



The Implementation of the Cooperative Learning Method Assisted by PowerPoint Media to Improve Student Achievement in Class XI on Computer Network Material

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A B S T R A C T

Most students still struggle to understand the learning material when it is delivered solely through verbal explanations without the aid of instructional media. However, the rapid advancement of technology provides valuable opportunities for educators to utilize engaging and interactive media to enhance students' interest and comprehension. This study aims to examine the effectiveness of using interactive PowerPoint media to improve the understanding of Grade XI students in learning computer network concepts. The research employed a Classroom Action Research (CAR) method, with data collected through observation, questionnaires, and testing. The subjects of this study were 14 Grade XI students and one Information and Communication Technology (ICT) teacher. The findings indicate that the implementation of interactive PowerPoint within the cooperative learning model significantly improved students' understanding. Prior to using this media, the average student score was 47.8. After implementing the interactive PowerPoint, the average score increased to 75.4, demonstrating a substantial improvement in students' comprehension of the computer network material.

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1. Introduction

Education is a process aimed at transforming individual behavior to help develop inherent talents and potentials. Through education, individuals gain knowledge, skills, and changes in attitude through teaching and training. With the rapid advancement of technology, the educational process is becoming more efficient, especially in providing information and learning resources related to Information and Communication Technology (ICT).

One key topic in ICT is computer networking, which serves as the foundation for connecting multiple computers to facilitate data exchange (Sari & Rahman, 2018). Unfortunately, the delivery of this material often relies heavily on traditional lecture methods, which tend to bore students, make them sleepy, and hinder their understanding.

In fact, with the proper use of instructional media, students can grasp abstract concepts in computer technology more easily. A computer network consists of hardware, software, and cabling infrastructure, including devices such as hubs, switches, and routers (Sujadi & Mutaqin, 2017). The types of networks include LAN, MAN, WAN, and the Internet, each with different ranges but the same purpose: enabling data transmission between computers (Astuti, 2018).

Based on preliminary observations in Grade XI, the average student score was only 51, with only four students meeting the Minimum Mastery Criteria (MMC) and nine students falling below the standard score of 70. This issue is linked to a lack of student motivation and the teacher's continued reliance on lecture-based methods, with little integration of modern instructional media.

To address this challenge, the researcher proposes the use of cooperative learning assisted by PowerPoint media. This method encourages group-based learning with the support of visually engaging and interactive presentations, which has been proven to improve students' understanding and help them meet academic standards (Rizal, Wardani, & Permana, 2021).

2. Research Methods

This study employed a Classroom Action Research (CAR) method, aimed at improving both the learning process and outcomes through systematic actions conducted directly in the classroom. The research was based on actual problems identified during the teaching and learning process. Its primary goal was to enhance students' learning motivation and comprehension through the implementation of a cooperative learning model assisted by interactive PowerPoint media (Sari & Rahman, 2018).

The subjects of this research were all 14 students of Grade XI. The study was conducted in two cycles, with each cycle consisting of one meeting. The number of cycles was not predetermined and could be extended based on whether the success indicators had been achieved. The procedure followed the four essential steps of Classroom Action Research, which include: (1) Planning, (2) Action, (3) Observation, and (4) Reflection/Evaluation (Putra & Setiawan, 2019).

Data collection instruments used in this study included observation and testing. Observation was carried out to monitor students' learning activities during the implementation of the cooperative learning model, while the tests were designed to assess the students' mastery of the Information and Computer Technology subject. The data analysis aimed to determine the extent to which students had mastered the subject after the intervention. The success of this research was determined by achieving an average class score of at least 70, based on the Minimum Mastery Criteria (Jacub et al., 2020).

3. Results and Discussion

Based on the research conducted on 14 eleventh-grade students in the Information and Computer Technology subject, the results showed that only 4 students (28.6%) achieved scores above the Minimum Mastery Criteria (KKM) of 70, while the remaining 10 students (71.4%) scored below the standard, with an average score of 55 (Amin, Muslim, & Wirasti, 2020). This low performance is attributed to the teacher's reliance on traditional lecture methods, where students are only required to listen and take notes. The impact of using this lecture-based approach can be observed in the graph presented below.

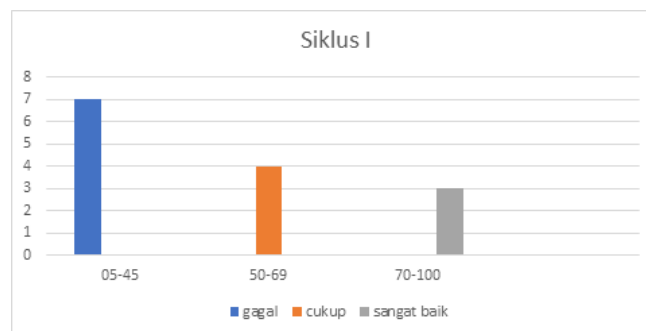


Figure 1. Results of cycle I

This study was conducted over two meetings, each lasting 90 minutes (2 × 90 minutes). In the first cycle, the learning material focused on Information and Computer Technology, delivered

through a lecture-based method. However, the results of Cycle I revealed that most Grade XI students did not achieve the Minimum Mastery Criteria (KKM). The students appeared unmotivated, sleepy, and bored due to the monotonous lecture method, which only involved listening and note-taking without engaging or interactive learning tools (Haryati et al., 2022).

To address these issues, the second cycle implemented the cooperative learning model assisted by interactive PowerPoint media to enhance students' motivation and understanding. The actions taken included encouraging students, using engaging media, and promoting active participation during lessons. The implementation of this model proved highly effective, as students demonstrated increased enthusiasm and a better grasp of the learning material. It also helped eliminate boredom by incorporating visual and interactive elements into the learning process.

This study focused specifically on improving students' comprehension in Grade XI through the use of interactive PowerPoint. The core research questions addressed were: What are the difficulties students face in learning, and how can these be overcome to increase student engagement and motivation?.

The research followed the four stages of Classroom Action Research: (1) Planning, (2) Action, (3) Observation, and (4) Evaluation (Sri Astutik, Subiki, & Bektiarso, 2021). The evaluation results of Cycle I indicated that most students did not meet the KKM, primarily due to the lack of engaging teaching methods. Only a few students with higher learning independence were able to solve problems and score above the standard (Darmi, Kusmiarti, & Yuaniati, 2020).

In Cycle II, the teaching process was carried out through the following steps: (1) Reviewing previously covered material, (2) Applying the interactive PowerPoint-based cooperative learning model, and (3) Conducting evaluations similar to those in Cycle I. Based on the results from Cycle II, a significant improvement was observed, with 13 out of 14 students successfully achieving or exceeding the KKM. These improvements are illustrated in the graph below.

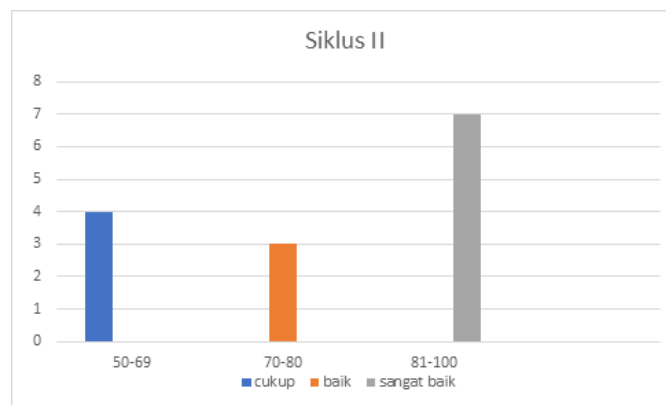


Figure 2. Results of cycle I

The success achieved in Cycle II met the predetermined indicators of success. Therefore, the study did not proceed to Cycle III, as the results obtained in Cycle II already demonstrated significant improvement. The application of the cooperative learning model assisted by interactive PowerPoint proved to be highly effective in increasing student interest and engagement during classroom learning (Sri Astutik, Subiki, & Bektiarso, 2021).

From the data collected, it can be concluded that the implementation of cooperative learning supported by PowerPoint significantly enhanced the academic performance of Grade XI students. This approach fostered a more dynamic, interactive, and engaging learning environment, which greatly contributed to improving students' learning motivation and achievement (Putra & Setiawan, 2019).

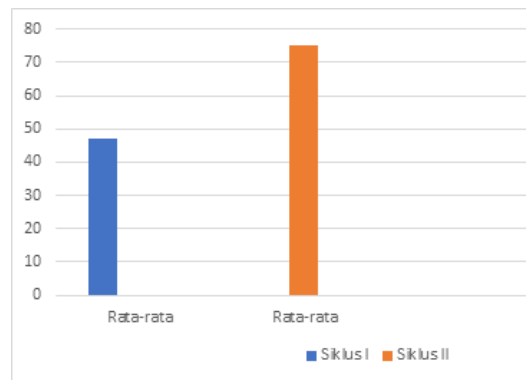


Figure 3. Average of cycles I and II

4. Conclusion

The implementation of the cooperative learning method supported by PowerPoint has proven effective in enhancing the interest and academic performance of Grade XI students. This is evident from the improvement in student scores between Cycle I and Cycle II, where many students initially failed to meet the minimum passing criteria in Cycle I, but showed significant progress in Cycle II. The steps involved in this method include systematic planning, observation, and evaluation. Based on the research findings, it is recommended that teachers apply this learning strategy consistently to foster a more engaging and interactive learning environment. Furthermore, students are expected to participate more actively, both individually and in groups, to ensure a more meaningful and effective learning process.

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