

Implementation of Problem Based Learning Model Assisted by the Quizizz Application to Improve Collaboration and Learning Outcomes in Class X Geography Subjects at SMAN 1 Narmada for the 2023/2024 Academic Year

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Abstract

The purpose of this study was to find out whether the Problem Based Learning model assisted by the Quizizz application could improve collaboration and learning outcomes for Theme 9 Students of Class X SMAN 1 Narmada Semester 2 Year 2023/2024. This type of research is Classroom Action Research (CAR). The PTK model used is the Kemmis and Mc Taggart model, each cycle consisting of three steps, namely planning, action and observation, and reflection. The research instrument used observation sheets and questions. The analytical technique used is quantitative descriptive technique by comparing the proportion of cooperation and learning outcomes in each cycle. The results showed that the use of the Problem Based Learning model assisted by the Quizizz application could improve collaboration and learning outcomes for Theme 9 Class X Students at SMAN 1 Narmada Semester 2 Year 2023/2024. This can be seen in the increase in student collaboration with groups in each meeting, cycle I 66% and cycle II reached 97% and student learning outcomes who completed in cycle I there were 4 students who completed or 50%, while cycle II totaled There are 6 students who complete or 75%. This proves that learning using the Problem Based Learning model can improve student learning outcomes.

Abstrak

Tujuan penelitian ini adalah untuk mengetahui apakah model pembelajaran *Problem Based Learning* berbantuan aplikasi Quizizz dapat meningkatkan kerjasama dan hasil belajar siswa mata pelajaran Geografi Kelas X SMAN 1 Narmada Semester 2 Tahun 2023/2024. Jenis penelitian ini adalah Penelitian Tindakan Kelas (PTK). Model PTK yang digunakan adalah model Kemmis dan Mc Taggart, setiap siklus terdiri dari tiga langkah yaitu perencanaan, tindakan dan observasi, dan refleksi. Instrumen penelitian menggunakan lembar observasi dan pertanyaan. Teknik analisis yang digunakan adalah teknik deskriptif kuantitatif dengan membandingkan proporsi kerjasama dan hasil belajar pada setiap siklusnya. Hasil penelitian menunjukkan bahwa penggunaan model pembelajaran *Problem Based Learning* berbantuan aplikasi Quizizz dapat meningkatkan kerjasama dan hasil belajar siswa Kelas X SMAN 1 Narmada Semester 2 Tahun 2023/2024. Hal ini terlihat pada peningkatan kerjasama siswa dengan kelompok pada setiap pertemuannya, siklus I 66% dan siklus II mencapai 97% dan hasil belajar siswa yang tuntas pada siklus I ada 4 siswa yang tuntas atau 50%, sedangkan siklus II berjumlah Ada ada 6 siswa yang tuntas atau 75%. Hal ini membuktikan bahwa pembelajaran dengan menggunakan model *Problem Based Learning* dapat meningkatkan hasil belajar siswa.

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1. INTRODUCTION

Focus of education plan for 2013 is on students. Students are expected to have mastered the 4C skills before entering the 21st century. These competencies include the following; Communication, Collaboration, Critical Thinking and problem solving, and Creative and Innovative [1] Therefore, it is very important to have learning activities that are able to provide enjoyable and meaningful learning

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experiences that enable students to achieve predetermined learning goals [2]. Armed with online learning, various applications such as WhatsApp, Zoom, Google Form and Quizzizz, teachers can use these applications in learning at school. However, in Geography learning there are still students who are not able to apply the material on atmospheric and hydrosphere dynamics in their daily activities [3]. In this learning, it is not only the teacher who lacks knowledge of students, however, students are also less active and work together in groups so that learning is less enjoyable and when working on evaluation questions, there are still students who get a score less than the KKM, namely 75. This can be seen from the learning results of class X students at SMAN 1 Narmada in Geography learning from 8 students who achieved learning completeness was only 4 students or 50% with KKM > 75.

Researchers are moved to look for improvements after seeing the results achieved by students and the causes of failure experienced by students. This conclusion can be drawn based on research findings and discussions that occurred. PBL is an abbreviation for problem-based learning, which is a teaching method where students are given challenges to solve themselves (Lider, 2022). Students will gain experience in solving realistic problems as part of the Problem Based Learning (PBL) learning process, which emphasizes the use of communication, collaboration and existing resources to develop their ideas and deductive reasoning abilities [4] ; [5]. The Problem Based Learning (PBL) learning model is able to generate learning motivation and cooperation in a group so that learning is more interesting and enjoyable [6]. This can be supported by using applications such as the quizz application which is an online learning media that can be used to make learning more fun because you can add pictures to each subject and can even use funny pictures for each question [7].

Learner should be at the heart of any learning experience that emphasizes skill mastery. The learning used currently is known as integrated thematic learning. This type of learning is defined as learning that combines learning concepts with themes that connect various different learning topics to present students with experiences that have meaning for them (Firdaus & Badriyah, 2018). Students participate in a student-focused learning process that utilizes a thematic learning approach. This allows students to be able to think critically, actively and creatively when conveying information for problem solving and when solving the problem itself [8][6]. Students are encouraged to collaborate with their peers in the classroom whenever possible. In an effort to improve students' overall educational experience and outcomes, one of the traits that needs to be fostered in them is cooperation [9]. According to Rukiyati, ddk in [8] "Every student in elementary school must prioritize developing the character of cooperation because developing this trait allows students to learn how to understand, experience and participate in activities that require cooperation to achieve common goals.

Work can be interpreted as a form of interaction that takes place between two or more people with a common goal to achieve certain goals.

When following the learning process at school, every student definitely hopes for good learning results. If the learning process is not optimal, the learning results obtained will also be less than optimal. [10] states "The abilities that students have as a result of receiving their learning experiences are called learning outcomes". According to Gagne [11] "Learning outcomes are the formation of concepts, specifically the categories we assign to stimuli in the environment. These categories provide an organized scheme for assimilating new stimuli and determining within and between categories. Assessment of learning outcomes can refer to an activity or method. This is a way to determine not only whether the learning objectives have been achieved or not, but also the learning process that has been put into practice. At this stage of the procedure, a teacher is expected to be able to choose an evaluation approach and method, in addition to preparing evaluation tools, processing evaluation results, and utilizing information obtained from evaluations [12]. The learning outcomes referred to in this research are the grades obtained by students through various test and non-test methods as a result of the assessment process. This process involves observing the activities carried out by students and teachers when carrying out learning activities and evaluating the results of these observations through the use of written exams which are referred to as formative tests [13]. It can be said that learning outcomes are the acquisition of competency scores achieved by students based on process scores and learning outcome scores, or vice versa. Learning outcomes are compared with certain criteria, namely KKM, to determine the competency scores achieved by students [14].

Salah one learning model that needs to be applied so that students can construct their own knowledge to get maximum learning outcomes is the problem-based learning (PBL) learning model. This is necessary to obtain maximum learning results.

This statistical information is also offered for download in Excel spreadsheet format. Using the Quizizz application really helps teachers in the process of conveying messages to students, especially through interactive quizzes. The "Homework" feature allows teachers to provide evaluation assignments with a specified time limit, so using the Quizizz application is very beneficial for teachers [15]. In line with the results of research conducted by [16] The following are the findings from this investigation. Preliminary findings show that the average score was 61.00, and only 45% of the classical assignments were completed. In cycle I the average score was 73.45 with classical completeness of 68%, while in cycle II the average score was 83.97 with classical completeness of 94%. Based on the research results, the mathematics learning achievement of Class VI Semester I students at SD Negeri 5 Sangsit for the 2020-2021 academic year on Mixed arithmetic operations material can be improved by utilizing the Problem Based Learning model assisted by the Quizizz application. These are recommendations made based on research findings.

Based on problems that arise and the Problem Based Learning (PBL) learning model assisted by the Quizizz application which is able to increase cooperation in groups and increase learning outcomes, then the desire to conduct classroom action research with the title "Application of the Problem Based Learning Model Assisted by the Quizizz Application Can Improve "Collaboration and Geography Learning Results for Class X Students of SMAN 1 Narmada Semester 2 2023/2024". Based on the background information and problem definition provided above, the researcher formulated the problem as follows: "Can class "This research aims to find out whether the Problem Based Learning model assisted by the Quizizz application can improve collaboration and learning outcomes for class theoretically and practically, especially in the field of education.

2.IMPLEMENTATION METHOD

This investigation was carried out at SMAN 1 Narmada, Narmada District in West Lombok. This research was conducted in the second semester of the 2023/2024 academic year, which is the time period in question. Participants in this research were class X students. There was a total of eight students, with three male students and five female students being the sample. Classroom action research is the method used for research (PT). This research uses the PTK spiral model proposed by Kemmis and Mc Taggart. According to this model, each cycle or part of research consists of three steps: preparation, activities and observations, and reflection [17] [18].

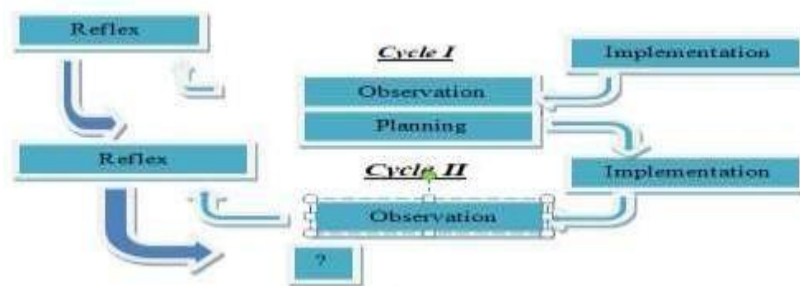


Figure 1. Classroom Action Research (PTK) Scheme Kemmis & MC Taggart Model

In this particular research project, data collection methods for learning outcomes include tests and non-tests. The techniques used in the test are those used to measure cognitive elements, while the techniques not used in the test are those used to measure affective and psychomotor aspects. Non-test techniques are implemented throughout the learning process, from beginning to end, while test techniques are only presented at the end of learning, after the sixth learning process is completed, or at the end of the first and second cycles. The combination of testing and non-testing leads to the discovery of research instruments. Tests are usually used to evaluate and measure student learning

outcomes, especially cognitive learning outcomes in relation to mastery of teaching materials in accordance with educational and instructional objectives. Participatory observation sheets were used in this research as a data collection tool apart from testing. In this research effort, quantitative descriptive techniques were used for data analysis purposes [19]. It is about increasing cooperation and student learning outcomes in cycles based on frequency, and this technique is used to analyze data according to figures. Information in the form of numbers and referred to as quantitative data is processed to determine the average score, highest score, lowest score, number of students who completed, and percentage of students who completed. learning. Quantitative data processing involves computing the representation of data that is strictly comparable to it. After that, the results of the data processing were subjected to a unique test (comparison) by analyzing the differences and similarities in conditions in cycles I and II. The comparative test shows that there has been an increase in both the quality of teaching provided by teachers and the learning outcomes demonstrated by students as a direct result of the teaching provided [20]

3.RESULT AND DISCUSSION

There are two different cycles were used to conduct this research. Each cycle begins with the creation of learning tools. RPP with PBL learning design, learning materials with topic 9, learning media in the form of PowerPoint, LKPD, and learning assessment via the Quizizz application are just some of the teachings and learning resources available. The application of learning tools during each cycle consists of six meetings. Each meeting involves completing three stages: planning, implementation, which requires action and observation, and reflection.

Class I will be held in class 2) prepare a learning implementation plan using the Problem Based Learning methodology; 3) prepare an online evaluation sheet; and 4) develop student observation sheets. Activities carried out during the implementation phase are as follows: (1) bringing all preparations to class; (2) Preliminary learning is the first step in implementing learning, which includes self-introduction in front of the class, student attendance, encouraging students to work hard in learning, engaging in apperception, and communicating learning objectives and the scope of the material being studied. covered; (3). Complete required learning; (4). Complete the required learning concluding exercises. [21]; [22]. The lesson should end with a goodbye. Analyzing Cycle I learning outcomes, assessing the process through cooperative observation activities. Increased student observation data from cycles one, two, three, four and five meetings are shown below.

Based on the table 31 above, it can be concluded that the results of observations of student cooperation have increased in each meeting. From the learning results of the first cycle of class

Table 1. Frequency Distribution of Geography Learning Results Cycle I

No.	Skor Learning	Frequency	Percentage (%)
1	<75	4	50%
2	75 – 83	2	25%
3	84 – 92	1	12.5%
4	93 – 100	1	12.5%
	Amount	8	100%

Table 1 shows that learning is still not effective, as shown by four students who did not complete the learning exercise with a completeness level of 50% (KKM > 75). The first cycle test completion rate for students received a proportion of 50% as well. Researchers must apply learning strategies based on the data that has been collected so that students, especially class X students at SMAN 1 Narmada, achieve better learning outcomes. As a sign that cycle, I was successful, this learning activity will be continued to cycle II.

Class II is scheduled to take place on 19-20 December 2023 at class X at SMAN 1 Narmada. The following is a list of things that were done as part of the planning process: 1) set up the question box; 2) create a problem-based learning implementation plan; 3) create an online evaluation form; and 4) create a student observation form. The following activities are carried out during the implementation phase:

Bringing all the necessary materials to class is the first step. The second step is to start the implementation of learning with preliminary learning, which includes welcoming students, attending, encouraging them to work hard in class, conducting apperception, and communicating the learning objectives and the extent of the material being taught. The third and fourth steps are carrying out core learning and closing learning activities. At the end of class, say goodbye. Participate in cooperative observation activities to evaluate the process, then review the results of this learning in Cycle II. The graph below shows how student observation scores increased from cycle II to meetings 1, 2, 3, 4, and 5:

Based on table 2 above, it can be concluded that the results of observations of student cooperation have increased in each meeting. From the learning results of cycle II of class

Table 2. Frequency Distribution of Geography Learning Results Cycle II

No.	Skor Learning	Frequency	Percentage (%)
1	<75	2	25%
2	75 – 83	1	12.5%
3	84 – 92	2	50%
4	93 – 100	3	37.5%
Amount		8	100%

Table 2 shows that the distribution of Geography learning outcomes appears to be evenly distributed. Learning has been successful, shown by two students with a percentage of 25% who did not complete the learning activities (KKM > 75). Meanwhile, the percentage of student test completion in cycle II was 75%.

The results of research on problem-based learning using action learning in class Table 3.5 displays research findings related to collaboration and learning outcomes. Comparison of Observation Results of Student Collaboration in Cycle I Meetings 1, 2, 3, 4, and 5 with Cycle II Meetings 1, 2, 3, 4, and 5

Table 6 below compares the results of learning Geography Cycles I and II.

**Table 3. Comparison of Geography Learning Results
Cycle I and Cycle II Cycle
I Cycle II**

No	Value	Cycle I		Cycle II	
		Frequency	Percent	frequency	Percent
1	Uncomplete	4	50%	2	25%
2	Complete	4	50%	6	75%
Total		8	100%	8	100%

Based on the comparison table of collaboration in table 5. It can be seen that there is an increase in student collaboration with groups at each meeting; cycle I was 66% and cycle II was 97%; and the learning results in table 6 can show an increase in the number of students who have completed the content. In the first cycle of action, there were four students who had completed the Geography lesson, which corresponds to a fifty percent completeness level; however, in the second cycle, the number of students who had completed the lesson increased to six, which corresponds to a completion rate of seventy-five percent. This shows that education based on problem solving, known as problem-based learning, can lead to improved academic outcomes for students.

Discussion

Students can become more engaged, creative and innovative through the use of this learning model, which can improve their results in thematic learning. According to Ridwan in [23], learning that is provided by presenting problems, asking questions, enabling exploration, and producing discourse is known as problem-based learning (PBL). According to Duch (2014: 130) states that Problem-Based Learning (PBL) is a teaching approach characterized by real problems as a framework for students to practice critical thinking skills and solve problems and gain knowledge, PBL is an abbreviation of the teaching model known as Problem-Based Learning (PBL). Based Learning. The problems studied in applying this learning paradigm should be the contextual difficulties faced by students in everyday life. The steps for the PBL learning model are as follows, in accordance with the statement of the Ministry of Education and Culture in the book "Teacher Materials for Implementing the 2013 Curriculum" (2014, page 28):

1. Phase 1: Introduce students to the problem
2. Phase 2: Getting students organized to define the problem is phase two.
3. Phase 3: Supervise individual and group research
4. Phase 4: Develop the project and deliver it
5. Phase 5: Analyze and assess problem solving methods in Phase 5.

Use Learning media can help implement learning models by attracting students' attention in group study sessions. As a result, the use of ICT-based learning resources is combined with the use of the Problem Based Learning paradigm, especially Quizizz, a web application to create interactive quiz games that can be used as learning resources. Students can use this program wherever they are physically located. Citra and Rosy (2020) Quizizz is a game-based educational application, according to information provided to us, that combines multiplayer activities into classes to make learning more entertaining and interesting. [24] mentioned that the Quizizz application has features- features that are generally available

make it easier the learning process both teachers and students go through. This shows that the Quizizz application has the potential to be used for innovative learning.

App known as Quizizz; it can provide assistance to educators in the process of creating quizzes for students to complete by combining them with the available code. Players see the question-and-answer options on their own screen while using the app, so it can be used without using a projector. Opening the Quizizz.com application, students enter their name and game code to register for activities [25]. Because the order of questions is different for each student, it is difficult for players to cheat in this game. Quizizz is able to provide statistical data on student performance and track the number of students who answer the questions created, which is one of the features it has (Lider, 2022).

4. CONCLUSION

This conclusion can be drawn based on research findings and discussions that occurred. This is proven by increased cooperation in groups and learning outcomes from cycle I and cycle II based on learning completeness. The percentage of cooperation from the implementation of cycle I was 66% and cycle II was 97% and the percentage of learning outcomes of students achieving completeness from the implementation of cycle I was 50% and cycle II was 75%. This shows that learning by applying the Problem Based Learning model assisted by the Quizizz application can increase the number of students who complete their learning.

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