Educational Administration: Theory and Practice
2024,30(7), 1027 - 1031
ISSN:2148-2403
https://kuey.net/

Research Article

Application Of Problem Based Learning To Improve Learning Outcomes On The Subject Of Ecosystems, Class Vi Students Of State Primary School 5 Bungoro Pangkep, South Sulawesi Indonesia

Arwaty[1*], Mithen Lullulangi[2]

[1*]Lecturer at the Universitas Pejuang Republik Indonesia, arwatydir@gmail.com
[2]Lecturer at Universitas Negeri Makassar, mithen@unm.ac.id

Citation: Arwaty, et.al (2024), Application Of Problem Based Learning To Improve Learning Outcomes On The Subject Of Ecosystems, Class Vi Students Of State Primary School 5 Bungoro Pangkep, South Sulawesi Indonesia, *Educational Administration: Theory and Practice*, *30*(7), 1027 - 1031
Doi: 10.53555/kuey.v30i7.6536

ARTICLE INFO

ABSTRACT

This research aims to find out whether the application of Problem Based Learning can improve learning outcomes on the subject of ecosystems for 35 students in class VI of the 5 Bungoro Pangkep Elementary School for the 2023/2024 academic year. The research method is action research, with the following steps: 1) Identifying students' conditions, 2) Planning learning, 3) Carrying out learning actions, 4) Carrying out observation and monitoring, 5) Making reflections, and 6) Carrying out evaluations. Research data was obtained through the evaluation results of the initial test, post test I, post test II, and post test III. The data analysis technique is quantitative descriptive. The results of the research show that by applying Problem Solving to learning the subject of ecosystems, in post-test evaluation I, it did not increase, but in Post-test II it increased by 0.799%, then in Post-test III, it significantly increased by 5.922%.

Keywords: Application of Problem Based Learning.

INTRODUCTION

East Java Education Quality Assurance Center (BBPMP Jatim) 2021, stated that: Improving the quality of learning cannot be separated from the role of teachers in choosing appropriate learning strategies to create a conducive learning atmosphere, so that it can improve students' problem solving in learning, which ultimately has an impact on improving the quality of education. They highlight teacher performance which causes low learning activities and learning outcomes, because teachers mostly use the lecture method in teaching, so that students only listen, take notes and memorize the material being taught, so that students are less enthusiastic in following lessons, do not have the opportunity to collaborate in learning. groups, because teachers do not use learning media so that students are less active and have an influence on learning outcomes.
In Law of the Republic of Indonesia no. 14 of 2005 concerning Teachers and Lecturers Article 10 paragraph (1) states that "teacher competence as referred to in article 8 includes pedagogical competence, personality competence, social competence and professional competence obtained through professional education." Therefore, a teacher is required to have skills in designing learning models that enable students to participate actively physically and mentally, be creative in increasing student activity towards the material presented. Apart from that, teachers must be able to improve their professional competence as a director and facilitator in the learning process as well as acting as an assessor of learning outcomes. This means that as a teacher you must have the ability and competence in your field and master the material to be taught well. Therefore, a professional teacher must master various learning methods and models, especially those that have been developed and researched by experts and written in books or journals, for example:
Silalahi et at (2024) say that the cooperative learning model is a learning model that is carried out by forming small groups in the ongoing learning process. The cooperative learning model has relevance in improving students' interpersonal intelligence in elementary school learning, both thematic learning, social science learning, citizenship education learning, natural science learning, and mathematics learning. Furthermore, Hariyati (2023), said that the use of the right learning model, in this case the jigsaw type cooperative learning model, can increase student literacy which can be seen from the increase in learning outcomes in post tests, especially material on the human sensory system and at the same time encourage students to be more active. in exploring knowledge and fostering an attitude of cooperation.

In an article in Sampoerna Academy (2022), it is explained that problem based learning is learning that is based on a method to introduce students to a case that is related to the material being discussed. Students are asked to find solutions on how to solve problems faced in the learning process. Furthermore, it is explained that this learning model prioritizes students' activeness in thinking critically and skillfully when dealing with solving the problems they face. Nor Khakim, et al (2022) explain that: Learning Objectives of the Problem Based Learning Model. The teacher's role in achieving the learning objectives of the Problem Based Learning model is to guide and direct students in the process of solving the problems they face.

Syntax is the steps in learning activities to achieve the goals to be achieved in the learning process. In an article on Duniadosen.com. (2023), explains that the syntax or steps of PBL are: (1) Educators prepare statements and assignments, (2) Educators provide contextual problems, (3) Educators carry out the role as facilitators, (4) Educators guide discussions, prepare reports, and presentations, (5) Educators provide intellectual support, and (6) Educators evaluate student projects. Hamdani (2011) stated several advantages and disadvantages of the Problem Based Learning model as follows. Advantages: 1) students are involved in learning activities so that their knowledge is really well absorbed; 2) students are trained to be able to work together with other students; and 3) students can obtain problem solutions from various sources. Then the disadvantages are: 1) for lazy students, the goals of this method cannot be achieved; 2) requires a lot of time and funds; 3) not all subjects can be applied with this method; 4) in a class that has a high level of student diversity there will be difficulties in distributing tasks; 5) Problem Based Learning is not suitable for implementation in elementary schools because of problems with the ability to work in groups; 6) Problem Based Learning usually requires a lot of time; and 7) requires the ability of teachers who are able to encourage student work in groups effectively.

Rerung, et al (2017) added the advantages of Problem Based Learning as follows: 1) Students are encouraged to have the ability to solve problems in real situations; 2) Students have the ability to build their own knowledge through learning activities; 3) Learning focuses on problems so that unrelated material is not necessary for students to study at that time. This reduces the burden on students to memorize or retain information; 4) Scientific activity occurs in students through group work; and 5) Students are accustomed to using knowledge sources from libraries, the internet, interviews and observations.

Writing in Science of Learning (2024), explains that: Learning is the process by which we acquire new knowledge, skills or behaviors and underpins all aspects of education. Understanding the learning process is essential for developing new learning strategies in a targeted fashion. Then Napitupulu (2023), explains that: Learning is not just memorizing, but understanding concepts, mastering the basic concepts in learning is believed to support students' understanding to be able to learn with quality. Thus, learning is not just memorizing but knowing concepts and being able to do them. Martinus Yamin, (2006), explains that: Learning is the process of people acquiring skills, skills and attitudes. Learning starts from childhood until the end of a person's life. Kosilah et al (2020) explained that in the teaching and learning process the learning outcomes that are expected to be achieved by students are important for teachers to know, so that they can plan teaching and learning activities appropriately. Learning outcomes must show a change in behavior or the acquisition of new behavior from students that is permanent, functional, positive and conscious. Ivan Andreev (2022), said: Learning outcomes are descriptions of the specific knowledge, skills, or expertise that the learner will get from a learning activity, such as a training session, seminar, course, or program. Furthermore, Walvoord, B. E. (2010), explains that: Learning outcomes are measurable statements that articulate at the beginning what students should know, be able to do, or value as a result of taking a course or completing a program (also called Backwards Course Design).

RESEARCH METHODS

The implementation of learning using the Problem Based Learning strategy for 35 students in class VI of Bunguro Pangkep 5 Elementary School for the 2023/2024 academic year, was carried out using the following steps:

1. Identify students' conditions to find students who are active and passive in learning through a series of data collection activities. Actions taken to identify students include interviews with study teachers before carrying out the action and then conducting direct observations on students.
2. Planning learning, as a solution to student problems, the solution that researchers offer to overcome the problem of improving student learning outcomes through the application of Problem Based Learning.
3. Carry out actions. At the action implementation stage, researchers carried out learning by applying the Problem Based Learning method for class VI. A plan is flexible and ready to be implemented according to what happens in the implementation process in the field. At this stage, carrying out classroom learning is more focused on the substance that is the main problem in order to improve the cognitive, affective and psychomotor domains of students.
4. Carry out observations and monitoring. This stage actually runs at the same time as the observations carried out while the learning is in progress, so both take place at the same time. At this stage, the researcher made observations and recorded all the things that were necessary and happened during the learning process. This data collection is carried out using an observation or assessment format that has been prepared, including careful observation of the implementation of learning from time to time and its impact on the student learning

outcomes process. The data collected can be in the form of quantitative data (test results, quizzes, etc.) and qualitative data that describes student activity, student enthusiasm, etc. Based on the collected data, analysis and reflection on the actions that have been carried out are then carried out.
5. Make a reflection. At this stage it is intended to thoroughly evaluate the learning actions that have been carried out, based on the data that has been collected, then carry out an evaluation to perfect the next learning actions. This reflection includes analysis, synthesis and assessment of the results of observations of the learning actions carried out. If there are problems with the reflection process, a review process is carried out through the next cycle which includes re-planning activities.
6. Carry out evaluations. Tests are used to collect data on increases in learning outcomes carried out before and after learning actions. This activity is a process of collecting, processing and presenting information so that it is useful for decision making. Between dialogue, planning, action decision making, taking action, observation, reflection and evaluation are processes that are linked logically, systematically and continuously. Evaluation is directed at finding evidence of improvement in the cognitive, affective and psychomotor domains of students.

RESULTS AND DISCUSSION

1. Research Results

Implementing learning using the Problem Based Learning strategy is needed to obtain empirical evidence regarding an increase in student learning outcomes after receiving learning. The research was carried out by conducting learning using the Problem Based Learning method with 35 students in class VI of Bungoro Pangkep 5 Elementary School for the 2023/2024 academic year, as the research sample. The learning will be carried out for one month, namely January 2023.
Learning experimentation was first carried out using the lecture and question and answer method (cycle I) and the results were measured by giving post test I. Then learning was given using the Problem Based Learning strategy, namely instructing students to create questions regarding the subject of Ecosystems which were considered difficult and conditioned students to actively seek solutions to these problems and students can learn independently. This learning method was carried out twice, namely cycle II and cycle III. This learning method uses the Problem Based Learning strategy, students can play an active role in finding answers to the problems they encounter.
After learning using the Problem Based Learning strategy cycle II was completed, post test II was carried out to find out whether there was an increase in students' understanding of the lesson material. The next learning process is to carry out learning using the Cycle III Problem Based Learning strategy by asking students to make their own questions. After implementing learning using the Problem Based Learning strategy cycle III, post test III was then carried out to measure the increase in mastery of the subject matter.
The results of measuring the increase in learning outcomes in post tests I, II and III can be seen in table 1 as follows:

Table 1. Description of Learning Results on Ecosystem Topics with Problem Based Learning for Class VI Students at Negeri 5 Bungoro Pangkep Elementary School Academic Year 2023/2024.

Statistical Distribution	Beginning	**Post Test I**	**Post Test II**	**Post Test III**
Average	55,90	67,69	71,03	74,62
Standard Deviation	12,72	11,92	15,95	14,98
Minimal	30,00	43,33	43,33	43,33
Maximum	80,00	90,00	96,67	96,67

The results of the documentation of students' initial scores obtained the highest score of 80 and the lowest score of 30.00, the average (mean) of 55.90, and the standard deviation of 12.72. Furthermore, the results of the assessment of the implementation of post test I on students obtained the highest score of 90 and the lowest score of 43.33, the average (mean) of 67.69, and the standard deviation of 11.92. Furthermore, the results of post test II after students received Problem Based Learning learning obtained the highest score of 96.67 and the lowest score of 43.33, the average (mean) was 71.03 and the standard deviation was 15.95. Meanwhile, the results of post test III in Problem Based Learning, students obtained the highest score of 96.67 and the lowest score of 43.33 with an average (mean) of 14.98 and a standard deviation of 14.98.
Evaluation of post tests I, II and III showed an increase in student learning outcomes compared to the students' initial scores. This means that students' understanding has increased after learning using Problem Based Learning. Furthermore, based on the results of the regression analysis, the results obtained are summarized as follows:

Table 2. Analysis Results Using Regression Techniques

Evaluation	**a**	**b**	**F*count***	**F*table* 5%**	**Information**
Post Test I	46,889	0,908	2,102	4,08	Not significant
Post Test II	59,241	0,216	4,879	4,08	Significant
Post Test III	44,240	0,543	10,002	4,08	Significant

From the calculation results in post I, it is obtained that F*count* is 2.102, while the F*table* value at the 5% significance level is 4.08. The comparison results show that F*count* < F*table*, namely 2.102 < 4.08. From these results it can be concluded that there is no influence of the learning outcomes process using the lecture and question and answer method on the learning outcomes of Ecosystem Subjects.
Furthermore, the results of the regression analysis in post test II showed that F*count* was 4.879, while the F*table* value at the 5% significance level was 4.08. The comparison results show that F*count* > F*table*, namely 4.879 > 4.08. From these results it can be concluded that there is an influence of the learning outcomes process using Problem Based Learning on the learning outcomes of Ecosystem Subjects, and it increases by 0.799 (significant).
Furthermore, the results of the regression analysis in post test III obtained F*count* of 10.002, while the F*table* value at the 5% significance level was 4.08. The comparison results show that F*count* > F*table*, namely 10.002 > 4.08. From these results it can be concluded that there is an influence of the learning outcomes process using Problem Based Learning on the learning outcomes of Ecosystem Subjects, and it increases by 5.922 (significant).

2. Discussion

This research is action research carried out in three cycles. The first cycle uses conventional methods, namely the lecture and question and answer method, to teach the main topic of Ecosystems to class VI students at the Bungoro 5 Elementary School, Pangkep Regency. In Post test I, learning outcomes did not increase. Then in Cycle II and Cycle III, using Problem Based Learning, learning outcomes increased, namely in Post Test II by 0.799% and in Post Test III it increased to 5.922%. The results of this research show that learning with Problem Based Learning student learning outcomes on the subject of Ecosystems increased significantly. The results of this research are supported by research conducted by Agus Robitanto (2021), with the title: The Effect of the Problem Based Learning Model on Student Learning Outcomes, which concluded that learning with the problem based learning (PBL) model can improve student learning outcomes. from the lowest 5% to the highest 96%. with an average of 43.6%. The average student learning outcomes before the classroom action research was 57.14 and after the classroom action research was carried out using the problem based learning model there was an increase to 79.09 which means that the Problem Based Learning learning model can improve student learning outcomes.
Other research that supports this research was conducted by Bakti Prima, et al (2023), with the research title: Application of the Problem Based Learning Model to Improve Student Learning Outcomes. The results of the research show that there is an increase in learning both in teacher and student activities and student learning outcomes. The conclusion of this research is that the application of the Problem Based Learning learning model can improve student learning outcomes in class V mathematics subjects at State Elementary School 35 Tajuncu, Donri-Donri District, Soppeng Regency. The results of the research show that there is an increase in learning both in teacher and student activities and student learning outcomes. The conclusion of this research is that the application of the Problem Based Learning learning model can improve student learning outcomes in class V mathematics subjects at State Elementary School 35 Tajuncu, Donri-Donri District, Soppeng Regency.
Likewise, the results of research conducted by Yunin, et al (2014) with the title: Application of the Problem Based Learning Model to Improve Critical Thinking Skills and Student Learning Outcomes, the results of the research show the following: (a) application of the PBL model in learning remedial materials and settings PC reset can improve students' critical thinking skills in learning, namely by 24.2%, (b) Students' critical thinking skills after implementing Problem Based Learning, namely students with very high critical thinking skills category as many as 20 students (69%), high category as many as 7 students (24.2%), the low category is 2 students (6.9%) and the very low category is 0 students (0%), (c) the implementation of PBL can improve student learning outcomes by 31.03%, and (d) Student learning outcomes after implementing Problem Based Learning, namely the number of students who reached the Minimum Completeness Criteria was 29 students (100%).

CONCLUSION

Based on the results of the research and discussion above, it can be concluded that the results of the research show that with the application of Problem Solving in learning the subject of ecosystems, in the evaluation of post test I, it did not increase, but in Post test II it increased by 0.799%, then in Post test III, it increased significantly. significantly increased by 5.922%. Thus, the application of Problem Based Learning can improve student learning outcomes.

REFERENCES

1. Agus Robiyanto. (2021). Pengaruh Model Problem Based Learning terhadap Hasil Belajar. *Mahaguru: Jurnal Pendidikan Guru Sekolah Dasar*.Vol. 2– No. 1, year (2021), page 114-121.

2. Balai Besar Penjamin Mutu Pendidikan Jawa Timur (BBPMP Jatim) 2021. *Mungkinkah Model Pembelajaran Kooperatif Tipe Make A Match Berbantuan Media Audio Visual Meningkatkan Hasil Belajar Siswa.* Redaksi - 01 Oktober 2021
3. Bhakti Prima Findiga Hermuttaqien, Lastri Aras, dan Sri Indah Lestari (2023). Penerapan Model Pembelajaran Problem Based Learning Untuk Meningkatkan Hasil Belajar Siswa. *Kognisi :Jurnal Penelitian Pendidikan Sekolah Dasar*. Vol.3 No.1 Juni (2023). Pp 16 – 22.
4. Copyright @ 2014 – 2024. *Science of Learning Research Centre All Rights Reserved*. https://www.slrc.org.au/understanding-learning/
5. Duniadosen.com. (2023). *6 Sintak Model Problem Based Learning*. https://duniadosen.com/sintak-model-problem-based-learning/
6. Hamdani. (2011). *Strategi Belajar Mengajar*. Bandung : Pustaka Setia.
7. Hariyati, Dwi. (2023). Penerapan Model Pembelajaran Koperatif Learning Tipe Jigsaw untuk Meningkatkan Literasi Siswa Melalui Penggunaan Modul Ajar Berbasis Literasi Sains Pada Mareti Sistem Indra Manusia. *Jguruku: Jurnal Penelitian Guru*. Vol.1 No.2 (2023).
8. Ivan Andreev. (2022). *Learning Outcomes*. https://www.valamis.com/hub/learning-outcomes.
9. Kosilah dan Septian. (2020). Penerapan Model Pembelajaran Kooperatif Tipe Assure Dalam Meningkatkan Hasil Belajar Siswa. *Jurnal Inovasi Penelitian*. Vol.1. No.6 November 2020. pp. 1139-1147.
10. Martinus Yamin, 2006. *Profesionalisme Guru dan Implementasi Kurikulum Berbasis Kompetensi***.** Jakarta : Gaung Persada Press.
11. Napitupulu, Ester Lince. (2023). *Learning Methods*. *https://www.kompas.id/baca/english/2023.*
12. Nor Khakim , Noor Mela Santi , Acep Bahrul Ulum Assalami , Erlina Putri , Ahmad Fauzi. (2022). Penerapan Model Pembelajaran Problem Based Learning Dalam Meningkatkan Motivasi Belajar PPKn Di SMP YAKPI 1 DKI Jaya. *Jurnal Citizenship Virtues*, 2022, 2(2), 347-358.
13. Rerung, N., Sinon, I. L., & Widyaningsih, S. W. (2017). Penerapan model pembelajaran Problem Based Learning (PBL) untuk meningkatkan hasil belajar peserta didik SMA pada materi usaha dan energi. *Jurnal Ilmiah Pendidikan Fisika Al-Biruni*, *6* (1), 47-55.
14. Sampoerna Academy. (2022). *Pengertian Problem Based Learning, Tujuan dan Sintak*. https://www.sampoernaacademy.sch.id/id/problem-based-learning.
15. Silalahi, A. E., Aryanti, F., & Futriani, N. (2024). Studi Literatur: Model Pembelajaran Kooperatif dalam Meningkatkan Kecerdasan Interpersonal Siswa Sekolah Dasar. *Journal on Education*, *6*(4), 18495-18509. https://doi.org/10.31004/joe.v6i4.5762
16. Undang-undang Republik Indonesia No. 14 Tahun 2005 tentang Guru dan Dosen.
17. Walvoord, B. E. (2010). *Assessment clear and simple: A practical guide for institutions, departments and general education*. San Francisco, CA: Jossey-Bass.
18. Yunin Nurun Nafiah, Wardan Suyanto. (2014). Penerapan Model Problem Based Learning untuk Meningkatkan Keretampilan Berpikir Kritis Dan Hasil Belajar Siswa. *Jurnal Pendidikan Vokasi Jurnal Pendidikan Vokasi,* Vol 4, Nomor 1, Februari 2014 pp 125 – 143.