



Improving Science Learning Outcomes on Human Blood Circulatory System Material Through Experimentation Method for Fifth Grade Students

Serli Santika¹, Yusni Arni², Putri Malasari³, Lala Dwi Putri⁴, Yesi Tahni⁵

¹ Universitas Terbuka, Indonesia

^{2,3,4,5} Universitas PGRI Palembang, Indonesia

Corresponding Author: ✉ putrimalasari27@gmail.com

ABSTRACT

This research was motivated by the low science learning outcomes of class V students at SD Negeri 6 Palembang. The aim of this research is to improve the science learning outcomes of fifth grade students at SD Negeri 6 Palembang on the circulatory system material. The learning method that researchers used was the experimental method. This type of research is class action. (PTK) This is carried out in 2 cycles through 4 stages, namely: 1) planning, 2) implementation, 3) Observation, 4) Reflection. The methods used in collecting data are observation, documentation and tests. The research results showed that learning outcomes using the experimental method from cycle I to cycle II experienced a significant increase. The observation results show that the average value in the pre-cycle, that's not what it's about, was 61.67, increasing in cycle 1 to 76.32 in the active category, then in cycle 2 it increased to an average of 87.79, so that from cycle I and cycle II 2 there was an increase of 73.53%. This shows that the use of experimental methods is able to improve student learning outcomes in science subjects on the subject of the circulatory system.

ARTICLE INFO

Article history:

Received

10 January 2024

Revised

15 January 2024

Accepted

25 February 2024

Key Word

Science Learning Outcomes, Experimental Methods, Grade V Students

How to cite

<http://pusdikra-publishing.com/index.php/jsr>

Doi

[10.51178/jsr.v5i1.1803](https://doi.org/10.51178/jsr.v5i1.1803)



This work is licensed under a
[Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)

INTRODUCTION

Education is a planned effort to create a learning atmosphere and learning process so that students actively develop their potential in order to have religious spiritual strength, personality, self-control, intelligence, noble character and skills needed by themselves, society, nation and state (law number 20 of 2003).

To improve the quality of education, the government should improve and change the curriculum used in schools as we see today the k13 curriculum has replaced the KTSP curriculum even though not all schools can implement the k13 curriculum, however, whatever the name and type of curriculum used, the success of learning in schools depends on its implementation in learning by the teacher. Because teachers are

a very influential factor in teaching and even determine the learning process of student success in learning (Solikat, N.2021, p.310).

Many factors affect the progress or failure of a nation, including the condition of education that occurs in the country, therefore to achieve this, a renewal in the field of education is needed. The low concept understanding ability is caused by the lack of variety of learning methods carried out by teachers. In elementary school education there is learning that coexists with human life, namely science learning.

Basonggo, I., tangkas, I, M & Said, I. (2014, P.96) Stated that science is a natural learning concept that has a close relationship with human life. In accordance with the demands of elementary school science learning, there are two things, namely: (1) develop process skills to investigate the surrounding nature, solve a problem and make a decision from the problem. (2) Develop knowledge and understanding of science concepts that are useful and can be applied in everyday life.

Solikat, N. (2021, p.310) Science is a way to find out about the natural world systematically in order to understand knowledge of concepts, facts, principles, discovery processes and have a scientific attitude. One of the subjects that is very influential in the education of insight and skills from an early age for children is science.

Based on the findings of science learning in class V of SD Negeri 6 Palembang, Ilir Barat 1 Subdistrict, Palembang City, it was found that the science learning outcomes of students in the class were still very low. Based on the test results of science learning in class V, out of 34 students in the class only 9 students or 26.48% of students reached the KKM. This means that around 73.52% of students are still below the KKM with an average score of around 61.67. This is because teachers do not apply appropriate methods in learning science by conducting experiments/practicums, students are usually only assigned to imagine. Based on the background of the above problems, the authors are interested in conducting research with the title "Improving Science Learning Outcomes through the Experiment Method for Class V Students of SD Negeri 6 Palembang".

RESEARCH METHOD

Somantri, S., Djumahana, N., Hendriani, A. (2018, p.1) stated that the experimental method is one of the learning methods that directly involves students actively in the learning process. By using the experimental method, students are directly involved in learning through the experiment or practicum.

The experimental method is a teaching method in which the presentation or discussion of the material is through experiments or conducting an experiment and observing the process (AnitaW, Sri et al.2020, p.5.27).

This type of research uses class action research. (PTK) This was carried out as many as 2 cycles through 4 stages, namely: 1) planning stage, 2) implementation, 3)

observation and, 4) reflection. The methods used in data collection are: observation, documentation and. The results showed that learning outcomes using the experimental method.

Wardani, IG.AK & Wihardit, K. (2021, p.1.5) stated that the characteristics of classroom research have different characteristics from other types of research including: the existence of problems in PTK is triggered by the emergence of awareness in the teacher that the practices that have been carried out in the classroom have problems that must be resolved.

This research was conducted from October to November 2022 at an elementary school located in the Ilir Barat 1 sub-district of Palembang city in the 2022/2023 school year with 34 students, 19 male students and 15 female students.

The data analysis presented is sourced from quantitative and qualitative data. Quantitative data comes from the results of student worksheets or lkp and evaluation, while qualitative data comes from observation sheets and field notes, (Arni, et al.,2022). Analysis of learning evaluation results is in the form of student worksheets and final tests if the test results in cycle 1 and cycle 2 have increased, it can be assumed that the application of experimental methods in learning can.

Meanwhile, the completeness and learning according to the predetermined kkm is that many students who reach the kkm are calculated and then presented so that researchers can get an overview of the success of students in following the science learning process regarding the circulatory system in humans by applying the experimental method.

RESULTS AND DISCUSSION

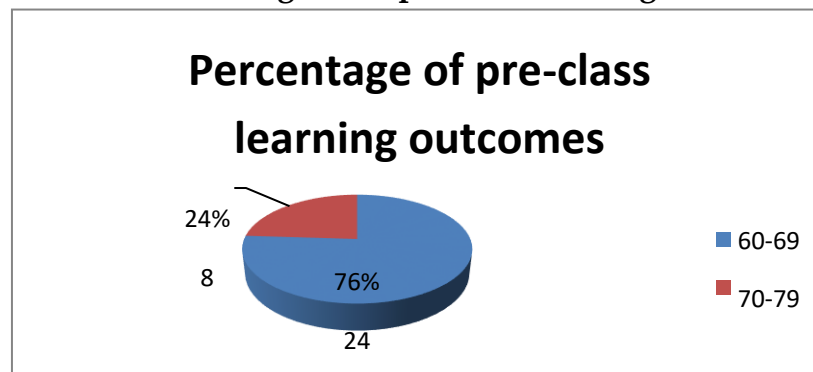
The implementation of pre-cycle activities in this study was carried out by collecting data related to the methods and media used in the implementation of learning. The method used in the pre-cycle stage learning activities only uses the lecture method and assignments, thus causing obstacles when the learning process takes place, as for the problems caused are as follows:

1. Students are not motivated to participate in learning activities.
2. Learning activities are only dominated by the teacher,
3. Many students cannot complete the assignments given correctly, resulting in low student learning outcomes as for the data on student learning outcomes at the pre-cycle stage as follows:

Table 1.
Tabulation of pre-classroom learning outcomes

Number	Score Range	Number	Percentage i
1.	90-100	0	0%
2.	80-89	0	0%
3.	70-79	8	24%
4.	60-69	26	76%
5.	50-59	0	0%
6.	40-49	0	0%
7.	30-39	0	0%
8.	0-29	0	0%

Figure 1.
Presentation diagram of pre-class learning outcomes



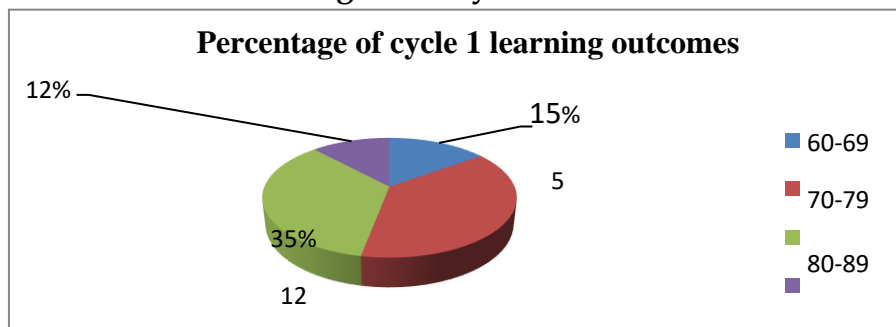
From the results of the data above, it can be seen that the number of students who are complete is less than those who are not complete. Of the 34 students, only 9 students (26.47%) scored above the KKM, 25 students (73.53%) had not reached the KKM.

By looking at the learning outcomes in the pre-cycle activities, it is necessary to take corrective action in learning science subjects on the material of the circulatory system so that learning objectives can be achieved.

Table 2.
Tabulation of student evaluation results cycle 1

Number	Score Range	Number	Percentage
1.	90-100	4	12%
2.	80-89	12	35%
3.	70-79	13	38%
4.	60-69	5	15%

Figure 2.
Presentation diagram of cycle 1 evaluation results



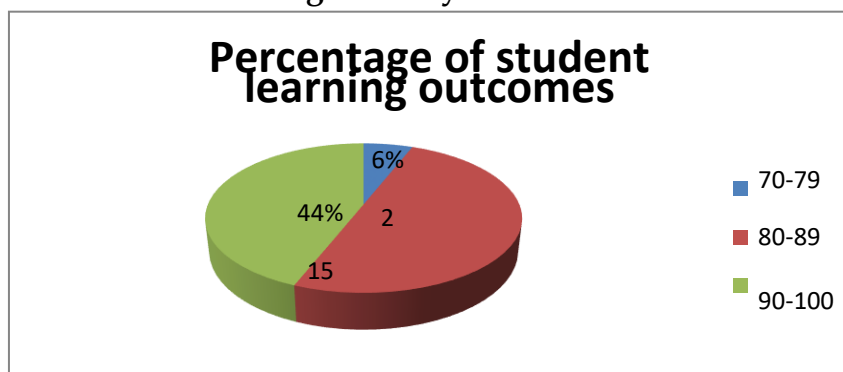
From the results of the data above, it can be seen that the number of completed students has increased compared to the pre-cycle activities, out of 34 students, 30 students (88.23%) have obtained scores above the KKM, 4 students (11.77%) have not reached the KKM. This is because, students are motivated to participate in activities with props as experimental materials, students are actively involved in using props and conducting direct observation experiments.

Because there are still some students who have not reached the KKM, this research is continued in the next cycle.

Table 3.
Tabulation of student evaluation results cycle II

Number	Score Range	Number	Percentage
1.	90-100	15	44%
2.	80-89	17	50%
3.	70-79	2	6%

Figure 3.
Presentation diagram of cycle II evaluation results



From the results of the data above all KKM with an average value of 87.79. This shows that the improvement activities in cycle II using the experimental method and

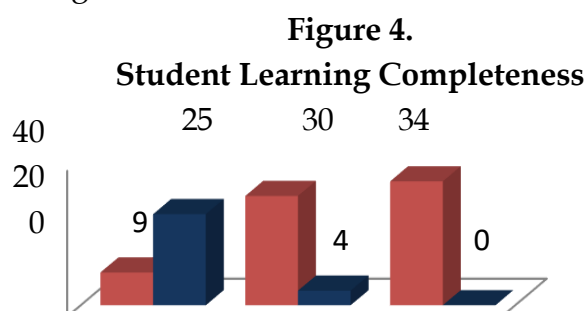
performing songs through audio-visual media for fifth grade students on circulatory system material can improve student learning outcomes.

Based on the results of the evaluation of class V science learning before the improvement of learning, it can be seen that the remaining number who obtained a score > 65 was only 9 people or 26.47%. This shows that learning activities and student learning outcomes are less than satisfactory or have not met the desired target. From the results of observations and reflections on learning, discussions were held with supervisors and historical friends and findings were obtained, among others, that the explanation of learning material was too abstract so that it was difficult for students to understand and student learning outcomes were very low. This is because the teacher does not use learning media, in connection with this, learning improvement efforts are made with a focus on the experimental method. The next learning process was carried out through classroom action research (PTK) which was carried out at the cycle 2 stage.

In cycle 1 learning, improvement efforts were made using experimental methods about the circulatory system in humans, the results of observations and results in cycle 1 showed an increase in learning activities and student learning outcomes. Students who are actively involved in learning are 30 people or 88.23% who get a score > 65. This shows an increase in learning activities and student learning outcomes, but learning cannot be said to be successful if the learning outcomes still have students who do not achieve student learning completeness.

The results of observations and reflections on learning cycle 1 were obtained and that the media used had not attracted the full attention of students, for that the teacher added audio-visual media so that students were more excited when conducting experiments on circulatory student material. In connection with this, learning was carried out in cycle 2 through the experimental method.

Improvement efforts in cycle 2 learning are almost the same as the actions in cycle 1, namely using experimental methods and audio-visual media as additional media, these efforts make an impact on learning activities and student results when compared to the results obtained in cycle 1. In cycle 2, the results showed that the number of students actively involved in learning was 30 people (100%) and students who were declared complete in learning, who obtained a score > 65. This shows that students have reached the expected target.



Based on graph 1, of the 34 students in the learning activities of the continuing cycle there were 9 students who achieved scores above the KKM with an average class score of 61.67. After improving cycle 1 using the experimental method, student learning outcomes increased to 30 students who achieved learning completeness with an average class score of 76.32. Furthermore, in the improvement activities of cycle II with the help of spiritual audio media, student learning outcomes increased to 34 students achieving scores above the KKM with a class average score of 87.79.

Based on previous research conducted by (Isna Ba onngo, I Made Tangkas & Irwan Said, 2014, p.103) It was found that the experimental method could improve student learning outcomes 100%. From the results of the improvements that have been made, namely by using the experimental method as an alternative learning method, it can improve student learning outcomes, especially in science subjects with 100% results.

CONCLUSION

The use of experimental methods in class V human circulatory system material can improve student learning outcomes. Evidenced by the data obtained, namely in the cycle process there were only 9 students who reached the KKM with a class average of 63.44. In cycle I experienced an increase, namely 30 students had reached from exceeding KKM with an average class score of 73.41. Then in cycle II, it increased to 34 students who had scored above the KKM with a class average of 82.47. Thus it can be concluded that the use of experimental methods in learning IPA material on the blood circulation system can improve student learning outcomes.

REFERENCES

- Anita W.,Sri dkk.(2020). *Strategi pembelajaran di SD*. Tangerang Selatan: universitas terbuka.
- Arni, Y., siswandari.,Akhyar,M.,& Asmori.(2022). Effect of networking based entrepreneurial learning on employability interest for university student.*jurnal dinamika pendidik*, 17 (1), 132.
- Bassongo, S., Tangkas.I.M.,& Said.I.(2014). Meningkatkan hasil belajar siswa melalui metode eksperimen dalam pembelajaran IPA di kelas V SD Negeri Man select *jurnal kreatif Tadulako*,2(2),96.
- Hamalik,O.(2017). *Kurikulum dan pembelajaran* Jakarta bumi aksara
- Mulyani. (2014). Penggunaan metode eksperimen untuk meningkatkan hasil belajar tentang rangkaian listrik seri dan paralel I pelajaran IPA siswa kelas VI SD Negeri 3 karanggandu kecamatan watulimo kabupaten Trenggalek *jurnal pendidikan profesional* 4(3),45.
- Rusman. (2014) *Model-model mengembangkan pembelajaran profesionalisme guru*. Jakarta: raja grafindo persada

- Solikati,N.(2021). Peningkatan prestasi belajar IPA materi rangkaian listrik sederhana dengan metode eksperimen *jurnal terapan pendidikan dasar dan menengah* (2), 310.
- Somantri.A., Djumhana.,N & Hendiani,A (2018) penerapan metode eksperimen untuk meningkatkan hasil belajar IPA siswa kelas V SD *jurnal pendidikan sekolah dasar* 3(2),24.
- Surya,F.Y.(2017). Penerapan metode eksperimen untuk meningkatkan hasil belajar IPA siswa kelas IV SD Negeri 011 lagi nih kabupaten Kampar. *Jurnal basicedu*,1(1),12.
- Wadani, IG.AK & Wihardit,K.(2021). *Penelitian tindakan kelas* Tangerang Selatan: universitas terbuka.
- Winataputra.S.U.,dkk.(2021). *Pembaruan dalam pembelajaran di SD* Tangerang Selatan: universitas terbuka