



INCREASING LEARNING OUTCOMES AND ACTIVITY OF CLASS V STUDENTS UPT SD NEGERI BINANGUN 01 THROUGH THE IMPLEMENTATION OF PROBLEM BASED LEARNING ON FACTORS NUMBERS FOR THE ACADEMIC YEAR 2022/2023

Arin Nurul Makrifah¹, Ciptaningsih², Shirly Rizki Kusumaningrum³, Radeni Sukma Indra Dewi⁴

¹UPT Satuan Pendidikan SDN Tanjungsari 1, Kota Blitar

²UPT SD Negeri Binangun 01, Kab. Blitar

^{3,4}Program Studi Pendidikan Dasar, SPs, UM, Malang

E-mail: arin.nurul.2221038@students.um.ac.id¹,

ciptaningsih.2221038@students.um.ac.id²

Article History:

Received: 30-09-2022

Revised: 15-10-2022

Accepted: 01-11-2022

Keywords:

learning Outcomes,
Students Activity,
Problem Based
Learning (PBL),
Fraction Numbers

Abstract: *This study aims to determine the improvement of student learning outcomes and activeness by applying the Problem Based Learning (PBL) model. The teacher conveys the objectives, main points of learning, conducts group discussions, exercises questions, provides learning motivation and conclusions on the subject of fractional mathematics for class V UPT SD Negeri Binangun 01. This research is CAR (classroom action research) which contains 2 cycles. Each cycle is carried out once in a meeting. Each cycle begins with the stages of action planning, implementing the Problem Based Learning (PBL) model of action and reflection. The method of data collection is done by means of observation. Data analysis was carried out by comparing the test results in pre-cycle 1 and cycle 2 with descriptive techniques. The data obtained are presented naturally and then analyzed descriptively to get an overview of the facts. To measure student achievement using the class average value on the evaluation results of each cycle. The results showed that the achievement and learning activities of the fifth grade students of UPT SD Negeri Binangun 01 in learning mathematics had increased, this was indicated by the results of observations and results of English learning achievement tests. With these results, it is concluded that the application of the problem based learning model can increase the activity and learning outcomes of fifth grade students at UPT SD Negeri Binangun 01.*

© 2022 SENTRI: Jurnal Riset Ilmiah

INTRODUCTION

Education is a planned effort in the learning process with clear and directed goals to develop all the potential contained in students. This is based on Law Number 20 of 2003

concerning the national education system, which states that "education is a conscious and planned effort to create a learning atmosphere and learning process". and useful in the future, so that one day students will be able to become qualified human resources to compete in the future and be able to overcome problems in life.

Ekawati (2011) said that learning mathematics can train students' skills to solve various problems scientifically. Thus, the mindset of students becomes more rational. But in general mathematics is considered a scary subject and difficult to understand. There is even an assumption from students that mathematics is a frightening specter. The resulting in low learning outcomes of mathematics and less active in learning mathematics.

Mathematics learning carried out by teachers in elementary schools in general has not run optimally. In the learning process, the lecture method is still often used to convey material. Concepts in mathematics that are abstract, make elementary school students understand them. Elementary school students whose cognitive development stages think concretely, add to the difficulty in learning mathematics, including fractions. The students' difficulties are increasing because the teacher uses the lecture method in teaching in the classroom. In other words, the learning process is still teacher centered. As a result, mathematics is considered as one of the most difficult subjects in elementary school and the achievement of student learning outcomes is less than optimal, including the matter of fractions.

This situation also occurs in learning mathematics in class V UPT SD Negeri Binangun 01, Blitar Regency, especially the matter of adding and subtracting fractions. Based on the learning observations that have been carried out, there are still students who get the results of learning mathematics with fractions below the Minimum Completeness Criteria (KKM), which is 70. This is evident from the data on the grades of fifth grade students in mathematics for addition and subtraction of fractions for the academic year 2022/2023. Of the 23 students, the number of students who finished studying was 2, while those who did not finished were 21 students. The percentage of complete classical learning is 13.33% with an average score of only 51.50.

Learning outcomes that are less than optimal in this fractional material are caused by many factors. From the results of observations in class V, it was found that teachers still use conventional learning models and the delivery of learning materials is dominated by the lecture method. The students are less actively involved in learning. In addition, the use of learning media is not optimal. In addition, there is still a lack of teachers in linking learning materials with real everyday problems. In the delivery of fractional number material, the teacher immediately explains the rules. In addition, in the learning process students have not been given the opportunity to compile their own knowledge. This situation also makes students think that what they learn in class is not meaningful for their future life, so students have no motivation to learn mathematics.

According to Piaget in Prihandoko (2006), the cognitive development of elementary school students is still at the concrete operational stage. Elementary students can understand a concept through concrete objects. Teachers in teaching fractions material, of course, need concrete objects as learning media. The students can achieve optimal learning outcomes and relate to the real context. Supinah and Titik (2010) stated that learning mathematics should begin with the introduction of problems related to real life, then gradually students are guided in mastering mathematical concepts. The existence of such guidance also certainly involves the active role of students in learning mathematics.

To achieve optimal learning outcomes of fractional mathematics, teachers can try to use learning models that can help students relate subject matter to real life. The learning model is a Problem Based Learning (PBL) model or problem-based learning. Supinah and Titik (2010) state that Problem Based Learning (PBL) is a learning model that begins with the provision of problems associated with real everyday life. Then students solve the problem to find new knowledge. Trianto (2011) states that the problem-based learning model is a model based on the number of problems that require authentic investigations, namely investigations that require real solutions to real problems.

Through the PBL model, it is hoped that it can improve student learning outcomes and activities in the matter of fractions. The formulation of the problem in this study is "How to improve the learning outcomes and activities of fifth grade students at SD Negeri Binangun 01 through Problem Based Learning (PBL) on the material of fractions in the 2022/2023 academic year?". This study aims to improve the learning outcomes and activities of fifth grade students through Problem Based Learning (PBL) on the material of fractions in the 2022/2023 academic year.

RESEARCH METHODS

a. Research Design

This research was conducted with a Classroom Action Research (CAR) design. Arikunto, et al (2008) explained that the stages in CAR consist of four stages, namely (1) planning, (2) implementing actions, (3) observing (observing), and (4) reflection. At the planning stage, the researcher identifies and analyzes the problem, determines the reasons why the research is conducted, formulates the problem, determines the way to be done to solve the problem, makes detailed action plans such as preparing the Learning Implementation Plan (RPP) according to the strategy used, designing media and tools. demonstration, setting indicators of success, and making data collection instruments.

At the stage of implementing the action, the researcher implements or implements the contents of the design, namely using classroom action. The observation stage is carried out simultaneously with the implementation of the action. In this stage the researcher observes all the things needed during the implementation of the action. Observations were carried out by researchers and assisted by colleagues using observation sheets that had been prepared. The reflection stage is an activity to restate what has been done. At this stage, the researcher thoroughly reviews the actions that have been taken based on the data that has been collected, then an evaluation is carried out to improve and perfect the actions in the next cycle.

b. Research Subject

The subjects in this study were students of class V UPT SD Negeri Binangun 01 Blitar Regency for the academic year 2022/2023, totaling 23 students with details of 12 female students and 11 male students.

c. Data and Data Collection Techniques

According to Riduwan (2010), data is a raw material that needs to be processed so as to produce information or information, both quantitative and qualitative that show facts. The data in this CAR includes types of data and data sources. The types of data obtained in this study are quantitative and qualitative data. According to Sugiyono (2010), quantitative data is data in the form of numbers, or qualitative data that is scored (scoring). Quantitative data in this study is in the form of student learning

outcomes data on fractional material obtained from formative test scores carried out in cycles I and II. Qualitative data is data expressed in the form of words, sentences, and pictures (Sugiyono 2010). Qualitative data in this study is in the form of observational data on student learning activities and teacher performance by using observation sheets in the implementation of learning in cycles I and II. Each cycle consists of 2 meetings. Each meeting for 2 hours of lessons. So the time allocation needed for each cycle is 4 x 35 minutes. This time is planned enough to carry out activities starting from planning, action, observation and reflection. Sources of data in this study obtained from students and documents. The data obtained from students are in the form of formative test results after the application of the PBL model and data from observations of student learning activities during each cycle. mathematics material for fractions and mathematics grades for fifth grade students in the 2022/2023 school year after learning with the PBL model.

d. Data Collection Technique

Data collection techniques in this study were carried out with test and non-test techniques. The test technique is used to determine student learning outcomes and the percentage of complete classical learning, namely with formative tests which are carried out at the end of each cycle I and II. Non-test technique is done by observation and documentation. Observations were made to obtain data on student learning activities. Observations were made during the learning process at each learning meeting in cycles I and II by using student learning activity observation sheets. Documentation was used to obtain data on the grades of fifth grade students in the 2022/2023 academic year in the mathematics subject matter of fractions as well as formative test results data in cycles I and II to determine whether or not student learning outcomes and activities had improved after learning mathematics with the PBL model.

e. Data Collection Tool

Data collection tools used to collect data in this study are test and non-test tools. The test equipment in this study was used to obtain data on student learning outcomes after learning with the PBL model. The test tool is in the form of formative test questions which are carried out at the end of the first cycle with fractional number material and the second cycle of fractional reduction material. Non-test tools are used to obtain data on student learning activities and teacher performance in learning with the PBL model.

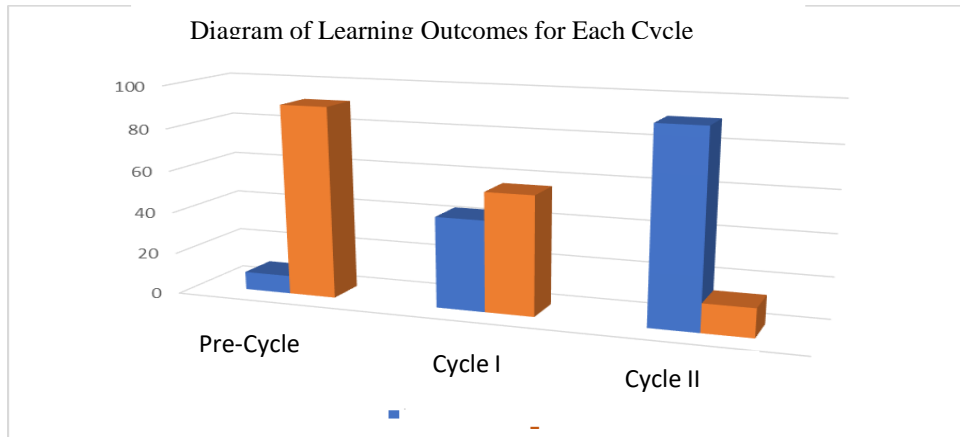
RESULTS

a. Learning Outcomes

Table 1 and Figure 1 are a comparison of improving learning outcomes, from pre-cycle, first cycle and second cycle.

Table 1 Learning Outcomes of Each Cycle

	Finished	Not Finished
Initial Condition	8,7 %	91,3 %
I Cycle	43,4 %	56,6 %
II Cycle	91,3 %	13,7 %



Observing table 1 and figure 1 above, it shows an increase in learning outcomes. Comparison of student learning outcomes that have been completed from pre-cycle to cycle I, has increased by 34.7%, while from cycle I to cycle II has increased by 47.9%.

Table 2 and Figure 2 below show the average results, the highest value and the lowest value for learning each cycle.

Table 2 Average Value, Highest Value and Lowest Value of Each Cycle

	Pre cycle	Cycle I	Cycle II
Average value	40,9	61,3	84,8
The highest score	70	80	100
The lowest score	20	40	50

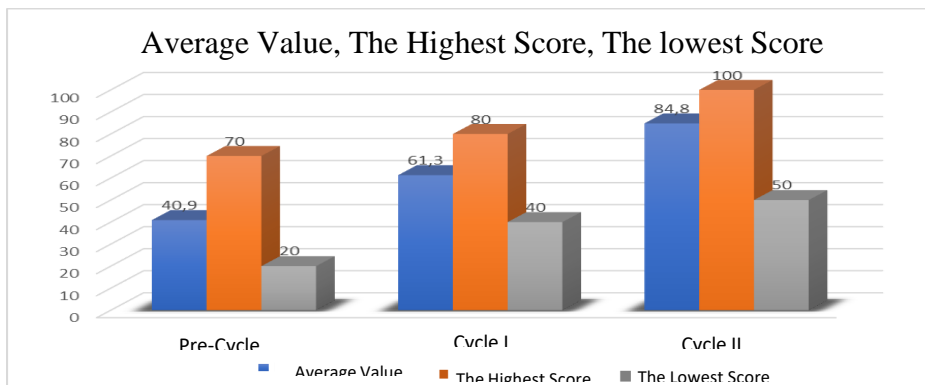


Figure 2. Average Value, Highest Value and Lowest Value of Each Cycle

Analysis of table 2 shows that the pre-cycle student learning outcomes have a minimum score of 20 and the highest score of 70. In cycle 1 the minimum score is 40 and the highest score is 80. In the second cycle the minimum score is 50 while the highest score is 100. Based on the observations of each cycle, data obtained from pre-cycle cycle to cycle 1 student learning activity individually increased by 30.5%. Meanwhile, from cycle I to

cycle II there was an increase of 39.2%. Group activity from pre-cycle to cycle I increased by 26.1%, while from cycle I to cycle II it increased by 34.8%.

b. Learning Activity

The table of activity for class V students is presented as follows: Table 3 and Figure 3 show the learning activity of each cycle

Table 3 Learning Activity Each Cycle

	Pre cycle	Cycle I	Cycle II
Individual	17,3%	47,8%	87,0%
Group	26,1%	52,2%	87,0%

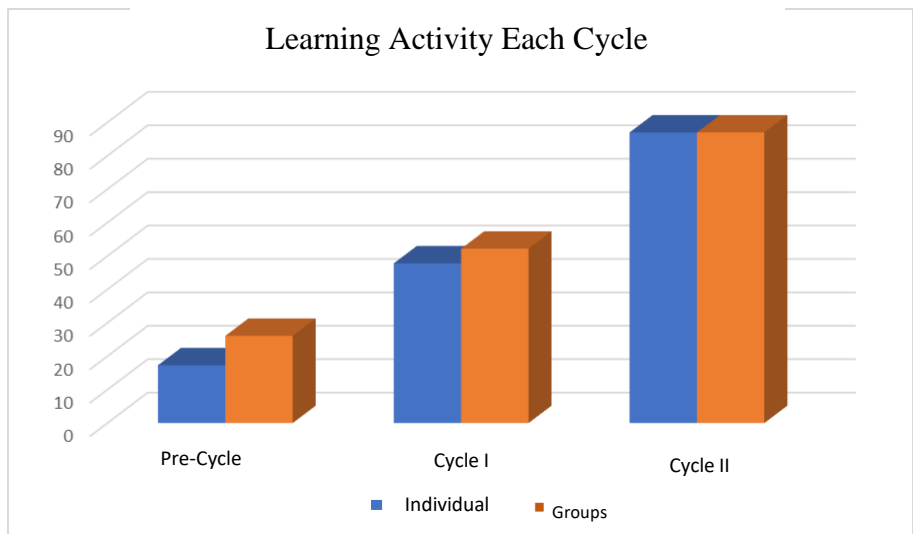


Figure 3 Learning Activities Each Cycle

The learning process that occurs in learning can actually make students experience changes in behavior as a result of learning. The learning outcomes are marked by students' understanding of the fractional number material for the better. Through the PBL model, students better understand fractions because the knowledge they gain is not only in the form of formal mathematics, but is related to students' daily lives. Students also gain meaning in learning, so that students' motivation in learning mathematics becomes better. This happens because if the knowledge is obtained closer to the practical context, then we will remember it better. Through a close context and at the same time doing, students will more easily understand the material. Learning with the PBL model can also lead to student learning activities. In the learning process, students are more actively involved in carrying out their learning tasks, are more daring to ask questions, work together in groups to solve problems, dare to respond or give opinions on the work of students or other groups, and present their work in front of the class. The emergence of student learning activities can increase their understanding of the material and become more memorable because they experience the learning process themselves. Students will ask questions, submit opinions, or discuss with the teacher, carry out orders, carry out assignments, make graphs, diagrams, the essence of the lessons presented. If students become active participation, then

he has knowledge or knowledge well. Based on the implementation of the action cycles I and II, student learning activities have increased.

c. Action Finding

Improving student learning outcomes is strongly influenced by student learning activities in the learning process. The teacher's role in learning is the main factor in the realization of student learning activities. Teachers can apply interesting learning models to foster student learning activities. In addition, the selection of the right learning model makes students active in class and not shy to ask questions and have opinions. The teacher gives instructions to students to carry out their own experiments, giving students free space to choose their own group members. This is intended so that students do not feel bored and remain enthusiastic about doing experiments. In addition, student activity and learning outcomes can be increased. The increase in student learning outcomes can be observed from the increase in the average value of the students' initial condition or pre-cycle, which is 40.9. After the first cycle was implemented, it became 61.3. Student learning outcomes continued to increase after the second cycle was implemented which was considered a stabilization cycle. In the second cycle the average value became 84.8. In the initial conditions only 2 students completed (8.7%), while in the first cycle there were 10 students completed (43.4%). In the second cycle there were 21 students completed (91.3%). Based on the observation sheet, student learning activity has increased, both in groups and individually. In the initial condition, the students' learning activity was 17.3% individually, 26.1% as a group. After the first cycle was carried out, the individual student learning activity was 47.8 in groups to 52.2%, the implementation of the third cycle the individual student learning activity reached 87.0%, the group was 87.0% or 21 students. The significant increase in student learning outcomes and active learning was due to students starting to adapt to the learning model applied by the teacher. Students can collaborate with their peers and search for information freely. The teacher acts as a facilitator and student companion.

In this study, the problem-based learning model has a significant effect on improving learning outcomes and learning activities of fifth grade students of UPT SD Negeri Binangun 01. The focus of the research is on mathematics, especially fractions. There was an increase of 20.4% from the initial condition to the first cycle and 25.5% from the first cycle to the second cycle. The limit of student mastery scores or KKM used in schools at this time is 70. After the first and second cycles, students who complete 90%. There are 8.7% or 2 students who have not completed due to several factors including students who are classified as slow learners.

CONCLUSIONS AND SUGGESTIONS

Based on the research that has been carried out, it can be concluded that the PBL model can improve student learning outcomes and learning activities for fifth grade students of UPT SD Negeri Binangun 01 Blitar Regency in the matter of fractions. The increase was shown by (1) an increase in student learning outcomes, namely in the first cycle, the average value of student learning outcomes reached 61.3 and the percentage of classical learning completion was 70.59%, while in the second cycle the average value increased to

84.31 and the percentage of complete classical learning is 43.4%; (2) the increase in student learning activities is seen from the involvement of students in learning. Student

involvement in learning cycle I reached 47.8% (average) and increased in cycle II to 87.0% (very high).

THANK-YOU NOTE

Praise be to Allah SWT who has bestowed His grace and guidance, so that researchers can complete a scientific article entitled "Improving Learning Outcomes and Activity of Class V Students UPT SD Negeri Binangun 01 through the Application of Problem Based Learning on Fractional Numbers for the 2022/2023 Academic Year". The researcher realizes that the preparation of this scientific article is thanks to the help and guidance of various parties.

Therefore, the researcher expresses his gratitude to Dr. Shirly Rizki Kusumaningrum, M.Pd and Dr. Radeni Sukma Indra Dewi, S.S, M.Pd, as a lecturer in the Scientific English course who has provided direction and guidance, and all parties who have assisted in the preparation of this scientific article.

REFERENCES

- [1] Prihandoko, A. C. 2006. *Pemahaman dan Penyajian Konsep Matematika Secara Benar dan Menarik*. Jakarta: Depdiknas
- [2] Supinah dan Titik S. 2010. *Modul Matematika SD Program Bermutu, Pembelajaran Berbasis Masalah Matematika di SD/MI*. Yogyakarta: Kemdiknas
- [3] Arikunto, Suharsimi, Suhardjono, dan Supardi. 2008. *Penelitian Tindakan Kelas*. Jakarta: Bumi Aksara
- [4] Riduwan. 2010. *Metode dan Teknik Menyusun Tesis*. Bandung: Alfabeta.
- [5] Kristin, Firosalia, and Anugraheni, S. (2018). Meningkatkan Keaktifan dan Hasil Belajar Siswa Melalui Model Pembelajaran Problem Based Learning (PBL) pada Siswa Kelas 4 SD, *Kajian dan Penelitian dan Pembelajaran*, 3(1), DOI: <https://doi.org/10.35568/naturalistic.v3i1.268>, Diakses: 3 September 2022
- [6] Anggraini, Putri, D, and Wulandari, Sri, S. (2021). Analisis Penggunaan Model Pembelajaran Project Based Learning dalam Peningkatan Keaktifan Siswa, *Pendidikan Administrasi Perkantoran*, 9(2). DOI: <https://doi.org/10.26740/jpap.v9n2.p292-299>, Diakses: 3 September 2022
- [7] September 2022
- [8] Putri, Eka, F, and Amelia, F, (2019), Hubungan Antara Gaya Belajar dan Keaktifan Belajar Matematika Terhadap Hasil Belajar Siswa, *Riset Pendidikan Matematika*, 2(2). DOI: <https://doi.org/10.32939/ejrpm.v2i2.406>, Diakses: 3 September 2022
- [9] Indriani, Lilis. Meningkatkan Keaktifan dan Hasil Belajar Siswa dengan Model Problem Based Learning Pada Pelajaran Bahasa Inggris, *Inovasi Pendidikan*, 1(1). DOI: <https://doi.org/10.56916/ejip.v1i1.4>, Diakses: 3 September 2022
- [10] Pramudya, E, Kristen, F, and Anugraheni, I. (2019), Peningkatan Keaktifan dan Hasil Belajar IPA pada Pembelajaran Tematik Menggunakan PBL, *Kajian dan Penelitian Pendidikan dan Pembelajaran*, 3(2), DOI: <https://doi.org/10.35568/naturalistic.v3i2.391>, Diakses : 4 September 2022
- [11] Janah, Miftaql, (2020), Efektivitas Model Pembelajaran Problem Based Learning (PBL) Berbasis E-Worksheet untuk Meningkatkan Hasil Belajar dan Keaktifan Siswa, *National Simposium & Conference AhliMedia*, <https://doi.org/10.47387/nasca.v1i1.28>, Diakses: 4 September 2022
- [12] Anggraini, Putri Dewi. (2021). Analisis Penggunaan Model Pembelajaran Project

- Based Learning Dalam Peningkatan Keaktifan Siswa. DOI: <https://doi.org/10.26740/jpap.v9n2.p292-299>, diakses: 4 September 2022
- [13] Mungzilina, Arista Khoirul, Firosalia dan Indri (2018). Penerapan Model Pembelajaran Problem Based Learning Untuk Meningkatkan Tanggung Jawab dan Hasil Belajar Siswa Kelas 2 SD. DOI: <https://doi.org/10.35568/Naturalistic.V2i2.209> Diakses: 4 September 2022
- [14] Wisyaswati, Ria. (2022) Maria Dan Marciana. Penerapan Model Problem Based Learning Pada Mata Pelajaran Ips Untuk Meningkatkan Hasil Belajar Dan Keaktifan Siswa Kelas Iv Sdn 2 Mantingan. Doi: <https://doi.org/10.51878/Teaching.V2i2.1297> Diakses 4 September 2022
- [15] Siswanti, Rini. Nyoto Harjono (2019). Penerapan Model Pembelajaran Problem Based Learning Untuk Meningkatkan Keaktifan Dan Hasil Belajar Matematika Siswa SD. <https://ejournal.stkipbbm.ac.id/index.php/mtk/article/view/306> Diakses 4 September 2022
- [16] Vitasari, Rizaka (2016). Peningkatan Keaktifan dan Hasil Belajar Matematika Melalui Model Problem Based Learning Siswa Kelas V SD Negeri 5 Kutosari. <https://jurnal.fkip.uns.ac.id/index.php/pgsdkebumen/article/view/2226> Diakses 5 September 2022
- [17] <https://jurnal.fkip.uns.ac.id/index.php/pgsdkebumen/article/view/2226> Diakses 5 September 2022
- [18] Dewi, Sari. Sumarmi Dan Ach.Amirudin (2016) Penerapan Model Pembelajaran Problem Based Learning Untuk Meningkatkan Keaktifan Dan Keterampilan Sosial Siswa Kelas V SDN Tangkil 01 Wlingi. Doi: <http://dx.doi.org/10.17977/jp.v1i3.6148> Diakses 5 September 2022
- [19] Marpaung, Roselina. (2021) Penerapan Model Pembelajaran Problem Based Learning Untuk Meningkatkan Hasil Belajar Dan Keaktifan Siswa
- [20] Doi: <https://doi.org/10.25008/jitp.v1i1.6> Diakses 5 September 2022
- [21] Retnaningsih, Astri. Acep Kusdiwelirawan Dan Imas Ratna (2019). Pengaruh Model Pembelajaran Discovery Learning Dengan Problem Based Learning (Pbl) Terhadap Hasil Belajar Ditinjau Dari Keaktifan Siswa. Doi: <https://doi.org/10.37729/radiasi.v12i2.62> Diakses 5 September 2022
- [22] Fauzia, Hadist Awalia. (2018) Penerapan Model Pembelajaran Problem Based Learning Untuk Meningkatkan Hasil Belajar Matematika Sd. Doi: <http://dx.doi.org/10.33578/jpkip.v7i1.5338> Diakses 5 September 2022