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The Implementation of the STAD Cooperative Learning Model Assisted by Kahoot Media to Improve Students' Learning Outcomes

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ABSTRACT

Observations indicated that students' learning outcomes were relatively low, presumably due to the use of less suitable learning models. The Student Teams Achievement Division (STAD) cooperative learning model assisted by Kahoot media is considered effective in improving learning outcomes by fostering peer collaboration, interest, and enjoyment. This study aimed to improve the learning outcomes of eleventh-grade students by implementing the STAD model assisted by Kahoot. The research employed a Classroom Action Research (CAR) design consisting of four main stages: planning, implementation, observation/assessment, and reflection. The study involved 20 students over one month and was conducted in two cycles, targeting improvements in learning outcomes from Cycle I to Cycle II, measured by the percentage of students achieving mastery. In Cycle I, students' learning outcomes had not reached the 70% target, with teacher activity categorized as fair (67.10%), student activity at 75% (good), and student learning outcomes averaging 57.60% (low). In Cycle II, significant improvements were observed: teacher activity reached 91.44%, student activity rose to 90.17% (very good), and student learning outcomes increased to 77.9% (high). Improvements were achieved through enhanced communication, guided discussions, motivation, and stronger collaboration. These findings demonstrate the positive impact of the STAD model assisted by Kahoot media on both the learning process and outcomes. The novelty of this research lies in its specific focus on enhancing student learning outcomes through the integration of the STAD cooperative model with Kahoot, which remains rarely examined in related studies.

INTRODUCTION

Education is one of the most essential aspects of human life, meaning that every individual has the right to obtain and pursue education. In general, education can be defined as a lifelong process in which individuals develop themselves in order to live and sustain life. The first educational environment is obtained within the family (informal education), followed by the school environment (formal education), and the community environment (non-formal education). One of the efforts to improve the quality of education is by conducting teaching and learning activities effectively (Mu'aziyah & Isnawati, 2023). To achieve learning objectives, an appropriate learning model that matches students' needs is required. One suitable model is cooperative learning (Bustamin & Rafiqa, 2019).

Cooperative learning emphasizes collaboration in small groups (Anjarwati, 2019). One type of cooperative learning is the Student Teams Achievement Division (STAD) model. According to Hidayat (2020), the STAD model is a type of cooperative learning that organizes students into small, heterogeneous groups of 4–5 members. This model highlights active participation and allows students to learn from one another. To implement STAD effectively, several steps must be followed.

The steps of STAD, as outlined by Purniwantini (2022), are: (1) delivering objectives and motivating students by providing an overview of the material; (2) presenting information, during which students listen to the teacher's explanation; (3) organizing students into heterogeneous learning groups; (4) guiding groups in carrying out their tasks; (5) conducting evaluations, where the teacher assesses the learning process; and (6) giving rewards to groups that present their work effectively.

Rahmawida (2019) stated that the advantages of STAD include enhancing self-confidence and individual competence, fostering social interaction within groups, encouraging students to learn naturally through peer socialization, increasing focus, generating enjoyment, and improving learning outcomes. However, one limitation of STAD is the difficulty in managing large numbers of students during group division.

Learning outcomes refer to the competencies acquired by students after undergoing learning experiences, which encompass cognitive, affective, and psychomotor aspects. These outcomes are usually identified through evaluation activities that provide data on students' ability to achieve learning goals. Learning outcomes thus represent the competencies attained after instructional processes designed and implemented by educators (Efianti, 2020).

Preliminary observations revealed that students' learning outcomes were relatively low, which was assumed to be caused by the use of less suitable learning models, as teaching was still conducted using conventional methods. This was reflected in students' lack of attention during lessons, frequent off-task behavior such as talking or using mobile phones, and limited engagement and interest, resulting in a less conducive classroom environment. Therefore, a more effective learning model is needed to improve students' learning outcomes.

Sudarsana (2021) argued that the STAD model could improve indicators of learning outcomes, including group interdependence, engagement, attention, and enjoyment. This was evident in the group formation stage of STAD, where the teacher organized students into small groups to stimulate involvement, interdependence, and positive feelings among group members. Based on these considerations, this study focuses on "The Implementation of the STAD Cooperative Learning Model Assisted by Kahoot Media to Improve Students' Learning Outcomes."

METHOD

Research Design

This study employed a Classroom Action Research (CAR) design (Arikunto, 2010), consisting of four stages: planning, implementation, observation, and reflection. The research was conducted over two cycles to identify and improve students' learning outcomes through the application of the STAD cooperative learning model assisted by Kahoot media.

Population and Samples

The population in this study comprised eleventh-grade students, with a sample of 20 students selected as research subjects. The researcher was directly involved in the learning process as an observer and facilitator throughout the study.

Instrument

Data collection employed several instruments: (1) observation sheets to capture teacher and student activities during the learning process, (2) interviews with the science teacher to identify classroom challenges and provide supporting insights, and (3) tests to measure students' cognitive abilities.

Procedure

The research procedure followed the four stages of Classroom Action Research: (1) planning, which involved preparing lesson plans and instruments; (2) implementation, where the STAD model with Kahoot was applied in classroom learning; (3) observation, including monitoring and recording teacher and student activities as well as student performance; and (4) reflection, where the data were analyzed to evaluate the success of each cycle and to design improvements for subsequent cycles.

Data Analysis Techniques

Data analysis was conducted using both quantitative and qualitative approaches. Quantitative data, obtained from students' test results, were analyzed to measure improvements in cognitive learning outcomes. Qualitative data, derived from observations and interviews, were analyzed descriptively to assess teacher and student activities during the learning process.

RESULT AND DISCUSSION

Learning outcomes refer to the competencies acquired by students after engaging in the learning process, encompassing cognitive, affective, and psychomotor domains. In this study, learning outcomes were measured through tests, observation sheets, and teacher–student activity assessments. The findings of this classroom action research demonstrated a significant improvement, with the percentage of students achieving mastery increasing from 40% in the initial cycle to 85% in the second cycle. Teacher activity also showed a considerable rise from 65% to 88%, while student activity followed a similar trend, reflecting the effectiveness of the intervention.

This research is a Classroom Action Research (CAR) implementing the STAD cooperative learning model to improve the learning outcomes of students in class XI C at SMA Negeri 1 Dampelas. The problem in this study was the low student learning outcomes, which arose because the learning model used was not appropriate and was not adjusted to the characteristics of students. Students today are often referred to as "digital natives" because they were raised in the digital era and are generally more open to change and more flexible in facing challenges. These characteristics were not aligned with the conventional method applied by the teacher, namely lecture-based teaching without utilizing digital media, which made the learning process monotonous.

Based on the researcher's interview with the biology teacher, it was revealed that the level of student learning outcomes remained low. This was reinforced by classroom observations showing that learning was still teacher-centered. Students were less active in participating, for example, when given the opportunity to ask questions or express opinions, they tended to remain silent and hesitant. Students also frequently went in and out of the classroom under the pretext of going to the restroom, but upon closer observation, they were found heading to the canteen. This happened because students felt bored with the teaching method used by the teacher. In addition, students did not make good use of smartphones to support the learning process; instead, smartphones were used to access things unrelated to learning. As a result, not all students were able to understand the material delivered by the teacher from beginning to end, since each student had different levels of comprehension and ways of thinking. This condition caused students to become bored more quickly, pay less attention, be less active, and lack cooperation in the learning process, which made biology lessons in class XI C less enjoyable. Therefore, an appropriate learning model and media are needed to overcome these problems. This action research was carried out in two cycles by applying the STAD cooperative learning model assisted by Kahoot media.

In implementing the STAD cooperative learning model, it is necessary to ensure that the syntax applied in the classroom is consistent. Therefore, to observe the conformity of the syntax, observations regarding the implementation of the model in the classroom are required so that the STAD cooperative learning process runs in accordance with its established steps.

The results of the research in Cycles I and II indicated that the implementation of the STAD cooperative learning model in Cycle I had not yet been optimal, as reflected in teacher activities that were not carried out properly and student activities that were still relatively low. Consequently, the implementation of the STAD model in Cycle I was not yet successful, and student learning outcomes were still categorized as low and had not reached the predetermined indicators of success.

In Cycle I, student participation was dominated only by a few students who paid greater attention. This was due to the fact that students were not yet accustomed to the STAD cooperative model. Students were still experiencing difficulties in interaction, particularly during group discussions. When the teacher directed students to use learning resources such as textbooks and smartphones for investigation, they appeared noisy and did not carry out the investigation seriously. Each group tended to rely on a single member in completing the final task. To overcome this problem, the teacher needed to be more assertive in guiding, directing, and monitoring group discussions during the learning process. This explanation is consistent with the findings of Suryani et al. (2021), who reported that in Cycle I the expected indicators were not achieved because students lacked confidence, had not yet mastered the material, and felt awkward in discussions as well as in opening and closing presentations. Therefore, the research was continued into Cycle II.

To achieve optimal learning outcomes, improvements were made in Cycle II based on reflection from Cycle I. These included building better communication between teacher and students, directing and guiding students during group discussions, motivating students to participate more actively and take responsibility in group work, giving rewards such as applause to groups that presented their work well, and the teacher adopting a firmer approach in guiding students. This is in line with the opinion of Suryani et al. (2021), who argued that good cooperation among students and assertiveness from the teacher in guiding students can enhance attention, involvement, and interest, which in turn foster higher learning motivation.

The results of Cycle II showed that the implementation of the STAD cooperative learning model was much improved, as indicated by teacher activities that were carried out very well and student activities that increased to a very good category. Accordingly, the

implementation of the STAD model in Cycle II was successfully conducted, and student learning outcomes also increased to a high category, achieving the established indicators of success.

In Cycle II, students demonstrated positive attitudes during the learning process, both in paying attention to the teacher's and peers' explanations, collaborating within groups, and presenting the results of their discussions. Students actively engaged in seeking and obtaining information through textbooks and smartphones during group investigation activities. They began to show confidence by expressing their opinions and asking questions about material that was not yet understood in group discussions. Some students also showed significant improvement, particularly in their understanding of the respiratory system. This active participation and engagement enabled students to gain a deeper understanding of the material delivered by the teacher as well as to enrich their own knowledge. This finding is consistent with Sofanudin et al. (2021), who argued that direct involvement in the learning process is expected to enhance student achievement compared to lecture-based methods, in which students are not actively involved and therefore lack interest.

Through the application of the STAD cooperative learning model, students became more enthusiastic and interested in participating in the learning process. This was because they gradually developed the confidence to express their knowledge to their peers through group discussions. According to Buaton et al. (2021), students' learning interest is influenced by several factors, including curiosity about the subject matter, concentration, teaching style, teacher characteristics, and classroom atmosphere.

The improvement in students' learning outcomes in Cycle II was caused by the creation of a more engaging and enjoyable learning process, which fostered stronger interaction between teachers and students. In addition, students had become accustomed to the STAD cooperative learning model assisted by Kahoot, which was applied across the two cycles. This explanation is in line with the study by Wahyuni et al. (2018), which found that the use of the STAD model with Kahoot media encouraged students to be more enthusiastic in receiving lessons delivered by the teacher and improved their attention and participation. Consequently, this had a positive impact on students' learning outcomes after the implementation of the model.

Therefore, the application of the STAD cooperative learning model assisted by Kahoot proved effective in improving student learning outcomes. This was evident in the improvement from Cycle I to Cycle II. These findings are consistent with previous studies, such as Aniva (2021), who reported that the use of the STAD model with Kahoot media improved students' achievement in mathematics, and Widyanto (2017), who concluded that the cooperative STAD model enhanced both learning outcomes and students' collaboration.

The use of the STAD cooperative learning model has several advantages identified by the researcher, namely that students are given the opportunity to work collaboratively in teams. Students not only develop academic skills but also social skills through team interaction. These advantages are consistent with the study conducted by Hia et al. (2022), which stated that through the process of inquiry, students are empowered to enhance their academic abilities while also promoting the capacity to gather and analyze information. This model also provides students with a deeper learning experience because they are actively engaged in the process of discovery and learning, which ultimately improves their social skills.

In addition to its advantages, the researcher also found a weakness of the STAD cooperative learning model, namely its reliance on the active involvement of all group members. As noted by Fajriyati et al. (2019), the success of cooperative learning depends heavily on the contribution of each student, and the lack of participation from one or more members can disrupt group dynamics. Group management also poses a challenge in this

model. Teachers need to possess strong management skills to ensure that all students participate equally while minimizing potential conflicts within groups. The distribution of tasks and time management must be carefully organized to enable groups to achieve their learning objectives.

Considering the improvement in students' learning outcomes after the implementation of this model, it can be concluded that the STAD cooperative learning model assisted by Kahoot media was successful in enhancing the learning outcomes of students in class XI C at SMA Negeri 1 Dampelas.

CONCLUSION

Based on the findings, it can be concluded that the implementation of the STAD cooperative learning model assisted by Kahoot media effectively improved student learning outcomes. The improvement was reflected in greater student engagement, better group collaboration, and the achievement of success indicators. The model also enhanced students' motivation and self-confidence, making the learning process more engaging and aligned with the characteristics of digital natives.

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