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Improving Students Learning Activeness Through *The Problem Based Learning* (PBL) Model in Elementary Schools

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Article

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Abstract

This research aims to increase the learning activity of class V students at Upt Spf SD Negeri Mamajang 1 Makassar. The type of research is class action research (PTK) which is carried out in 2 cycles. Each cycle consists of 4 stages, namely planning, implementation of observation and reflection actions. Data was collected by observation techniques to obtain data on students' activeness, there was an increase in their attitudes during the learning process with the problem based learning (PBL) model. In the first cycle, it gained 27%. While in cycle II it obtained 82%, based on data there was a maximum increase in cycle II which was 55%. This study aims to improve the learning activity of fifth grade students at UPT Spf SD Negeri Mamajang 1 Makassar. The type of research is classroom action research (CAR) which is carried out in 2 cycles. Each cycle consists of 4 stages, namely planning, implementation of observation and reflection. Data were collected using observation techniques to obtain data on student activity, there was a change in their attitudes during the learning process with the problem based learning (PBL) model. In cycle I it obtained 27%. While in cycle II it obtained 82%. Based on the data, there was a maximum increase in cycle II, which was 55%.

INTRODUCTION

Education plays an important role in preparing qualified human resources to develop, who are in the condition of scientific and technological development and are able to resist the future (Rafiei & Davari, 2015; Serdyukov, 2017, Harwati 2021). (Arifudin, 2022). Education can be pursued through teaching and learning activities. The success of the learning process is influenced by the activeness of students. Education is a very important field in the formation of human attitudes and personalities. Through education, humans gain knowledge and experience that are very useful for their survival. As described in the national education system law No. 20 of 2003 article 3 concerning the National Education System states that national education functions to develop the potential of students to

become human beings who believe and fear God Almighty, have noble character, are healthy, knowledgeable, creative, independent, and become democratic and responsible citizens. According to the National Education System Law No. 20 of 2003 article 4, it is stated that education is organized by setting an example, building willpower, and developing students' creativity in the learning process

Education is needed as a means of self-development. Education can be pursued through teaching and learning activities. The success of the learning process is influenced by the learning activity of students. In line with the research conducted (Ningsih 2018) that students' activities in the learning process such as reading, communication, discussion, the ability to ask questions and opinions will affect their learning outcomes.

Active learning is characterized by optimal involvement both optimally and intellectually, emotionally and physically. The activeness that children have by nature will be able to develop in a positive direction if the environment provides a good space for the flourishing of that activeness. So it is important for the student environment to provide an educational situation to support the flourishing of student activity. (Cucu Harwati 2021)

The improvement of student learning can be influenced by the learning process carried out in the classroom. The process is influenced by the activeness of students. According to (Annisa Mayangsari 2022), the results of students' learning activity are still low, having an impact on not achieving learning goals. Situations where some students are not in the expected condition, making learning meaningless for students. They seem to be sleepy and their attention is not focused on the lesson. In this condition, teachers need to mobilize and arouse their attention and interest. Teachers strive to create a stimulating environment so that students give a welcome to the learning delivered by the teacher, so this is where the right learning model is needed.

Soekamto, et al. in (Sulaeman, 2022) put forward the purpose of the learning model, which is a conceptual framework that describes a systematic procedure in organizing learning experiences to achieve certain learning goals, and serves as a guideline for learning designers and teachers in planning teaching and learning activities. This opinion is in line with Joyce as quoted (Arifudin, 2021) who revealed that a learning model is a planning or a pattern that is used as a guideline in planning learning in the classroom or learning in tutorials and to determine learning tools.

Regarding the previous explanation. Based on the results of observations made by the researcher in class V at UPT SPF SD Negeri Mamajang 1 Makassar, there is a problem that the learning process is not active and the enthusiasm for learning is

seen in the students' response to the learning process in the subject of Mathematics, the material of division of decimal numbers. The problem of students' lack of activity in the learning process was found when conducting group discussion and question and answer activities, only some students were actively and consistently involved in completing assignments, while others were indifferent and their curiosity about the material was very lacking. Lack of enthusiasm for learning greatly affects students' effort, perseverance and focus. Factors that allow problems to occur include the character of students who are less motivated by learning mathematics. However, it is possible that this happens because the habit of peseta didik only accepts material and is not trained to think critically. According to (Sutisna et al., cited by Sitti Lestari 2021). Learning in the classroom tends to have students get information from teachers, students are less trained to find it on their own. Students are not trained to relate the information obtained to daily problems, therefore there needs to be follow-up and efforts to overcome these problems. One of the solutions that can be used to overcome the problems faced is to use an approach with innovative learning models that can create an active and fun learning atmosphere, thus helping students understand difficult subject matter by thinking critically to solve problems.

Based on the background of the above problem, researchers and teachers collaborated to improve the mathematics learning process of decimal number division material in class V at UPT SPF SD Negeri Mamajang 1 Makassar by applying *the problem based learning* (PBL) learning model

The *Problem Based Learning* (PBL) model is a form of learning based on the constructivism paradigm, which is oriented towards the *student-centered learning process*. *Problem Based Learning* focuses on presenting a problem (real or simulated) to students, then students are asked to find a solution through a series of research and investigations based on theories and concepts of principles that they learn from various sciences.

Problem Based Learning (PBL) is a teaching approach that uses real-world problems as a context for students to learn critical thinking and problem skills, as well as to acquire essential knowledge and concepts from the subject matter. This was also conveyed by Arends in (VF Musyadad, 2022) stating that the problem-based learning model is a learning approach in which students work on authentic problems with the intention of compiling their own knowledge, developing inquiry, and higher-level thinking skills, developing independence and confidence.

Based on the theory developed by Barrow as quoted (Arifudin, 2020) explains the characteristics of PBL, namely: (1) *learning is student-centered*: the PBL learning

process focuses more on students as learners; (2)*) authentic problems form the organizing focus for learning*: the problems presented to students are authentic problems; (3) *new information is acquired through self directed learning*: students try to find information through their sources, either from books or other information; (4) *learning occurs in small groups*: carried out in small groups; (5) *Teacher Act as Facilitators*: Teachers only act as facilitators.

The stage of the learning process at school, especially in the classroom. Students not only listen to the teacher's lecture, but also participate in discussions. In addition, peseta didik conducts independent exploration activities such as studying in the library, reading corner, or asking questions directly to teachers. According to Dewey quoted by (Irwansyah, 2021), School is a place of field practice Efforts to solve problems in real life, because every student has a need to investigate their environment and build their personal knowledge.

Based on the above background, it is very important to conduct further research related to the implementation of *the problem-based learning model* in increasing the activeness of temperature and heat learning to produce valid data and results related to the problem being studied. Problem-solving skills are not only the accumulation of knowledge, but cognitive development that helps students analyze and be able to produce meaningful solutions (Agnafia, 2019). Problem-solving ability is also the highest learning outcome (Indriwati et al., 2019).

The objectives that the researcher wants to achieve in this study are as follows: To describe the level of student activity before the application of *the problem based learning* (PBL) model in mathematics learning of decimal number division material. To find out the level of student activity after the application *of the problem based learning* (PBL) model in mathematics learning of decimal number division material. To find out the increase of student learning activity with the application of the *based learning model* (PBL) in mathematics learning of decimal division materials in class V at UPT SPF SD Negeri Mamajang 1 Makassar.

METHOD

The methodology of this research uses a series of continuous cycles. In classroom action research, two cycles are used and each of the cycles has four stages, namely, planning, implementation, observation, analysis and reflection. Planning is carried out precisely, analysis is used to generate observations and reflections to make conclusions and follow-up decisions. Through class actions, it is identified and detected to find the right solution to solve the problem. (Nugraha et al., 2020).

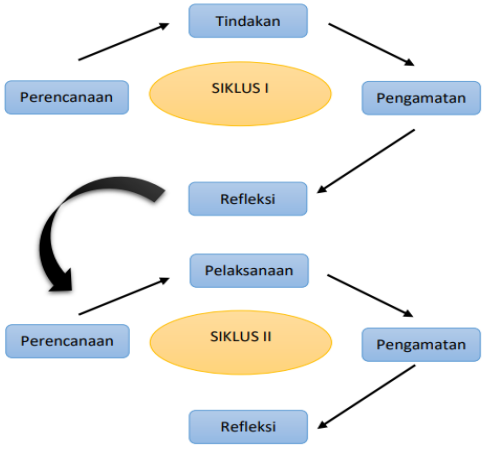

Figure 1. Classroom Action Research
Kemmis & McT. Taggart (Source, et al., 2007:22

The type of research in the study is action research (PTK) which is carried out in one group or one class with the sample involved in this study being 11 students in class V UPT SPF SD Negeri Mamajang 1 Makassar for the 2024-2025 school year. The place and time of this research is at UPT SFP SD Negeri Mamajang 1 Makassar City, the time for the research is August-September 2024.
In this study, using data analysis techniques, the application of *the problem based learning* (PBL) learning model can be described as follows: 1. Observation data on student activity is analyzed by calculating the average observation score and determining observations and determining observation score categories based on the range of score categories. (Harwati 2021) The observation sheet consists of two aspects of observation and measurement of the scale of assessment of student activity carried out by teachers between 1 to 4. The data on the results of students' activities in the learning process of the category in the qualification is very good, good, sufficient and lacking.

$$Skor\ nilai\ rata - rata = \frac{jumlah\ nilai}{Banyak\ peserta\ didik}\ x\ 100$$

Table 1. Aspects and indicators of student learning activity

Aspects	Indicator	Number of question items

Activeness of learning	Paying attention, asking questions, answering and following instructions	8

Filling out the student activity observation sheet is carried out by an onserver method of observing the student's activity in the learning process as it takes place according to the indicators on the instrument. The scoring for each indicator depends on the choice of intensity chosen by the researcher. The following is a scoring table for each of the competing indicators.

Table 2. Aspects and indicators of student learning activity

Options	**Score**
Frequent	4
Sometimes	3
Rare	2
Never	1

The data analysis method used, the analysis of learning implementation and the analysis of student activity sheets. The implementation of learning with a scientific approach is analyzed based on the following percentage calculation.

$$Persentasi\ keterlaksanaan = \frac{jumlah\ keterlaksanaan}{Jumlah\ keseluruhan}\ x\ 100$$

RESULTS AND DISCUSSION

Results

Based on the results of the observation of students' activeness in mathematics learning, the material on the division of decimal numbers in class V, UPT SPF, SD Negeri Mamajang 1, Makassar , data was obtained in table 3. as follows:

Table 3. Learning activities with the PBL model cycle 1

Yes	**Category**	**Number of Students**	**Presentase**
1	Very Active		
2	Aktiv	3	27 %
3	Kurang Active	8	73 %
	Quantity	11	100 %

The category of active students consists of 27% very active, 3 students, The category of active students of 0% who are active consists of very active reaching 43%. Meanwhile, students who are less active were given data of 73%, 8 students. Almost most of the number of students are less active in class V UPT SPF SD Negeri Mamajang 1 Makassar.

Based on the results of observation of students' activeness in mathematics learning, the material for the division of decimal numbers was obtained in table 4. as follows:

Table 4. Learning activities with the PBL model cycle II

Yes	Category	Number of Students	Presentase
1	Very Active	9	82%
2	Aktiv	2	18 %
3	Kurang Active		
	Quantity	11	100 %

The category of active students consists of very active 82%, 9 students, the category of active students is 18%, 2 active students consist of very active reaching 43%. Meanwhile, students who are less active are obtained data of 0% of students So, the application of the *Problem Based Learning* (PBL) learning model in Mathematics learning of decimal number multiplication material in grade V of the 2024 Academic Year in cycle II has made positive changes to activeness and has been satisfactory. This achievement has met the target activeness expectations of 100%.

Discussion

Based on the results of the research above, before the implementation of the *Problem Based Learning* (PBL) learning model in class V at UPT SPF SD Negeri Mamajang 1 Makassar, students' learning activity in Mathematics lessons. In cycle 1, students were classified as active and very active by 27% or 3 students and students were less active by 73% or 8 students out of 100% or 11 students.

Furthermore, in cycle II, the results of the above research showed that the application of the *Problem Based Learning* (PBL) learning model in grade V at UPT SPF SD Negeri Mamajang 1 Makassar was proven to be able to increase the learning activity of students in Mathematics lessons on decimal number division material.

Students are classified as active and very active by 82% or 9 students and less active students by 18% or 2 students from 100% or 11 students. According to Hotmat, quoted by Fitri Dayeni, through this learning, it can cause a sense of pleasure in students because of the growing sense of investigation that is carried out by observation. This can improve students' scientific skills, and can even encourage students to think and work independently.

This research is in line with research conducted by (Ratna Sari 2023). The change in the level of student learning activity where the percentage of participants identified with the categories of very active, active and quite active experienced a significant percentage increase, from 46% in the pre-cycle to 95% in the second cycle. (Siti Febriyanti et.al 2020) The effect of *the Problem Based Learning* learning model to increase the activeness and learning outcomes of students in the thematic lessons of grade V of SD Balecatur I for the 2020/2021 school year can be concluded that: (1) Teachers' activities during the first cycle of learning use *the Problem Based Learning* learning model is a reflection material to improve learning in cycle II, (2) Students' activeness in learning has increased, this is marked by an increase in student participation in learning (3) Student learning outcomes have increased marked by a decrease in the percentage of students who experience incompleteness in learning Indonesian, Science, and SBdP. Lia Astuti, et al (2023) There is a strong influence of the STEAM Approach with *the problem based learning* (PBL) model on the cognitive science learning outcomes of grade VI students at SDN 15 Singkawang, as shown by the effect size count of 1,802. These results show that the use of the STEAM approach and the PBL Model can significantly improve student learning outcomes in science subjects.

Thus, the level of student activity and student learning outcomes in the first cycle in class V UPT SPF SD Negeri Mamajang 1 Makassar is still relatively low, because it is below the desired target and has not achieved the expected learning goals. After the implementation of *the problem based learning* (PBL) learning model in cycle II in class V UPT SPF SD Negeri Mamajang 1 Makassar, the activity of students experienced a significant increase, where almost all students were active and enthusiastic with a percentage of 82%. Learning has been considered sufficient in cycle II because it has reached the expected completeness. This is proof that Mathematics learning in class V decimal number division through the application of *the problem-based learning* (PBL) learning model is able to increase student activity. The use of models in learning activities is an effort that can be made to achieve learning goals.

With the variety of learning used by teachers, it is expected to be able to increase the activeness and motivation of students to learn both for the teacher and for the students themselves, students are able to play a role collaboratively and interact well, so that in teaching and learning activities in the classroom are not only called teachers just delivering material and then students listen and take notes. However, students are able to take a role by discussing, expressing opinions, exploring the knowledge they have and trying to share in the learning environment in the classroom so that teaching and learning activities become lively. Develop a *problem-based learning* model to create an active and student-centered learning process so that it can increase students' activeness and understanding of the material taught. (Sukirman, M,S 2020) The results of reflection in cycle II show that the application of the *problem based learning* (PBL) model increases students' learning activities in mathematics learning of decimal number multiplication material in class V at UPT SPF SD Negeri Mamajang 1 Makassar.

CONCLUSION

The use of *the Problem based learning* (PBL) learning model in mathematics learning in class V UPT SFP SD Negeri Mamajng 1 Makassar can increase students' learning activity which can be seen in the following research results:

In cycle 1 before the implementation of the *Problem based learning* (PBL) learning model in class V, UPT SPF SD Negeri Mamajang 1 Makassar, active students reached 27% or 3 students and those who were less active reached 73% or 8 students. Meanwhile, in the second cycle after the implementation of the *Problem based learning* (PBL) learning model in class V, UPT SPF, SD Negeri Mamajang 1, Makassar, the learning activity of students experienced a significant increase, namely active students reached 82% or 9 students and less active students by 18% or 2 students. So that the researcher can conclude that the application of *the Problem based learning* (PBL) learning model in mathematics learning of decimal number division material in class V at UPT SPF SD Negeri Mamajang 1 Makassar can be said to have improved quite well and reached the maximum stage from before.

Suggestions

1. For grade V students at UPT SPF SD Negeri Mamajang 1 Makassar, it is expected to be motivated to learn more actively, especially active in every learning, especially in mathematics learning.
2. For teachers, it is hoped that they can use *the Problem Based Learning* (PBL) model as an alternative to increase the activeness and learning outcomes of students by using the right learning stages.

3. For teachers, it is expected to be able to create a fun and lively learning process, applying a learning model that is in accordance with the needs and learning goals to be achieved.
4. For teachers, it is expected to utilize all abilities in improving the teaching and learning process and can motivate and support the learning process of students.

For the next researcher, it is expected to design the learning strategy appropriately and must pay attention to the stages in the syntax so that they can use *the Problem Based Learning* (PBL) model according to the stages to get maximum results and prospective researchers who are interested in developing this research, are expected to pay attention to the limitations that exist in this research, so that future research can be even better.

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