Implementation of A Problem-Based Learning Model with the Help of Interactive Presentation Media from Quizziz in Increasing Student Learning Motivation in Class XI MIPA 4 in Chemistry Learning at Kebakkramat State Senior High School

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ABSTRACT: This study aims to evaluate the increase in learning motivation in chemistry lessons using Quizziz interactive presentation media on the topic of buffer solutions, solubility, and solubility results. This class action research involved students of class XI MIPA 4 at SMA Negeri Kebakkramat. The Problem Based Learning (PBL) model is applied to involve students in solving real problems related to learning topics, encouraging investigation, critical thinking, and collaboration. Data collection was conducted through observation, interviews, and questionnaires, with data analysis using quantitative and qualitative descriptive techniques. The results showed that the application of the PBL model and Quizziz media succeeded in increasing student learning motivation with a success rate of 83% in cycle II. Indicators of learning motivation such as perseverance, persistence, preference for independent work, courage to find solutions, and ability to defend opinions, increased from cycle I (81.34%) to cycle II (83%). Evaluation of student motivation criteria also showed significant improvement from cycle I (47% excellent, 47% good, 6% fair) to cycle II (55% excellent, 42% good, 3% fair).

Keywords: Problem Based Learning, Quizziz, Learning Motivation

INTRODUCTION

The 21th century is an era of globalization due to advances in technology and science. Globalization has had a huge impact on many things, including education in Indonesia. The paradigm of education must be changed to compete with the international world, as demanded by globalization. Along with the advancement of science and the habit of using it, technology is currently developing rapidly. These advancements greatly impact the world of education, especially on the development of learning programs. The utilization of technological products to accelerate student understanding is only as a tool.

When technology is used as part of the learning method, it can help students become more motivated to learn. When students are more motivated to participate in learning activities or processes, their learning outcomes can be improved. Systematically designing learning activities by incorporating technology and communication into them is something that can be done [1].

Students in class XI MIPA 4 Senior High School of Kebakkramat showed a lack of motivation to learn. The assumption that many facts and formulas must be memorized makes chemistry look complicated and boring. This is one of the main reasons why students lack motivation to learn. Since almost all teenagers have mobile phones nowadays, it will be difficult for students who are already addicted to mobile phones to divide their time between studying and playing mobile phones. Many

students play their mobile phones while the teacher is explaining the material. This is what usually makes students have no motivation to learn.

With strong motivation, students will continue to learn. It can encourage them to behave and provide direction in their learning. Therefore, learning motivation usually comes from internal and external stimuli. The influence of communication between teachers and students is also very important to achieve learning outcomes and ensure that the learning process runs smoothly [2].

The world of education continues to evolve in the twenty-first century, marked by the utilisation of information and communication technology in every aspect of life. The advancement of information technology has greatly helped the progress of education, especially computer technology and the internet, both in terms of hardware and software. This has given the world of education many options and tools to support learning. The advantages include the speed of information and multimedia facilities that can make learning more interesting, visual, and interactive [3].

Student interest in learning using multimedia systems that can provide text, images, videos, sound and animation displays, interactive learning is able to activate students to learn with high motivation [4]. Interactive presentation is one of the most used learning media. This is an improvement that can produce better results than before. The utilization of interactive learning technology can be said to be a learning medium that will greatly assist educators in fostering the desired two-way conversation. Boredom in following the learning process will be eliminated when interactive presentations are used in the upcoming learning process. The way of talking in the learning process can be more interesting and provide ease in understanding the material because this learning can be presented better, so that it can be used and displayed in the classroom [5]. One-way teachers can inform students about chemistry lessons is by using interactive presentation media. This media allows students to do more activities and be more creative about the topic of the lesson. The use of interactive presentation media creates a paradigm that the teacher is the only learning facility and resource. In chemistry learning, students often find materials unnoticed in the environment around them. Therefore, with the help of innovative learning models and media, students can more easily understand learning materials.

Quizizz is an educational website that can be used for fun and interesting learning evaluations and delivery of material in a narrative and flexible manner. Quizziz is also a platform that can help us create interactive presentations [6]. Quiziz interactive presentations are like PowerPoint that we usually use on laptops. However, Quiziz gives us the ability to use various features that are not in PowerPoint. For example, you can use this tool to create surveys, quizzes or interactive charts. One type of interactive presentation that we can create using this tool is a presentation where educators can download survey and quiz results in excel so that it is easier for them to recapitulate when the educator has improvements [7]. Students can be interested in listening to what the teacher is saying when these slides are presented. As a result, the learning atmosphere will become interesting and interactive, and students will be motivated to participate in learning activities.

Wahyuningtyas and Kristin [8] said that the conceptual framework known as the learning model provides an explanation of how to organize learning experiences systematically to achieve certain goals. It serves as a guideline for teachers and learning designers in organizing and implementing the learning process. In addition, following the teachings of Tut Wuri Handayani is a practical action that has meaning for today's society to help improve the future. The problem-based learning model is one that can be used. This model analogies students to real-world situations. Students understand the material more easily because this learning model always relates it to real-life problems. It also asks students to think actively and increases their desire to learn. PBL is designed to help students learn better [9].

Problem-Based Learning Model integrated with Quizizz combines PBL method with Quizizz interactive media to improve learning [10]. In this model, students are exposed to real-world problems relevant to chemistry topics, then they investigate and solve these problems. Quizizz is used to create interactive quizzes and presentations that support this process, allowing teachers to monitor student understanding in real-time and provide immediate feedback. This integration makes learning more engaging, improves understanding of the material, and motivates students to actively participate [11]. This is in line with Nurhayati's research [12] which found that Problem-based learning with screencast-O-Matic and Quizizz can improve student learning outcomes. This study is also in line with research by Swari et. al. [13] who found that learning with PBL models supported by Quizizz can increase students' interest in learning chemistry. Therefore, this study aims to evaluate students' chemistry learning

motivation with a problem-based learning model using Quizziz interactive presentation media on the topic of buffer solutions, solubility and solubility products.

RESEARCH METHODS

This classroom action research (CAR) aims to solve learning problems and improve learning outcomes [14]. The study was conducted in two cycles with two to three meetings each and contained several phases, such as action planning and implementation, observation, and self-reflection. The action step plan consists of several stages, namely Planning is the stage where the teacher makes a learning plan to increase students' learning motivation. This activity includes making problem-based learning scenarios assisted by interactive presentation media from quizizz, questionnaire sheets, and evaluation tools. Then Implementation of Action and Observation implements the plan in the classroom. The teacher monitors the suitability of implementation with planning, the smoothness of the process, student enthusiasm, and the results of the action. During implementation, observations are made to record student data based on the questionnaire sheet that has been made and Reflection is used to improve and plan the next lesson, by recalling the activities that have been carried out by the teacher and students. Here's a diagram of the class action research cycle model [15].
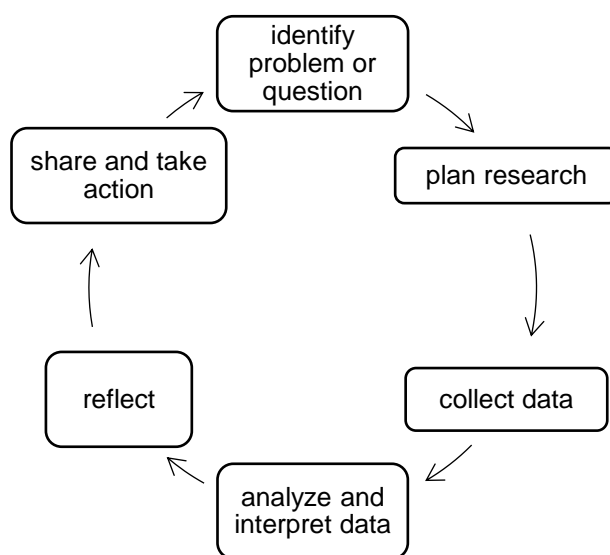

FIGURE 1: Classroom Action Research Model

The data collected in this study were analyzed qualitatively through observation or observation of the learning process. The data and data sources used in this study came from observations made in real learning conditions and contained information related to research activities. The data for this study were obtained from various sources, including the teacher who taught chemistry in class XI MIPA 4 and all students in class XI MIPA 4 in the 2022/2023 school year. In addition, data can be obtained from the chemistry learning process in the classroom.

TABLE 1. Likert Scale Categories

Code	Description	Score
SA	Strongly agree	4
A	Agree	3
DS	Disagree	2
SD	Strongly Disagree	1

Data was collected through a Likert scale questionnaire. Indicators used to create instrument items are used to measure variables. Data was collected through a Likert scale questionnaire. Indicators used to create instrument items are used to measure variables. Each tool item is weighted based on potential values from very positive to very negative as shown in Table 1 [16]. Meanwhile, documentation and interviews were used as additional data in this class action research.

RESULT AND DISCUSSION

The results of the initial observations carried out by the researcher before starting the class action on 29 March 2023 showed that student motivation in the pre-cycle tended to be lacking. The author suspects the cause is because students often play these devices without accessing learning resources. When the teacher discussed the learning material, many students used their mobile phones to play games, shop online, and browse social media. As a result, students do not pay attention to the teacher's explanation. Therefore, the researcher gave students a motivational questionnaire to find out their motivation to learn.
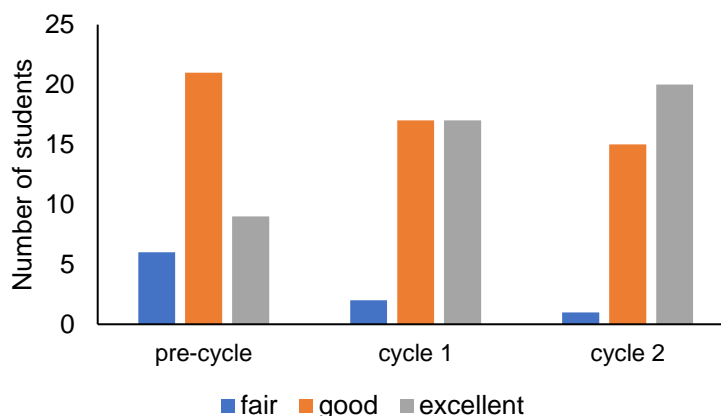

FIGURE 1. Comparison of student learning motivation.

Based on the figure above, a total of 36 students in class XI MIPA 4, the graph of student motivation criteria in the pre-cycle shows that 17% of them have sufficient motivation, as many as 6 people; 58% of them have good motivation, as many as 20 people; and 25% of them have very high motivation, as many as 9 people.

1. Action Planning

After the problem was identified at the beginning of the study, the term "action planning" refers to the learning process that the researcher and colleagues have devised to create a lesson plan. To do this, a problem-based learning model has been used, which is assisted by quizziz, interactive presentation. In learning chemistry material of buffer solution and KSP in class XI MIPA 4, prepare tools such as mobile phones, laptops, LCDs, stationery and paper. design teaching materials such as learning books and check the interactive presentation learning media from Quizziz. Be sure to prepare a camera or mobile phone for documentation. At the end of the cycle, participants were given a learning motivation questionnaire to assess how much they were motivated during the learning process.

2. Implementation of Action

It started on Wednesday, 28 April 2023, and lasted until Friday, 10 May 2023. The first cycle involved four meetings with the aim of achieving the best results. The first cycle learning started with buffer solution, and the lesson plan and learning media developed by the researcher were used. Learning began with greetings and prayers. The newly learnt material was then interacted with each other. In addition, the researcher created a Quizziz that students could access through their mobile phones. The powerpoint that the teacher displayed through her mobile phone could be seen by the participants sitting at the back.

The slide presentation is operated by the teacher, so students' mobile phones will continue to be used during learning, and students cannot switch between the slides displayed on their mobile phone screens. In the slide presentation there are quizzes that help students stay focused on the material being taught. Quizzes or chemistry questions can also be used by the teacher as an evaluation tool to measure how well students understand the material and to emphasise sub-chapters that may be difficult to understand. Next, students were asked to gather in groups and given problem-based Student Worksheets. After that, they talk about the problems in the worksheet with their groups. After the lesson is over, the teacher and students review the material learnt and reflect on the learning activities that have been done.

Based on the histogram data in Figure 1, it can be seen that in cycle 1 students who had very good motivation were 17 students or 47%, thus students who had very good motivation increased by 25% or 8 students. Students in the good category consisted of 17 students, or 47%, and the results decreased

to 4 students, or 11%. Students in the sufficient category consisted of 2 students, or 6%, and the results decreased to 4 students, or 11%.

Cycle 2 learning was carried out on 17 May to 19 May 2023 with two meetings, Cycle II includes learning chemistry about solubility and solubility product. The actions taken at this stage were the same as those taken in cycle I, but more quizzes were given. This is done so that students better understand the basic concepts and calculations about the subject. By understanding the basic concepts in this material, students can be more motivated in studying problems related to this material.

Based on the histogram data in Figure 1, it can be seen that in cycle II students who had very good motivation were 20 students or 55%, thus students who had very good motivation increased by 9% or 3 students. Students who met the good criteria consisted of 15 students with a percentage of 42%, and students who met the sufficient criteria consisted of 1 student with a percentage of 3%, and students who met the sufficient criteria consisted of 1 student or with a percentage of 3%. The results from cycle I also decreased.
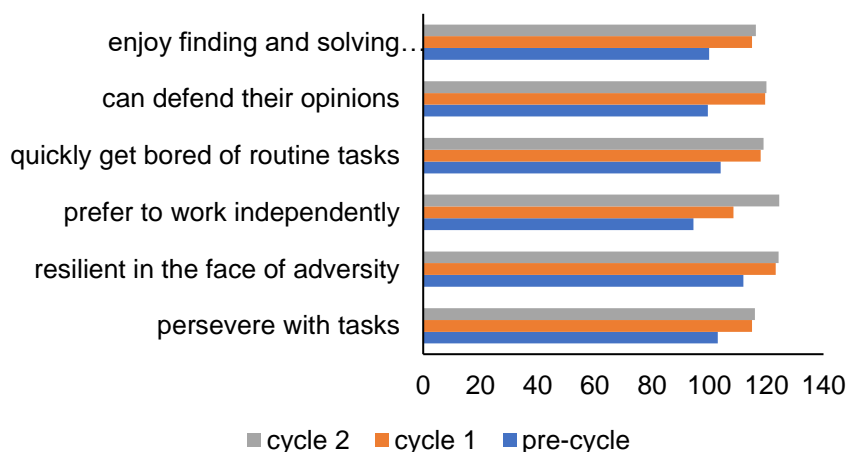

FIGURE 2. Indicator score of learning motivation

Based on the results of the histogram data in Figure 2, in the learning motivation indicators there was a significant increase in learning before action and after action, this can be seen in each indicator score obtained in pre-class learning with cycle I learning where the indicator of perseverance in facing tasks scored 103 with good criteria to 105 with good criteria, the resilience indicator facing difficulties scored 112 with good criteria in pre-class to 123.25 with excellent criteria in cycle I; the indicator of liking to work independently scored 94.5 with good criteria in the pre-cycle to 108.5 with good criteria in cycle I; the indicator of getting bored quickly on routine tasks scored 104 with good criteria in the pre-cycle, 118 with very good criteria in cycle I; and the indicator of being able to defend opinions given by others scored 104 with criteria. This increase in learning motivation is due to students having a new learning experience, where students can learn from the slides displayed on their respective gadgets, then students can also fill out quizzes contained in the quizziz presentation slides, students also find it easier to follow the learning because the teacher always re-emphasises the sub-material that is still a difficulty. According to Kahfi et. al. [17] The use of attractive multimedia applications in learning activities is expected to increase efficiency, increase motivation, and encourage active, experimental, and consistent learning with a focus on students. Interactive presentation media such as Quizziz allows monitoring the progress of student understanding, which is then followed by a discussion group to complete problem-based learner worksheets, where the problems faced by students are identified and actively addressed [18].

In cycle II, the increase in indicators is relatively small, this can be seen in Figure 2 that the increase in each indicator is very small, but for the increase in the indicator of preferring to work alone there is a significant increase in each cycle, this may be due to the preference of some students in the group to learn independently, while some other students still have a passive attitude. In the first cycle, the learning motivation indicators showed that 79.8% of students were diligent in handling tasks, 85.5% were resilient in facing difficulties, 75.3% preferred to work independently, and 81.9% quickly became bored with routine tasks. In the second cycle, there was an increase in several indicators of learning motivation, where 80% of students showed perseverance in handling tasks, 86.2% remained persistent in the face of difficulties, 86.4% preferred to work independently, 82.6% quickly became bored with routine tasks, 83.3% were able to defend their opinions, and 80.7% liked to seek and solve problems.
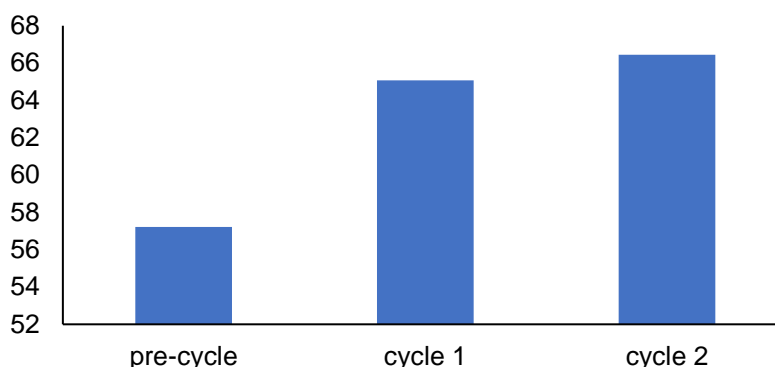
3. Reflection of Action

FIGURE 2. Histogram of the mean score of student motivation.

The learning process began to look effective in cycle I, as shown by the data collected in that cycle. Figure 3 shows that students before the action or pre-cycle obtained an average percentage of 71.52% with good criteria, and students in cycle I got an average percentage of 81.35% with a very good level, thus there was a significant increase of 9.83%. Then, researchers conducted a reflection on learning by assessing the activities that had been carried out in cycle 1 and looking for alternative ways for problems that arose in learning activities. In cycle II, researchers found that student learning motivation of 83% met the criteria, showing an increase of 1.65% from learning in cycle I to learning in cycle II, although this slight increase was caused by quizzes on presentation slides, so that when students answered the quiz incorrectly then immediately given feedback by the researcher, a quiz with the same variation would appear so that students had another chance to complete the quiz, this is certainly very influential so that students have a strong basic concept, therefore students will become easier in solving further problems. This is in line with research conducted by Sumiati [19] which states that problem-based learning is successful in increasing motivation and learning outcomes in chemistry.

The use of problem-based learning model becomes very relevant because there are many connections between the material taught in learning and the problems that exist in everyday life. This model provides opportunities for students to actively participate in learning as they are required to find solutions to problems encountered in the real world. This method not only provides students with knowledge, but also encourages them to learn to think critically and think independently. Students can more easily understand and master complex chemistry material with Quizziz interactive presentation media. This media allows teachers to present material in a more dynamic and interactive way, which increases students' interest and desire to learn chemistry.

CONCLUSION

Students of class XI MIPA IV at SMA Negeri Kebakkramat showed a higher level of motivation in learning when applying a problem-based learning approach, supported by the use of interactive learning tools such as Quizziz. Interactive media is essential for learning activities in the Industrial Revolution 4.0 era as it helps teachers better deliver lessons to students and makes learning more active and fun. Interactive media that adopts technology also contributes greatly to enriching the learning process, especially for millennial generation students who have considerable technological skills. Nonetheless, the role of teachers remains a key element in the learning process, as they serve as the link between technology and effective learning.

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