activity Criteria

Presented	Category
80 – 100%	Excellent
66 – 79%	Good
56 – 65%	Enough
40 – 55%	Less
10 – 40%	Less Than Once

The following criteria determine which learning activities are classified as very high, high, moderate, low, or very low:

Table 2. Student Activeness Category

Mastery Level	Letter Value	Category
81% - 100%	A	Very High
61% - 80%	B	High
41% - 60%	C	Moderate

21% - 40%	D	Low
0% - 20%	E	Very Low

While the test is meant to gauge how well students have learned science. According to Miles and Huberman (Sugiyono, 2020), the data analysis technique utilized consists of data reduction, data display, and conclusions.

RESULTS AND DISCUSSION

This research was conducted in grade IV of SDN 1 Kedungbanteng in the science subject of the first semester of plant material, the source of life on earth for the 2023/2024 academic year. This research was carried out in 2 cycles with two meetings in each cycle. The stages carried out in 1 cycle include: planning, implementation, observation and reflection.

Cycle I

Six students in pretest meeting 1 and up to seven students in pretest meeting 2 achieved a score of ≥ 70 , according to the results of the pretest cycle I implementation. At meetings 1 and 2, the best score was 80. In contrast, 20 is the lowest value at meetings 1 and 2.

The planning for cycle 1 of meeting 1 is scheduled for August 1, 2023. The activities include: (1) creating learning scenarios, (2) creating lesson plans, (3) coordinating with class teachers and observers regarding the implementation of learning to be carried out, (5) preparing research instruments such as learning media to be used, and (6) preparing tools to document learning activities. The planning phase of meeting 1 will take place on August 1, 2023.

Meeting 2 will take place on August 5, 2023, and will involve the following activities: (1) reflection on Meeting 1; (2) creation of learning scenarios; (3) preparation of lesson plans; (4) collaboration with class teachers and observers; (5) preparation of research instruments; and (6) preparation of tools to record learning activities.

Meeting 1's implementation phase in cycle I is scheduled for August 3, 2023, while Meeting 2's is scheduled for August 7, 2023. Up to two meetings were held in order to carry out the initial cycle of actions. The PBL model's five steps—problem orientation with image media, learning organization with image media, student guidance, work results presentation, and analysis and evaluation of the problem-solving process—are applied to learning activities through the use of image media. There are three types of activities that are completed: preparatory, central, and end activities.

Alongside the execution of learning, observation of the PBL model's application with visual media is conducted.

Table 3. Results of Observation of Teacher and Student Activities in the Application of PBL Model with Cycle I Image Media

Observations	Presented (%)		Average (%)	Category
	Meeting 1	Meeting 2		

Teacher activity	83,75	85	84,37	Excellent
Student Activities	82,5	82,5	82,5	Excellent

Table 3 provides information on the observations made on the use of picture media in the PBL model by teachers throughout the first cycle. Meeting 1's results were 83.75%, while meeting 2's findings showed an increase to 85% with an average of 84.34%. This falls into the exceptional group.

The findings from the observations of cycle I students using picture media to apply the PBL paradigm revealed an 82.5% percentage determination from meetings 1 and 2. Thus, it can be said that teachers' and students' consistent use of the PBL model with image media increased by 1.25 percent.

The learning in the first cycle of meetings 1 and 2 had been executed successfully, according to the findings of interviews that observers performed with randomly chosen teachers and students. Teachers still struggle to organize their classes, though, because many students ignore their teachers' instructions, pay less attention to what they are learning, and are unaware that other students may disagree and respond. Additionally, some students focus less on their education, and some do not take part in group projects.

This study looked at how pupils were learning science through observation. Eleven indicators of learning activity were used to observe the IPAS learning activity: 1) eagerness to follow instructions; 2) attentiveness to teacher explanations; 3) questioning and answering; 4) asking questions; 5) documentation of explanations and discussion outcomes; 6) reading material; 7) voicing opinions during discussions; 8) hearing arguments from other students; 9) response; 10) finishing practice questions; and 11) presentation of discussion outcomes. The following table displays the findings from the observations of the learning activity in meetings 1 and 2 of cycle I:

Table 4. Results of Observation of IPAS Learning Activity Cycle I

Mastery Level	Information	Meeting 1		Meeting 2	
		<i>n</i>	%	<i>n</i>	%
81% - 100%	Very High	8	27%	10	33%
61% - 80%	High	13	43%	15	50%
41% - 60%	Moderate	8	27%	5	17%
21% - 40%	Low	1	3%	0	0%
0% - 20%	Very Low	0	0%	0	0%

Table 4 displays the findings of observations made throughout cycle I of the learning process, which demonstrated an increase in student participation from meeting 1 to meeting 2. Students in the very high group participated in meeting 1 at a rate of 27%, high at 43%, medium at 27%, and poor at 3%. Students' learning activity rose by 33%, 50%, and 17% to very high, high, and medium categories in meeting 2. This is consistent with other studies by Setyawati et al. (2019) and Simamora et al. (2017),

who noted that using the PBL approach can boost student engagement.

A posttest is used to gauge how well fourth-grade students at SDN 1 Kedungbanteng learned in science about the many kinds of roots and leaves and how photosynthesis works in plants.

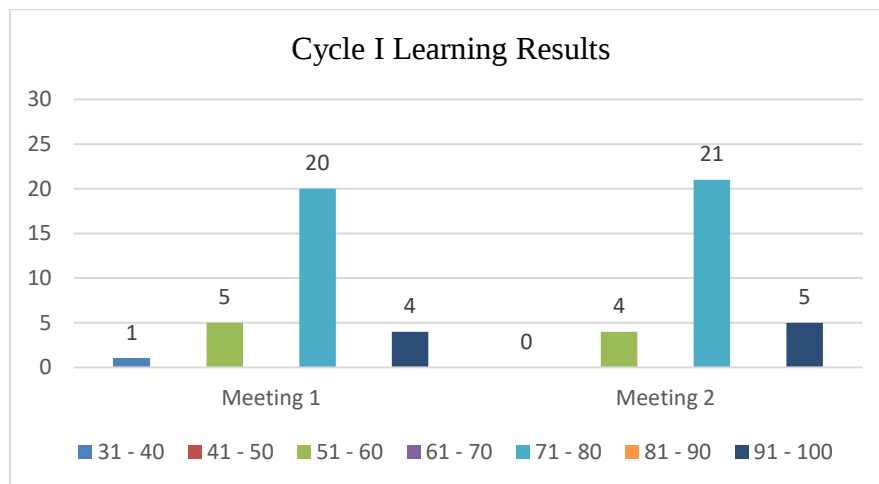


Figure 2. Science Learning Outcome Diagram Cycle I

Diagram '2 illustrates that, at meeting 1, 24 students, or 80% of the total, finished the exam or received a score of ≥ 70 , whereas the remaining 6 students, or 20% of the total, did not finish. In meeting 2, there were 26 students who finished, accounting for 87% of the total, and 4 students who did not finish, representing 13% of the total. Meetings 1 and 2 have the greatest value of 100, while Meeting 1 and Meeting 2 have the lowest values of 40 and 60, respectively. At meeting 1, the average score was 78, while at meeting 2, it was 80.67. From meeting 1 to meeting 2, there was a 7% improvement in students' percentage of completeness and an average score of 78 to 80.67. This relates to earlier studies by Yew and Goh (2016) and Setyawati et al. (2019) that shown that using the PBL approach can enhance student learning results.

In the first reflection cycle, the researcher is described as the PBL model's executor, with picture media receiving the lowest percentage in the phase that organizes learning. Due to certain groups' continued focus on playing alone and their excessive laziness while completing assignments, teachers are less able to respond to all of the groups. Students' learning activities in cycle I have greatly expanded, and the scientific curriculum's outcomes regarding plant material and the earth's life sources have also increased.

Cycle II

According to the results of the pretest cycle II, 10 students passed pretest meeting 1 with a score of at least 70, and 12 students passed pretest meeting 2. At meetings 1 and 2, the best score was 80. In contrast, 20 is the lowest value at meetings 1 and 2.

Cycle II planning will take place at meetings 1 and 2 on August 8, and August 12, respectively. Licensing, creating learning scenarios, lesson planning, collaborating with class teachers and observers, producing research instruments, and preparing documentation tools are among the tasks completed.

Cycle II's implementation phase will take place across two meetings, August 10, 2023, and August 15, 2023.

Up to two meetings were held in order to carry out the cycle II actions. Applying the five steps of the Problem Based Learning model (1) problem orientation with image media, (2) organizing learning with image media, (3) guiding students, (4) presenting work results, and (5) analyzing and evaluating the problem-solving process to image media is how learning activities are carried out.

Activities for observing how teachers and students apply PBL models using image media. The following table 5 displays the findings from the observations:

Table 5. Results of Observation of Teacher and Student Activities in the Application of PBL Model with Cycle II Image Media

Observations	Presented (%)		Average (%)	Criterion
	I	II		
Teacher activity	90	91,25	90,62	Very Good
Student Activities	86,25	88,75	87,5	Very Good

Table 5 indicates that the application of the PBL model with image media to instructors was seen in cycle II. The findings showed an increase from meeting 1, which was 90%, and meeting 2, which was 91.25% with an average of 90.62%, which fell into the very good category. Observations of the PBL model being applied to students in the improvement cycle from meeting 1 to meeting 2 showed 86.25% and 88.75% of the observations, respectively, with an average of 87.5% that fell into the very good category.

It is known that learning in cycle II meetings 1 and 2 has gone more smoothly than it did in the previous cycle based on the findings of teacher interviews. While it is now easier for teachers to organize and supervise their classes, some students still pay less attention to their teachers and are too preoccupied with their media to avoid disturbing their peers. In cycle II meetings 1 and 2, researchers also interviewed learners who were chosen at random to learn about their perspectives on implementing the PBL paradigm with visual media. The interview revealed that students feel joyful and comprehend the topic better when using PBL models and picture media in cycle II learning, and that learning is better than in cycle I.

Table 6 below displays the findings from the observations of the learning activities conducted during meetings 1 and 2 of cycle II:

Table 6. Results of Observation of IPAS Learning Activity Cycle II

Mastery Level	Information	Meeting1		Meeting 2	
		n	%	n	%
81% - 100%	Very High	12	40%	13	43%
61% - 80%	High	15	50%	17	57%

41% - 60%	Moderate	3	10%	0	0%
21% - 40%	Low	0	0%	0	0%
0% - 20%	Very Low	0	0%	0	0%

Table 6 displays the findings of observations made throughout cycle I of the learning process, which demonstrated an increase in student participation from meeting 1 to meeting 2. Students in the very high category participated in 40% of the meeting, high 50%, and medium 10% of the activities. Students' learning engagement reached a very high category of 43%, high 57%, in meeting 2. This is consistent with earlier research by Bona et al. (2023), which found that using picture media-assisted PBL models can boost student engagement.

The following figure illustrates the outcomes of studying plants as the primary source of life on Earth after cycle II action:

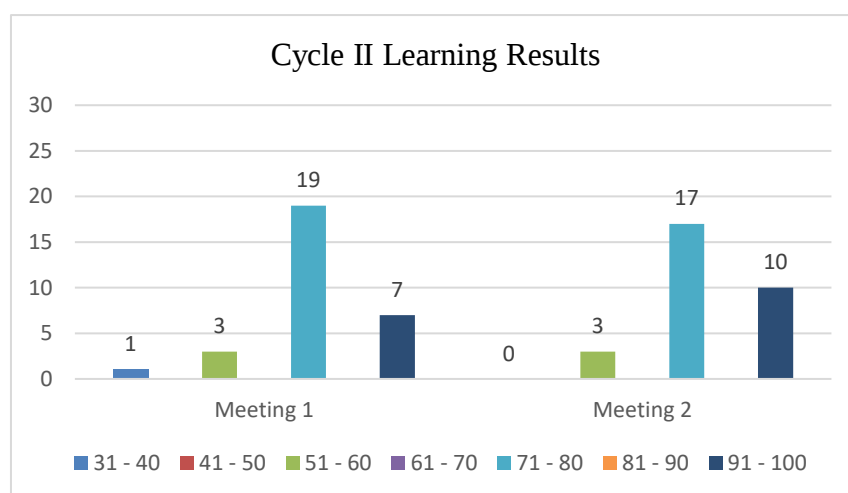


Figure 3. IPAS Cycle II Learning Outcomes Diagram

Drawing from the data on learning outcomes shown in the above graphic, it is evident that, at meeting 1, 26 students (86% of the total) completed the task or received a score of ≥ 70 , whereas 4 students (13% of the total) had not finished. In the second meeting, there were 27 students who finished, accounting for 90% of the total, and 3 students who did not finish, representing 10% of the total. Meetings 1 and 2 have the greatest value of 100, while Meeting 1 and Meeting 2 have the lowest values of 40 and 60, respectively. The average score was 81.33 at the first meeting and 84.67 at the second. This outcome is consistent with the findings of Putra et al. (2021), which shows that the PBL model has improved student learning outcomes when used in conjunction with audio and visual media. Students are motivated by audio-visual materials, which makes learning more engaging and significant.

When the PBL model with picture media is applied to teachers and students, it is applied more so than in cycle I, according to reflections on its use. With picture media, educators and learners gain greater mastery of each PBL model indicator. Comparing cycle 1 to cycle 2, there has been a notable

increase in the amount of plant material studied in science classes and the corresponding learning outcomes.

CONCLUSION

In grade IV SDN 1 Kedungbanteng, scientific plant material the source of life on Earth can be studied more actively in 2023–2024 when the PBL model is applied with image media. Students' level of activity in the very high category was 27%, high 43%, in cycle 1 of meeting 1. In meeting 2, students' level of learning activity improved to 33%, high 50%. Students in the very high category participated in 40% and high 50% of the meetings during the second cycle of meeting 1. The category was very high at 43% and high at 57% at meeting 2. For the 2023–2024 academic year, the scientific plant materials, or the source of life on Earth, grade IV SDN 1 Kedungbanteng, can learn more effectively when the PBL model is applied with image media. At cycle I meeting, the percentage of completed pretests (which was 20%) improved to 80% on the posttest. Pretest completion rate at meeting two was 23%, whereas posttest completion rate was 87%. Cycle II Meeting 1 saw an increase in the percentage of completion from 33.33% on the pretest to 86.67% on the posttest. At the second meeting, the 40% completion rate on the pretest had climbed to 90% on the posttest.

ACKNOWLEDGEMENT

The Universitas Muhammadiyah Purwokerto and SD Negeri 1 Kedungbanteng are acknowledged and thanked by the researchers for their support in making this research go smoothly and successfully.

REFERENCES

- Bona, N. S., Hasyda, S., & Wula, Z. (2023). Penerapan Model Pembelajaran *Problem Based Learning* (PBL) dengan Berbantuan Media Gambar untuk Meningkatkan Keaktifan dan Hasil Belajar Siswa pada Tema 6 Panas dan Perpindahan Kelas V SD Inpres Oepoi Kupang. *Mimbar PGSD Flobamorata*, 1(3), 127-134.
- Djonomiarjo, T. (2019). Pengaruh model Problem Based Learning terhadap hasil belajar. *Aksara: Jurnal Ilmu Pendidikan Nonformal*, 5(1), 39-46. <https://doi.org/10.37905/aksara.5.1.39-46.2019>
- Kanza, N. R. F., Lesmono, A. D., & Widodo, H. M. (2020). Analisis keaktifan belajar siswa menggunakan model Project Based Learning dengan pendekatan STEM pada pembelajaran fisika materi elastisitas di kelas XI MIPA 5 SMA Negeri 2 Jember. *Jurnal Pembelajaran Fisika*, 9(2), 71-77. <https://doi.org/10.19184/jpf.v9i1.17955>
- Manalu, J. B., Sitohang, P., & turnip, N. H. (2022) Pengembangan Perangkat Pembelajaran Kurikulum Merdeka belajar. *Prosiding Pendidikan Dasar (pp.80-86)*, Sumatera Utara: Mahesa Research Center.
- Marwa, N. W. S., Usman, H., & Qodriani, B. (2023). Persepsi Guru Sekolah Dasar Terhadap Mata Pelajaran IPAS pada Kurikulum Merdeka. *Metodik Didaktik: Jurnal Pendidikan Ke-SD-an*, 18(2), 54-65. <https://doi.org/10.22460/jpp.v2i1.18138>
- Mayasari, A., Arifudin, O., & Juliawati, E. (2022). Implementasi Model Problem Based Learning (PBL) dalam Meningkatkan Keaktifan Pembelajaran. *Jurnal Tahsinia*, 3(2), 167-175. <https://doi.org/10.57171/jt.v3i2.335>

- Prihantoro, A., & Hidayat, F. (2019). Melakukan penelitian tindakan kelas. *Ulumuddin: Jurnal Ilmu-ilmu Keislaman*, 9(1), 49-60. <https://doi.org/10.47200/ulumuddin.v9i1.283>
- Pristiwanti, D., Badariah, B., Hidayat, S., & Dewi, R. S. (2022). Pengertian Pendidikan. *Jurnal Pendidikan Dan Konseling (JPDK)*, 4(6), 7911-7915.
- Putra, I. D., Susilowati, S. M. E., & Purwanto, E. (2021). The Effectiveness of Problem-Based Learning Model and Role Playing Assisted by Audio-Visual Media in Learning Outcomes of Social Studies at Fifth-grade Elementary School. *Journal of Primary Education*, 10(2), 240-251.
- Setiyawan, H. (2020). Pemanfaatan Media Audio Visual dan Media Gambar Pada Siswa Kelas V. *Jurnal Prakarsa Paedagogia*, 3(2), 198-203. <https://doi.org/10.24176/jpp.v3i2.5874>
- Setyawati, S., Kristin, F., & Anugraheni, I. (2019). Penerapan model pembelajaran Problem Based Learning (PBL) untuk meningkatkan keaktifan dan hasil belajar siswa kelas 2 SD. *Jurnal Ilmiah Pengembangan Pendidikan (JIPP)*, 6(2), 93-99. <https://doi.org/10.35568/naturalistic.v2i2.209>
- Simamora, R. E., Sidabutar, D. R., & Surya, E. (2017). Improving learning activity and students' problem-solving skill through problem-based learning (PBL) in junior high school. *International Journal of Sciences: Basic and Applied Research (IJSBAR)*, 33(2), 321-331.
- Sugiyono. (2020). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Bandung: Alfabeta.
- Yew, E. H., & Goh, K. (2016). Problem-based learning: An overview of its process and impact on learning. *Health professions education*, 2(2), 75-79. <https://doi.org/10.1016/j.hpe.2016.01.004>
- Yuni, Y., Ardilansari, A., Saddam, S., Candra, C., Muttaqin, Z., & Maemunah, M. (2023, July). Tingkat Efektivitas Pembelajaran Berbasis Masalah dalam Peningkatan Nalar Siswa PPKn. *In Seminar Nasional Paedagogia* (Vol. 3, pp. 80-89).
- Zumery, M., Yustini, T., & Rostiati, N. (2021). Pengaruh Prasarana Fisik, Proses Pelayanan dan Responsiveness terhadap Kepuasan Nasabah pada Layanan ATM BNI Cabang Musi Palembang. *Integritas Jurnal Manajemen Profesional (IJMPRO)*, 2(2), 263-276. <https://doi.org/10.35908/ijmpro.v2i2.97>