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Project-Based Learning with Group Presentations in Teaching the History of Science and Technology Development

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Abstrak

Penelitian ini berjudul Penerapan Model Pembelajaran *Project Based Learning* Melalui Kegiatan Presentasi Kelompok Menggunakan Media *Power Point* Pada Mata Pelajaran Sejarah Perkembangan IPTEK di era Globalisasi Kelas XII IPS 3 SMA Negeri 2 Palembang, penelitian ini bertujuan untuk meningkatkan hasil belajar peserta didik yang sebelumnya memiliki hasil belajar dan motivasi yang cukup rendah. Metode penelitian ini diawali dengan kegiatan observasi kepada peserta didik, kemudian guru melakukan assessment diagnostik untuk mengetahui kebutuhan belajar dan juga profiling peserta didik. peningkatan yang terjadi selama 2 siklus penelitian ini mengalami perubahan yang baik, pada siklus 1 hasil belajar peserta didik cukup banyak berada di bawah angka kriteria ketuntasan minimum dan pada siklus 2 angka ini menurun drastis mencapai 0% peserta didik yang berada di bawah angka kriteria ketuntasan minimum. Penggunaan *Project Based Learning* dapat meningkatkan hasil belajar dan juga pemahaman peserta didik.

Kata kunci: *project based learning*, *powert point*, hasil belajar.

Abstract

This study entitled Application of the Project Based Learning Learning Model through Group Presentation Activities Using PowerPoint Media in the History of Science and Technology Development Subject in the Globalization Era of Class XII IPS 3 SMA Negeri 2 Palembang, this research aims to improve the learning outcomes of students who previously had learning outcomes and low motivation. This research method begins with observing students, then the teacher conducts a diagnostic assessment to determine learning needs and student profiling. the improvement that occurred during the 2 cycles of this study experienced a good change, in cycle 1 the learning outcomes of students were quite a lot below the minimum completeness criterion score and in cycle 2 this number decreased drastically to reach 0% of students who were below the minimum completeness criterion score. The use of Project Based Learning can improve learning outcomes and also students' understanding
***Keywords**: project based learning, powert point, learning outcomes.*

INTRODUCTION

Learning is a method or approach used to provide knowledge as well as learning experiences that take place within educational institutions, particularly schools. In the learning process, teachers serve as educators while students act as learners. Thus, education can be understood as a system that consists of complementary components, namely teachers and students (Magdalena, 2021).

The education sector has long been a priority for the Indonesian government, which is reflected in the development of new policies aimed at advancing education. These can be observed through various programs such as compulsory education and educational scholarships (Madhakomala, 2022). Furthermore, curriculum development has also continued to evolve in a better direction.

Curriculum changes bring significant impacts on the learning process. These changes occur not only as a response to the demands of modern times but also due to major events. For instance, in 2020 the COVID-19 pandemic severely disrupted the education sector in Indonesia, leading to what has been termed a "learning crisis" (Suprianta Nugraha, 2022).

Adjusting to changes in the learning process is often challenging for students; therefore, it requires orientations and methods that enable them to better understand the lessons delivered by teachers in accordance with the current curriculum, namely the *Merdeka* Curriculum. This type of learning is also characterized by the integration of advancements in science and technology, which significantly influence teaching practices in schools (Meling Moto, 2019).

The use of technology in learning is often manifested in the form of instructional media. Instructional media play a vital role in the teaching and learning process; innovative use of media can greatly influence student development (Wulandari Putri, 2023). The impacts of such development can be seen in improved learning outcomes, enhanced learning motivation, and a greater sense of curiosity toward the subject matter (Hernández-Ramos, 2009).

However, the application of media in the learning process cannot be implemented instantly without proper preparation. Teachers must have a good understanding of various learning models to facilitate effective learning. In this Classroom Action Research (CAR), the model employed is Project-Based Learning (PjBL) (Baser, 2017).

The application of PjBL does not solely focus on subject matter but also emphasizes the improvement of student learning outcomes. The delivery of learning content or the teaching and learning process itself is essentially a form of communication, wherein teachers convey messages and ideas to students (Taula Sari, 2018). Findings from this research, conducted in two cycles, are sufficient to observe the progress achieved in students' learning processes.

Through Project-Based Learning, students are encouraged to create a product in the form of learning media, which is then presented in groups before the class. In this case, the media developed is a PowerPoint presentation related to the learning material (ChanLin, 2008).

The use of media and group presentations is expected to help students gain a better understanding of the subject matter. Moreover, it encourages them to think innovatively while presenting, as well as to engage in direct discussions using question-and-answer methods with their peers (Bwooy, 2019).

This Classroom Action Research was conducted at SMA Negeri 2 Palembang with 36 students of class XII IPS 3, focusing on the subject *The Development of Science and Technology in the Era of Globalization*.

METHODS

Classroom Action Research (CAR) is a type of research conducted by teachers to find solutions to various problems that arise in the teaching and learning process. This study began with the delivery of material through the lecture method in the first cycle of learning. The material presented by the teacher served as the initial foundation for the subject *History of the Development of Science and Technology in the Globalization Era*.

In the next stage, students in the class were divided into four study groups to discuss specific topics, namely: (1) the Development of Science and Technology, (2) the Development of Space Technology, (3) the Development of Transportation, and (4) the Development of Weaponry.

During group learning, students created presentations in the form of PowerPoint slides, which were then displayed using a projector in class. This group presentation activity was intended to foster learning motivation and improve material comprehension, as students were required to understand the content before presenting it. Furthermore, question-and-answer discussions were conducted, which helped deepen students' understanding of the presented material.

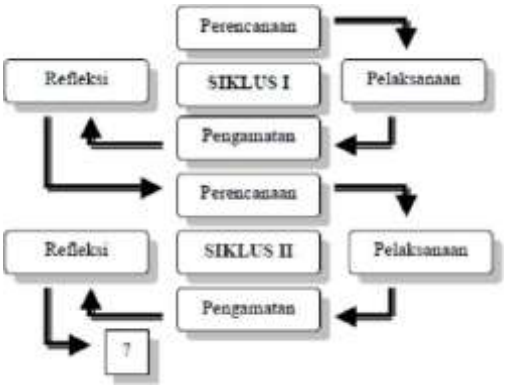

Figure 1. The Kemmis and McTaggart CAR Cycle (Arikunto, 2009)

In the Kemmis and McTaggart model of Classroom Action Research (Arikunto, 2009), CAR is used as a means to improve the teaching and learning process within a classroom system carried out by teachers. The cycle begins with planning, followed by implementation.

The next stage is observing the initial teaching method used, and finally conducting reflection on the results of the first cycle, which primarily employed the lecture method.

In the second cycle, activities began with planning improvements to the previous cycle, followed by implementation. The teacher then observed the ongoing learning process and concluded with reflection to determine whether the chosen teaching method had been successful or required further modification.

The research instruments and data collection techniques consisted of: (a) observation, (b) performance assessment,

and (c) written tests. The scoring guideline used the formula: Score = (Number of Correct Answers/Total Questions) × 100%.

Based on the *Kriteria Ketuntasan Minimum* (KKM, Minimum Mastery Criteria) for Grade XII under the 2013 Curriculum, the minimum passing score was 75. This standard served as the benchmark for determining the direction of subsequent learning objectives. The indicator also determined whether the classroom learning process had been successful or required further improvement.

RESULTS AND DISCUSSION

Instructional media play a strategic role in the teaching and learning process, as they serve as intermediaries for the transfer of knowledge from teachers to students (Asmara Purba, 2015). The role of media as a learning tool is considered highly important when compared to learning activities that are conducted without the use of media.

At the initial stage, the class began with a diagnostic assessment of the cognitive abilities of Grade XII IPS 3 students. This assessment was used to evaluate students' abilities and learning needs so that appropriate learning strategies could be determined. Afterward, students were given a test to measure their prior understanding of the topic *The Development of Science and Technology in the Era of Globalization*.

The teacher then observed students' comprehension and reflected on their level of understanding. Students' understanding of the material was divided into three categories. The majority of students were found to have a medium level of knowledge, as observed both directly in class and through information provided by the supervising teacher.

The study then proceeded to Cycle I, in which the teacher delivered the material using the lecture method. During this stage, the teacher explained the subject matter while students listened and engaged with the learning process.

In addition, students were shown a learning video, after which they were given the opportunity to ask questions about the material presented. At the same time, the teacher observed students' responses and comprehension of the lesson being taught (Frank, 2004).

When the teacher explained the material, some students were not fully conducive to the learning process, either directly or indirectly. For example, some students were talking with their peers, which disrupted the class, while others were distracted by their gadgets.

The teacher then instructed students to write a reflection on their understanding of the topic *The Development of Science and Technology in the Era of Globalization*. The results, however, were minimal, as student scores in Cycle I were largely below the Minimum

Mastery Criterion (KKM). This outcome was influenced by various factors, as previously explained.

Table 1. Learning Outcomes Cycle 1

Score	Number of Students	Persentage
≥75	14 Student	38.88%
≤75	22 Student	61.12%

Source: Appendix

The results of Cycle I show that only 14 students (38.88%) achieved scores above the minimum mastery criterion (≥ 75), while 22 students (61.12%) scored below it, which is a relatively high percentage.

Table 2. Learning Result Cycle 1

Sycle	Schore
Highest	82
Lowest	70
Average	74.08

Source: Appendix

Based on Table 1.2, the highest score achieved by students in the subject *The Development of Science and Technology in the Era of Globalization* was 82, while the lowest score was 70. The class average was 74.08. According to the 2013 Curriculum, the minimum mastery criterion is 75. Thus, the average score in Cycle I fell below the target.

The study then proceeded to Cycle II, where improvements were made in the teaching and learning process by implementing the Project-Based Learning model. This included the use of PowerPoint media and group discussions, followed by presentations and question-and-answer sessions on the material provided.

In the second cycle of learning, the Project-Based Learning model was implemented. Students were divided into four study groups and assigned materials corresponding to each group. Under the teacher's guidance, the students carried out discussions until the tasks were completed, focusing on the subject *The Development of Science and Technology in the Era of Globalization*.

The group discussions were conducted over two class sessions. At the end of the discussion, students were given the opportunity to ask questions to ensure the completeness of the material they had prepared (Kubiatko, 2011).

During the presentation and question-and-answer stage, each group presented the material they had discussed, while the other groups responded either by adding additional information or by asking questions, which were then answered by the presenting group.

The presenting groups used PowerPoint media that they had created and explained in front of the class. Naturally, this activity required the use of a laptop as the medium and a projector to display the presentation to the whole class.

After completing the presentations and engaging in lively discussions, students were given a test on the material that had been studied. The results of this assessment are presented in the following table.

Table 3. Learning Outcomes Cycle 2

Score	Number of Students	Persentage
≥75	36 Student	100%
≤75	0 Student	0%

Source: Appendix

In the second cycle, there was a significant improvement. The learning process had a positive impact on both the students' learning outcomes and their learning motivation, with all 36 students achieving scores above the minimum mastery criterion of 75.

Table 4. Learning Result Cycle 2

Sycle	Schore
Highest	86
Lowest	77
Average	80.61

Source: Appendix

In Table 2, it can be seen that there was an improvement in students' understanding and responses to the material provided. This is reflected in the highest score of 86, the lowest score of 77, and an average score of 80.61, which is above the minimum mastery criterion of 75.

Furthermore, after implementing learning through Project-Based Learning (PjBL), students were able to provide reflections on the material that had been taught. The following presents a comparison between Cycle 1 and Cycle 2.

Cycle	Cycle 1	Cycle 2
Highest Score	80	86
Lowest Score	70	77
Average Score	74.08	86.61

Source: Appendix

In the comparison of score improvements, it can be seen that the highest score in Cycle 1 was 80, while in Cycle 2 it increased to 86, indicating an improvement of 7.5%. The lowest score also increased from 70 in Cycle 1 to 77 in Cycle 2, showing a 10% improvement. Furthermore, the average score rose from 74.08 to 86.61, reflecting a 16% improvement in student performance (Stolk, 2006).

CONCLUSION

The implementation of the Project-Based Learning model in the History subject on the Development of Science and Technology in the Era of Globalization for class XII IPS 3 showed a significant improvement. This increase serves as an indicator that the use of learning models and supportive media, along with adequate facilities, can enhance students' learning outcomes.

In addition to improving learning outcomes, the group discussions, presentations, and Q&A sessions also

fostered better learning motivation and literacy, with students actively engaged in the learning activities.

Ultimately, the use of this learning model can serve as a strength for students in understanding the material provided, particularly in History subjects, which are often perceived as monotonous and less engaging.

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