Implementation Of Problem Based Learning Model Assisted By Quiziz To Improve Learning Outcomes PGSD Student At Universitas Bhinneka PGRI

Ria Fajrin Rizqy Ana[1]*, Leny Suryaning Astutik[2]

[1]*,[2] Universitas Bhinneka PGRI, Jawa Timur, Indonesia

riafajrin72@gmail.com

Abstract

The problem that occurs is that learning has not gone well. The reason is that lecturers have not created learning in accordance with the demands of technological development, not yet interesting learning. In terms of students, the lack of activities that encourage thinking activities. The objectives of this study are (1) To describe the implementation of the PBL learning model with quiz and improve student learning outcomes by using the PBL learning model assisted by quiz in Mathematics Education courses. The research method uses action research. The instruments used were observation sheets, test questions, and documentation. The subjects of this study were all 5th semester PGSD students totaling 32 students. The research data analysis technique is data reduction, data presentation, and conclusion drawing. The instruments used were observation sheets and test questions. The results of the PBL model research can improve student learning outcomes in Mathematics Education courses, the level of completeness of student learning outcomes in cycle I is known to be 76.87%, while in cycle II the level of student learning outcomes has increased by 83.59%. So the level of completeness of student learning outcomes from cycle I and cycle II increased by 6.718%, so the desired target has been achieved for the completeness of student learning outcomes, because at the end of the cycle it has reached the specified target of 70%.

1.   Introduction

The Indonesian Education System as stipulated in legislation Number 20 of 2003 states that education in Indonesia has the function of developing skills and character to make the civilization of the Indonesian nation dignified. The regulation explains that to achieve the goals of national education, the government is making improvements in improving the quality at various levels of education in schools. National education is made not only oriented to the past and present, but also to the processes that will occur in the future (Kusmana, 2017). Education is a process that is carried out deliberately to increase insight, knowledge and experience. Education serves to create the next generation of a qualified nation, which is able to overcome all the problems that occur. Education is carried out through a learning process that aims to develop all human potential optimally in terms of cognitive, affective, and psychomotor (Alpusari, 2014; Lasmawan, 2015). Lecturers in learning are required to be able to motivate students, use various methods, models, and learning media to help construct subject matter. Education is directed at the process of discovering concepts, not just memorizing concepts. The concept discovery process has the potential to be able to empower thinking skills better (Cintang & Fajriyah, 2018).

According to Ardhana and Degeng in (Tinja et al., 2017), activities have not run optimally, lack of ability to create learning in accordance with the demands of learning technology development, have not created interesting learning that is less in accordance with the development of education. In terms of students, namely the lack of activities that encourage thinking. In addition, learning activities have not been optimal, namely the learning process that is informative and student-centered so that learning becomes boring (Dewantara, 2020). Higher education is required to be of high quality because the competition in the world of work is getting tighter. The success of education cannot be separated from the role of educators, especially lecturers, one of the higher education institutions that produce lecturers, namely Bhinneka PGRI University (UBHI). UBHI is one of the universities that produces prospective elementary school lecturers who have

Ria Fajrin Rizqy Ana, Leny Suryaning Astutik

an Elementary School Lecturer Education (PGSD) study program. The PGSD study program at UBHI is prepared as professional educators at the elementary school level. One of the compulsory courses taken by PGSD Education students is the Mathematics Education course which aims to provide expertise for PGSD study program students to master learning mathematics as a provision for teaching the field of Mathematics in Elementary Schools (SD).

Mathematics learning has been considered boring and difficult learning for students, less interested, students are less motivated in learning Mathematics. These problems require lecturers to make innovative learning, the success of learning activities cannot be separated from the role of lecturers. Lecturers are the central role in learning activities. Lecturers are expected to be able to choose the right methods, learning resources, materials, evaluation tools, and learning models. Learning Mathematics Education courses in the PGSD study program experiences problems, namely students are less interested in learning and less understanding of the material which results in learning outcomes that are not in accordance with learning objectives. Another problem in this study is the low student learning outcomes in Mathematics Education courses. Students have difficulty in understanding, especially in Mathematics education material.

The selection of learning models, especially for this mathematics lesson, should be very concerned for the smooth running of a lesson, here researchers use a problem-based learning model with Quiziz which aims to enable students to solve problems independently, learn to work together, have advanced thinking skills, help students acquire new knowledge and learn to be responsible for their own learning, and encourage self-evaluation of both results and learning.

According to Fathurrohman, M, in the journal (fauzia awalia, 2018) Problem-based learning is a learning method that begins with a problem to collect and integrate new knowledge. The learning process begins with defining the problem, after which students are involved in discussions to compare perceptions of the problems discussed, then plan the goals to be achieved. The lecturer's job is to monitor the learners' learning progress to achieve the learning objectives,

the lecturer also guides the learners in solving the problem to stay in the right position. If problem-based learning is done or implemented well, it will have an influence on student learning outcomes.

Problem-based learning has many teaching methods, one of which is the case-based teaching method. According to AlperAslan, Seibert, Widiyatmoko, in the journal (Ariyani & Kristin, 2021) Problem Based Learning Model is a learning model that begins with problems found in a work environment to collect and integrate new knowledge developed by students independently. According to the theory above, it can be concluded that the problem-based learning (PBL) model is a learning model focused on real problems, and can help students solve problems, it can also make students responsible for their own learning. The goal is for students to learn the skills to solve existing problems, so that it can affect student learning outcomes.

Learning outcomes are the results received after learning. Every lecturer certainly has an ultimate goal to achieve. One of the goals that can be achieved is that students' learning outcomes are better than before. Benyamin Bloom in the journal (Marli, 2017) classifies the types of learning outcomes into three domains, namely: cognitive, affective and psychomotor domains. The cognitive domain deals with intellectual learning outcomes, the affective domain deals with attitudes and the psychomotor domain deals with skill learning outcomes. Learning outcomes are influenced by several factors. The factors that influence learning and the learning outcomes achieved by an individual are the result of the interaction of various factors that influence it both from within (internal factors) caused by the personality of the learners themselves and from outside (external factors) caused by something outside the personality of the learners. Research that has been done before about the PBL learning model, there has been no research that applies the PBL model by integrating quisis in its implementation. Therefore, this study will apply a learning model integrated with quiz to make it easier for students to understand the Basic Concepts of Mathematics material so that students feel interested and able to improve learning outcomes.

*Ria Fajrin Rizqy Ana, Leny Suryaning Astutik*

2.   Method

The type of research used is Classroom Action Research. PTK is one type of action that aims to overcome learning problems that occur in the action setting. PTK is carried out by lecturers to solve learning problems, improve quality, learning outcomes, and try new things in the field of learning in order to improve quality and learning outcomes.   The research subject is something related to the matter to be studied. Meanwhile, data sources are objects, things, or people and places where researchers observe, read, or ask about data. The subjects in the current study were all 5th semester students who took the Mathematics Education course, totaling 32 students. The instruments used in this study were observation sheets and test questions. To determine the effectiveness of a model in learning activities, it is necessary to analyze the data. In this study using descriptive analysis techniques. Descriptive data analysis techniques are taken from quantitative and qualitative data. Quantitative data were obtained from test results, while qualitative data were obtained from observation and questionnaire data. The data analysis is described as follows:

Table 1. Criteria for Evaluation Learning Implementation

Value (%)	Criteria
92 – 100	Very good
75 – 91	Good
50 – 74	Pretty good
25 – 49	Not good
00 – 24	Not good

This research was conducted in the form of learning cycles. Each cycle consists of 4 steps of activities, namely planning, implementation, observation, and reflection. The cycle is as follows.
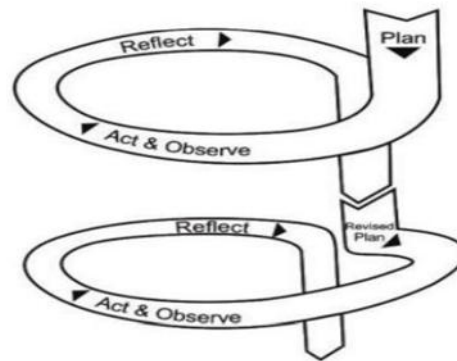
Figure 1. classroom action research flow

This research was conducted in 2 cycles, each of which included the following stages: planning, implementation, observation, and reflection

3.   Result and Discussion

The planned to present material about Mathematics learning theory. As a follow-up to the initial observations, at the next stage, the planning of cycle 1 action meeting 1 was held. At this stage, several steps were taken, namely: ((1) Preparing learning tools tailored to the steps in the learning model used, namely the PBL Model (2) Preparing learning media as teaching aids about Mathematics learning theory (3) Preparing student questions used to work on problems in the learning process (4) Preparing evaluation questions that must be done by students at the end of the cycle (5) Preparing an observation rubric as one of the data collection instruments.

Implementation of Cycle 1 Action

a. First Meeting

The first meeting of cycle 1 was held on Tuesday, October 1, 2024. Learning activities are carried out with 4 stages, namely the pre-activity stage, the initial activity stage, the core activity stage, and the final activity stage. The learning steps are as follows:

80 *Implementation Of Problem Based Learning Model Assisted By Quiziz To Improve Learning Outcomes PGSD Student At Universitas Bhinneka PGRI*

Ria Fajrin Rizqy Ana, Leny Suryaning Astutik

1) Pre-activity Stage

The activity began with greetings, inviting students to pray together, and checking student attendance to determine the level of student attendance in class.

2) Initial Activity Stage

In the initial activity the steps taken are as follows:

a. Conducting apperception, by asking questions and answers about Mathematics material.

b. Conveying the material to be learned, namely about the theory of learning Mathematics

c. Explaining the learning outcomes to be achieved.

2) Core Activity Stage

The implementation of core activities is a learning process to achieve learning outcomes that are carried out in a fun, challenging manner, motivating students to actively participate. At this stage it is divided into five parts, namely orientation to the problem, organizing students to learn, guiding individual and group investigations, developing and presenting work, evaluating the problem solving process.

4) Final Activity Stage

At the final activity stage the steps taken are; a) Provide conclusions; b) Assessment and Reflection; c) Feedback; d) Follow-up.

b. Second Meeting

The second meeting of cycle 1 was held on Tuesday, October 8, 2024. In the implementation of the action, the lecturer carried out learning activities according to the devices that had been prepared.

The learning steps are as follows:

1) Pre-Activity Stage

   The activity begins by saying greetings, inviting students to pray together, and checking student attendance to find out the level of student attendance in class.

2) Initial Activity Stage

   In the initial activity the steps taken are as follows:

   a. Conducting apperception, by asking questions and answers about Mathematics material.

   b. Conveying the material to be learned, namely about strategies, approaches, methods of learning mathematics.

   c. Explaining the learning outcomes to be achieved.

3) Core Activity Stage

   The implementation of core activities is a learning process to achieve learning outcomes that are carried out in a fun, challenging, motivating students to actively participate. At this stage it is divided into five parts, namely orientation to the problem, organizing students to learn, guiding individual and group investigations, developing and presenting work, evaluating the problem solving process.

4) Final Activity Stage

   At the final activity stage the steps taken are; a) Provide conclusions; b) Assessment and Reflection; c) Feedback; d) Follow-up.

Cycle 1 Observations

a. Observation of cycle 1 meeting 1

In this observation activity, the observer observed the lecturer's implementation in applying the PBL learning model. The results of the observer's observations of PBL-type cooperative learning carried out by lecturers showed that the value of the aspects of the lecturer's implementation in applying the PBL

82 *Implementation Of Problem Based Learning Model Assisted By Quiziz To Improve Learning Outcomes PGSD Student At Universitas Bhinneka PGRI*

Ria Fajrin Rizqy Ana, Leny Suryaning Astutik

learning model in cycle I meeting 1, at the pre-activity stage, the score obtained was 4.

In the aspect of the orientation stage on the problem got a score of 3, organizing students to learn score 2, guiding individual and group investigations got a score of 2, developing and presenting work got a score of 1, evaluating the problem solving process, the score obtained was 2. In the aspect of the final activity, the score obtained was 3. The total score obtained was 21, so that the value of the lecturer's teaching ability in cycle 1 of the first meeting was 87.5% with a good category.

b. Observation of cycle 1 meeting 2

In this observation activity, the observer observed the lecturer's implementation in applying the PBL learning model. The results of the observer's observations of PBL-type cooperative learning carried out by lecturers showed that the value of the aspects of the lecturer's implementation in applying the PBL learning model in cycle I meeting 1, at the pre-activity stage, the score obtained was 4.

In the aspect of the orientation stage to the problem, the score obtained is 4. In the aspect of the orientation stage to the problem gets a score of 4, organizing students to learn a score of 2, guiding individual and group investigations gets a score of 2, developing and presenting work gets a score of 1, evaluating the problem solving process, the score obtained is 2. In the aspect of the final activity, the score obtained is 3. The total score obtained is 22, so the value of the lecturer's teaching ability in cycle 1 of the first meeting is 92% with a very good category. The results of lecturer observations can be seen in the appendix.

At the end of the cycle, a post-test was held to determine the level of success obtained by students in the cognitive domain. The results of the student post test showed that there were 7 students out of 32 students who were not complete, that is, their scores were still below the specified KKM of 70.

Cycle 1 Reflection

Reflection activities were carried out by researchers and observers after the implementation of cycle 1 learning in the first and second meetings. Reflection activities are used to determine whether the success indicators applied in this class action research have been achieved. If the learning outcomes have not been successful as expected, the action improvement activities are continued in the next cycle.

Based on observations made by observers and the acquisition of student post test scores in the implementation of cycle 1, several things were found that needed to be improved in the next cycle, namely (1) there were some students who paid less attention to the learning process because they were still confused with the model applied by the lecturer; (2) lecturers paid less attention to time efficiency, it was seen that when carrying out the learning process of the first meeting, time was consumed in the core activities; (3) some students still look crowded, due to the formation of too many groups and lecturers have not mastered the condition of the class; (4) the learning media used is only PPT media so that students feel bored; (5) students lack the courage to ask questions so they need guidance from lecturers to be more courageous in expressing their opinions; (6) when a group pair presents the results of its discussion, students do not pay attention; (7) lecturers are too focused on students who present, not paying attention to other students.

Cycle 2 Data Exposure

1. Planning

The implementation of cycle 2 is planned for one meeting. The action of cycle 2 is planned to present learning model material. As a follow-up to cycle 1, in the next stage, cycle 2 action planning was held. At this stage some of the steps taken are the same as cycle 1, namely: 1) Prepare learning tools; 2) Prepare learning media; 3) Prepare quiz questions for students to answer; 4) Prepare evaluation questions; 5) Prepare a rubric for lecturer observation.

2.Implementation

Ria Fajrin Rizqy Ana, Leny Suryaning Astutik

The first meeting of cycle 2 was held on Tuesday, October 15, 2024. Learning activities are carried out with 4 stages, namely the pre-activity stage, the initial activity stage, the core activity stage, and the final activity stage. The learning steps are as follows:

1) Pre-activity Stage

The activity began with greetings, inviting students to pray together, and checking student attendance to determine the level of student attendance in class.

1) Initial Activity Stage

In the initial activity the steps taken are as follows:

a. Conducting apperception, by asking questions and answers about Mathematics material.

b. Conveying the material to be learned, namely about the theory of learning Mathematics

c. Explaining the learning outcomes to be achieved

2) Core Activity Stage

The implementation of core activities is a learning process to achieve learning outcomes that are carried out in a fun, challenging, motivating students to actively participate. At this stage it is divided into five parts, namely orientation to the problem, organizing students to learn, guiding individual and group investigations, developing and presenting work, evaluating the problem solving process.

4) Final Activity Stage

At the final activity stage the steps taken are; a) Provide conclusions; b) Assessment and Reflection; c) Feedback; d) Follow-up.

1.Cycle 2 Observation

In this observation activity, the observer observed the lecturer's implementation in applying the PBL learning model. The results of the observer's observation of PBL-type cooperative learning carried out by lecturers showed that the value of the aspects of the lecturer's implementation in applying the PBL

learning model in cycle I meeting 1, at the pre-activity stage, the score obtained was 4.

In the aspect of the orientation stage to the problem, the score obtained is 4. In the aspect of the orientation stage to the problem gets a score of 4, organizing students to learn a score of 3, guiding individual and group investigations gets a score of 2, developing and presenting work gets a score of 1, evaluating the problem solving process, the score obtained is 2. In the aspect of the final activity, the score obtained is 3. The total score obtained is 23, so the value of the lecturer's teaching ability in cycle 1 of the first meeting is 95% with a very good category. The results of lecturer observations can be seen in the appendix.

At the end of each cycle, a post test was held to determine the level of success and determine the increase in learning outcomes obtained in cycle 2. The learning outcomes of the cognitive domain of cycle 2 showed that 32 students were complete and there was still 1 student who was not complete because the student experienced learning delays.

Cycle 2 Reflection

Based on the observations made by the observer during the implementation of learning, all students have been active in participating in learning activities. Student learning outcomes are good, all students score above the KKM, so learning has been successful so there is no need to carry out the next cycle.

The application of the PBL learning model can improve student learning outcomes. The increase in learning outcomes can be seen by an increase in the average score of the results from cycle 1 research to cycle 2 research. Cycle 1 student learning outcomes reached a value of 76.872 then increased in the second cycle with a value of 83.59. The following is the data on the values obtained by students.

Table 2. Student Learning Outcomes Score

	Total	Average
Cycle 1	2460	76,872
Cycle 2	2675	83,59

Based on the table above, it can be concluded that the value of student learning outcomes increased from cycle 1 to cycle 2 with an increase of 6.718% and all students have received scores above the KKM.

PBL learning is learning that focuses on students as learners and on authentic or relevant problems that will be solved using all the knowledge they have or from other sources. The choice of this learning model is because students have difficulty in learning problems in Mathematics. This problem can be dealt with by using the PBL learning model, namely learning with group discussions. PBL cooperative learning consists of 5 stages, namely the orientation stage to the problem, organizing students to learn, guiding individual and group investigations, presenting work results and analyzing and evaluating. Lecturers in applying this learning model are good. This can be seen in the observation results of the implementation of the PBL learning model in cycle 1 scored 87.5% with a good category, while in cycle 2 it scored 92% with a very good category. The steps applied in the learning above are in line with the syntax put forward by (Silberman, 2009:161), namely 1) the teacher asks a question or problem related to the lesson, and asks students to use a few minutes to think about the answer or problem; 2) the teacher asks students to form groups and discuss what they have obtained. Interaction during the time provided can unite the ideas of each student; 3) the teacher asks the group to present; 4) the teacher helps analyze and draw conclusions.

From the results of the study, the level of completion of student learning outcomes in cycle I was known to be 76.87%, while in cycle II the level of student learning outcomes increased by 83.59%. So the level of completion of student learning outcomes from cycle I and cycle II increased by 6.718%, so the desired target has been achieved for the completion of student learning outcomes, because at the end of the cycle it has reached the specified target of 70%. Based

on the explanation above, it can be concluded that through the PBL model, students can understand the material about Mathematics Education, in addition, learning through the PBL model is very enjoyable for students because learning takes place actively.

The researcher concluded that most students were able to accept the learning carried out by the lecturer in class. With the PBL model, students were able to answer questions, find out the information contained in the material, they were able to mention various interesting learning methods in Mathematics subjects. During the study, students followed the lecturer's instructions in learning well, so that student activity increased in each cycle. In Cycle I, student activity was still not optimal. Students still tended to adapt to the methods used by the lecturer. Physical activity had been carried out well, but student speaking activity was still lacking. In Cycle II, student activity improved. Students carried out discussions well. The activity of exchanging opinions or information took place well. There was a directed interaction between the lecturer and students, and students with students. Students were accustomed to the model used so that students felt comfortable and enthusiastic in learning. From the results of the analysis of the first and second meetings in cycles I and II, it can be stated that the PBL model in terms of improving student learning outcomes in the Mathematics Education course was good and good for the teaching and learning process and to help activate the learning atmosphere in the classroom.

4.   Conclusion

The implementation of the PBL model applied by lecturers in the Mathematics Education course can run well. The stages carried out consist of 5 steps, namely, problem orientation, organizing students to learn, guiding individual and group investigations, presenting work results, analyzing and evaluating. Lecturers carry out the stages well, as evidenced by the results of observations in cycle 1 which were obtained at 87.5%, there was an increase in cycle 2, namely 96%. The implementation of the PBL model can improve student

learning outcomes in the Mathematics Education course, the level of student learning outcomes completion in cycle I was known to be 76.87%, while in cycle II the level of student learning outcomes increased by 83.59%. So the level of student learning outcomes completion from cycle I and cycle II increased by 6.718%, so the desired target has been achieved for student learning outcomes completion, because at the end of the cycle it has reached the specified target of 70%.

Reference

Ade, A., Putri, A., Swatra, I. W., Made Tegeh, I., Pgsd, J., & Tp, J. (2018). Pengaruh Model Pembelajaran Pbl Berbantuan Media Gambar Terhadap Hasil Belajar Ipa Mahasiswa Kelas Iii SD. Journal for Lesson and Learning Studies, 1(1).

Alfianiawati, T., Desyandri, & Nasrul. (2019). Pengaruh Penggunaan Model Problem Based Learning (Pbl) Terhadap Hasil Belajar Mahasiswa Dalam Pembelajaran Ips Di Kelas V SD (Vol. 7). http://ejournal.unp.ac.id/students/index.php/pgsd

Anshori, M., & Iswati, S. (2017). Metodologi Penelitian Kuantitatif. Airlangga University Press.

Ariyani, B., & Kristin, F. (2021). Model Pembelajaran Problem Based Learning untuk Meningkatkan Hasil Belajar IPS Mahasiswa SD. Jurnal Imiah Pendidikan Dan Pembelajaran, 5(3), 353. https://doi.org/10.23887/jipp.v5i3.36230

Chalis, G. A., & Ariani, Y. (2020). Pengaruh Model Problem Based Learning (PBL)Terhadap Hasil Belajar Pecahan di Sekolah Dasar. Jurnal Pendidikan Tambusai, 5(1), 39.

Cinda, E. (2018). Pengaruh Model Pembelajaran Problem Based Learningdan Gaya Belajar Auditorial Terhadap Hasil Belajarips Di Sekolah Dasar.

fauzia awalia, hadist. (2018). Penerapan model pembelajaran problem based learninguntuk meningkatkan hasil belajar matematika sd. Jurnal Primary Program Studi Pendidikan Dosen Sekolah Dasar Fakultas Kedosenan Dan Ilmu Pendidikan, volume 7, 40–47.

Hotimah, H. (2020). Penerapan Metode Pembelajaran Problem Based Learning Dalam Meningkatkan Kemampuan Bercerita Pada Mahasiswa Sekolah Dasar. Jurnal Edukasi, 7(3), 5. https://doi.org/10.19184/jukasi.v7i3.21599

Ii, B. A. B. (2011). Kekurangan Problem Based Learning. 7–39.

Kritis, B., & Masalah, M. (2015). Penerapan Problem Based Learning. 160–175.

Marli, S., & Program Studi Pendidikan Dosen Sekolah Dasar FKIP Untan Pontianak, R. (2017). Peningkatan Hasil Belajar Ips Menerapkan Model Kooperatif Tipe Jigsaw Kelas Iv Sd Pontianak Tenggara.

Muhson, A. (n.d.). T eknik A nalisis Kuantitatif 1 TEKNIK ANALISIS KUANTITATIF.

Nabillah, T., & Abadi, A. P. (2019). Prosiding Seminar Nasional Matematika dan Pendidikan Matematika Sesiomadika.

Ruwaida, H. (2019). Proses Kognitif Dalam Taksonomi Bloom Revisi: Analisis Kemampuan Mencipta (C6) Pada Pembelajaran Fikih. Jurnal.Stiq-Amuntai.Ac.Id, 4(1), 51–76.

Sawab, B. (2017). Pengaruh model pembelajaran problem based learning.

Zuriati, E., & Astimar, N. (n.d.). Peningkatan Hasil Belajar pada Pembelajaran Tematik Terpadu Menggunakan Model Problem Based Learning Di Kelas IV SD (Studi Literatur).