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Improving students' breaststroke swimming knowledge: Implementation of STAD cooperative learning model based on audiovisual media

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ABSTRACT

Problems: Swimming is included in physical education subject matter in schools where swimming is not only a physical activity but also requires comprehensive knowledge of basic techniques, safety regulations, and related principles. **Purpose:** This study aims to determine the effectiveness of the STAD cooperative learning model based on audiovisual media in improving the breaststroke swimming knowledge of class VIII students at MTs Wali Songo. **Methods:** The study used the Kemmis and Taggart classroom action research model with four implementation stages (planning, action or action, observation, and reflection) with a research sample of 28 class VIII students. The data collection instrument used a test (4 forms of questions), and the analysis technique used quantitative data analyzed descriptively and using a percentage formula. **Result:** The study's results showed an increase in the percentage of success indicators from the pre-test of 20.43% to 64.29% in cycle one and a rise of 78.57% in cycle two, which exceeded the success indicator of 75%. **Conclusion:** It can be concluded that in learning breaststroke swimming material for class VIII through the STAD cooperative learning model based on audiovisual media with a span of two cycles, with each cycle having two meetings, the implementation of learning successfully improved students' knowledge.

Keywords: Knowledge, Breaststroke, STAD Cooperative, Audiovisual.

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Introduction

The quality of education greatly determines the success of a country in facing global competition. Law No. 20 of 2003 on the National Education System defines education as a planned and conscious effort aimed at producing Indonesian people who are faithful and pious, have noble character, are healthy, knowledgeable, capable, creative, independent, have spiritual religious strength, self-control, good personality, intelligence, noble character, and the necessary skills (*Undang-Undang Republik Indonesia Nomor 20 Tahun 2003 Tentang Sistem Pendidikan Nasional*, 2003). The levels of education in Indonesia include primary, secondary, and higher education. One of the primary and secondary education processes includes physical education, sports and health (PJOK) subjects. Physical education not only trains children's physicality, but also forms a complete person with good physical, mental, emotional, and social qualities which are important to prepare children to face various challenges in the future and become useful individuals (Mustafa & Dwiyogo, 2020). Physical education not only emphasizes knowledge but also emphasizes skills and attitudes in physical activities to achieve learning objectives set in teaching and learning activities.

In Indonesia, swimming is one of the physical education subjects in elementary and secondary schools. Swimming is not only a physical activity, but also requires comprehensive knowledge of basic techniques, safety regulations, and principles related to this sport (Jurnal et al., 2023). Physical education teachers play an important role in providing this knowledge to students. The role of teachers is encouraged to be proactive and professional in educating students by developing positive attitudes (Mashud et al., 2024). With a good understanding of swimming, students can develop effective and safe swimming skills. However, in fact, based on student learning outcomes in the basic competency of knowledge (3.8) carried out by researchers in the process of learning swimming material. The learning outcomes show that out of 28 grade VIII students, only 6 students have completed and 22 students have not completed based on the KKM set with a score/value of 70, which shows a percentage of only 21.43% who have completed and those who have not completed with a

percentage of 78.57%. This makes teachers or researchers state that the learning process is not yet optimal and has not been successful because more than 50% of students have not completed the knowledge test conducted.

The cause that occurred based on the analysis and observation of teachers/researchers, that the school (MTs Wali Songo) is a school within the Islamic boarding school foundation environment that has a different learning process from schools in general. Students undergo two learning processes, namely general learning (morning-afternoon) and diniyah learning (evening-night). Diniyah learning is a non-formal learning process that studies the Qur'an and good morals for students in an Islamic boarding school (Wahid et al., 2021). Students cannot access learning resources other than the books provided in each subject because technology is not allowed to be used by students in the Islamic boarding school environment. The existing facts related to the study (Kusaini, 2021) identified the problems of students in class VIII of secondary education, one of which was the education and lessons that occurred. It can be seen that the study implemented formal and non-formal learning in everyday life at the Islamic boarding school. This creates a problem that makes the results of students' knowledge of swimming material still low and also the level of student focus is divided into two between formal and non-formal learning. Therefore, improvements to the learning process need to be made to overcome problems that occur in the learning process in the classroom.

The gap between expectations and facts that occur requires a change in the learning approach that can improve students' cognitive abilities effectively. Conventional learning models that focus on theoretical explanations without actively involving students have proven to be less than optimal (Yusup & Yosepa, 2022). Therefore, it is necessary to find more innovative and effective learning solutions. One approach that is considered potential to overcome this problem is to use the STAD (Student Team Achievement Division) cooperative learning model based on audiovisual media.

The STAD (Student Team Achievement Division) cooperative learning model is a learning model that emphasizes cooperation and active participation of students in groups (Azizah & Aliyyah, 2024). This is because the cooperative learning model is a learning process in which students work in groups to work together for common learning goals (Amicetya et al., 2023). In this STAD cooperative type model, students work in teams to achieve common learning goals, which can increase interaction and collaboration among students. In its application, this model has several main steps: forming heterogeneous groups, giving assignments or learning materials, group discussions, presentations of group work results, and evaluations (Nurdyansyah & Fahyuni, 2016: 69). The main advantage of the STAD model is its ability to facilitate collaborative learning, where each group member helps each other to achieve common goals (Wulandari, 2022). Research studies consistently show positive results when implementing the STAD model. Studies have shown significant improvements in student activity levels, teacher engagement, and learning outcomes (Jamhari & Bialangi, 2023; Rosanti et al., 2023; Tsabita et al., 2023). Furthermore, a systematic literature review has highlighted the overall positive impact of the STAD model on student learning outcomes in a subject in schools (Zen & Ariani, 2023).

The use of audiovisual media in breaststroke swimming learning offers a very relevant solution in this context. Audiovisual media can present information visually and auditorily, which can make it easier for students to understand the concepts and techniques taught (Rezeki, 2024). Research shows that utilizing audiovisual media in educational practices can increase student engagement, motivation, and skills (Qofifa, 2023; Rovithis et al., 2019; Sulfemi & Kamalia, 2020). The findings of a study from showed that audiovisual learning tools increase students' understanding, engagement, interest and practical application of physical education content, leading to increased knowledge acquisition and motivation for learning efficiency (Liang et al., 2019; Pratiwi et al., 2022). Therefore, it can be seen that when implemented in breaststroke swimming material, audiovisual media in the form of video tutorials that display basic techniques such as body position, arm movements, leg movements, and breathing coordination can provide a clearer and more concrete picture for students. This visualization is important because it can reduce ambiguity and clarify details that are difficult to explain with words alone.

This study aims to determine the effectiveness of the STAD cooperative learning model based on audiovisual media in improving breaststroke swimming knowledge of grade VIII students at MTs Wali Songo. By using this approach, it is expected that students can more easily understand breaststroke swimming techniques through interesting visualizations and work together in groups to help and motivate each other in the learning process. This approach is also expected to increase students' active involvement in learning, so as to improve their motivation and overall learning outcomes.

Method

This study uses the Kemmis and Mc Taggart Classroom Action Research Model. This model is used because it is simple and easy to understand the flow of the learning process that will be carried out and in this model the action and observation stages are made into one stage (Pahleviannur et al., 2022: 28). Because,

observations must be made during the action process to obtain data/information that can be used as consideration (Mashud, 2022). In the Kemmis and Mc Taggart model, one cycle consists of four steps, namely planning, action, observation, and reflection (Purwanto, 2023: 14). The research population was all active VIII grade students studying at MTs Wali Songo Banjarbaru. Meanwhile, the research sample was 28 VIII grade students of MTs Wali Songo Banjarbaru with a sampling technique using total sampling. The research time was May 2024 in the 2023/2024 academic year with the research location being carried out at MTs Wali Songo Banjarbaru located at Jl. Guntung Manggis Village Islamic Boarding School, Banjarbaru City, South Kalimantan Province. The data collection instrument used a knowledge test in the form of questions with four types of forms. The knowledge instrument grid was adopted from research (Ardi, 2020) which has been validated by expert lecturer Mr. Danang Pujo Broto, M.Or. The following is the grid of the breaststroke swimming knowledge assessment instrument presented in table 1.

Table 1. Instrument Grid

Variable	Indicator	Question Item
Level of Knowledge of Breaststroke Swimming Class VIII MTs Wali Songo Banjarbaru	1. General knowledge about breaststroke swimming 2. Gliding movement (body position) breaststroke swimming 3. Hand movements in breaststroke swimming 4. Leg movements in breaststroke swimming 5. Breathing in breaststroke swimming	20 questions consisting of multiple choice, essay, true/false, and matching

The classroom action research procedure is carried out by starting with initial observations of learning as initial research data listed in the introduction in this article. Furthermore, preparing learning plans and assessment instruments for each meeting in the cycle. After the plan is deemed appropriate, a learning action is carried out in the classroom for 3 JP x 40 minutes, with a method that has been determined as a solution to solving existing problems. Then, observing the increase in student knowledge results with the measuring instrument that has been made. The results of the observation in the form of a knowledge test and the condition of students during the implementation of the learning action are evaluated as notes as material for improvement in the next cycle. After there are notes on the cycle that has been carried out, then compile a reflection as material for continuing the follow-up to the next cycle. Meanwhile, for data in the form of student knowledge test results, it is adjusted to the minimum completeness criteria (KKM) that have been set and for class completeness, it refers to the success indicators described in table 2 below.

Table 2. KKM Criteria and Success Indicators

Learning Success	Mark	Success Indicators	Percentage
Completed	70 - 100	Succeed	75 %
Not Completed	0 - 69	Not successful	0 – 74.99 %

Data analysis in this classroom action research uses descriptive quantitative techniques. Descriptive quantitative research is a type of research that aims to describe the characteristics of a particular phenomenon or population systematically and accurately using numerical data (Sugiyono, 2022). Data in the form of numbers from the results of data collection for each student in each cycle uses a percentage formula and is described as an argument for explaining the data obtained.

Result

After collecting data using the student knowledge assessment instrument with breaststroke swimming material for class VIII students at MTs Wali Songo Banjarbaru using the STAD (student team achievement division) cooperative learning model application method based on audiovisual media and the data has been analyzed to get the following results.

a. Cycle One

In the first cycle, the researcher conducted two meetings. In the first and second meetings, the researcher implemented the learning design and conducted a knowledge test at the end of the learning before it was finished. The results of the knowledge of grade VIII students related to breaststroke swimming material for the first and second meetings in cycle 1 are described in the following table 2:

Table 2. Recapitulation Results of Students' Breaststroke Swimming Knowledge in Cycle 1

Learning Completion	Cycle 1 Number of Students and Percentage				Success Indicators
	The first meeting	%	Second meeting	%	
Completed	13	46,43 %	18	64,29 %	75%
Not finished	15	53,57 %	10	35,71 %	
Amount	28	100%	28	100%	

The data from the recapitulation of student knowledge in table 2 is then conventionalized into a diagram as follows in figure 1.

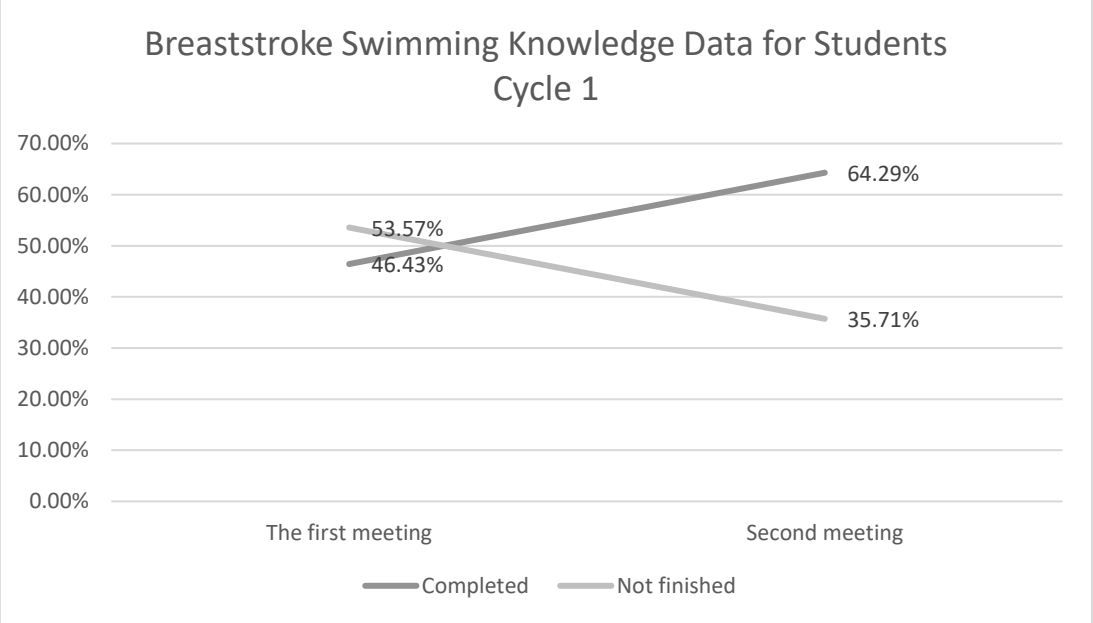

Figure 1. Data diagram of cycle 1 student knowledge results

Based on the data of students' knowledge results in cycle one, which was carried out in 2 meetings and each meeting at the end of learning a knowledge test was carried out for each student related to breaststroke swimming material to find out how many students achieved learning completion at the meeting which was carried out with KKM 70 and learning completion of class success indicators of 75%. From the table and diagram it can be seen that in cycle one as a whole, learning completion has not been achieved according to the predetermined class success indicators, which is proven by the fact that in the first meeting there were 13 students who achieved learning completion "Complete" which if in percentage reached 46.43%, but there were 15 students who had not achieved learning completion "Not Complete" which was in percentage reached 53.57%. Meanwhile, in the second meeting of cycle one, the results showed an increase in students who achieved the learning completion "Complete" namely 18 students or if expressed as a percentage reaching 64.29% and there were 10 students who had not achieved the learning completion "Not Complete" or if expressed as a percentage reaching 35.71%.

In cycle one, there were several findings during the learning process using the STAD cooperative learning model method based on audiovisual media, namely at the first meeting in cycle one, it was found that; 1) students' interest in learning increased compared to when the initial test was carried out because students were interested in the teacher providing an LCD projector in PJOK learning which was rarely done, 2) students' learning focus began to form, 3) there were several students who lowered their heads with their eyes closed or sleepy on the grounds of staying up late last night, and 4) during the discussion process in groups in the "group discussion" syntax phase, there were several students who did not follow instructions. The four findings in the first meeting of cycle one became an evaluation for improving the classroom action research learning process in the second meeting of cycle one. The findings from the second meeting of cycle one were; 1) students' enthusiasm increased when at the first meeting at the end of the learning process they found out that there were rewards or prizes given to students with the best results, 2) students' learning focus improved with the fact that during the material delivery phase from the teacher

almost all students listened carefully to all the material delivered and during group discussions, and 3) there were still students who were sleepy and almost fell asleep in class during the learning process and when delivering the results of group discussions, there were several students who were still constrained in understanding the movement process of each technique in breaststroke swimming which meant that during the knowledge test there were still many students who had not reached the minimum completeness criteria standard that had been determined.

Based on the existing findings, it can be concluded that the standard indicators of success that have been determined in the classroom action research that was carried out have not yet been achieved and that classroom action is needed to continue to cycle two to provide interventions according to the method determined by the researcher.

b. Cycle Two

In the second cycle, the researcher conducted two meetings. In the first and second meetings, the researcher implemented the learning design and conducted a knowledge test at the end of the learning before it was finished. The results of the knowledge of grade VIII students related to breaststroke swimming material for the first and second meetings in cycle 2 are described in table 3 below:

Table 3. Results of Recapitulation of Breaststroke Swimming Knowledge Cycle 2

Learning Completion	Cycle 1 Number of Students and Percentage				Success Indicators
	The first meeting	%	Second meeting	%	
Completed	20	71,43	22	78,57	
Not finished	8	28,57	6	21,43	75%
Amount	28	100%	28	100%	

The data from the recapitulation of student knowledge in table 3 is then conventionalized into a diagram as follows in figure 2.

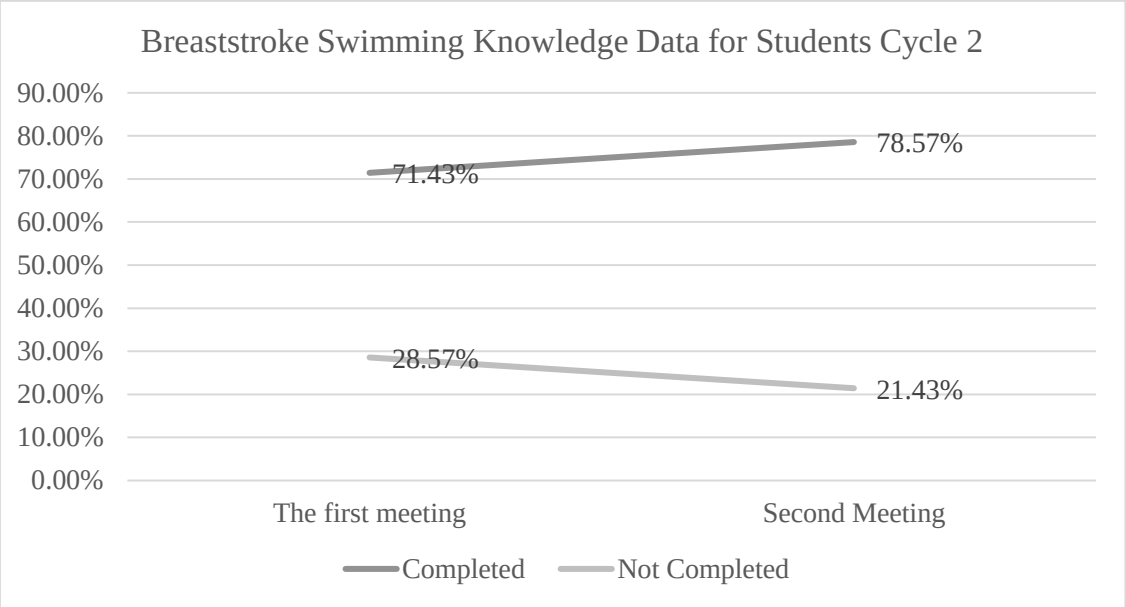

Figure 2. Data Diagram of Student Knowledge Results Cycle 2

Based on the data of students' knowledge results in cycle one, which was carried out in 2 meetings and each meeting at the end of learning a knowledge test was carried out for each student related to breaststroke swimming material to find out how many students achieved learning completion at the meeting which was carried out with KKM 70 and class learning completion 75%. From the table and diagram it can be seen that in cycle two as a whole it has reached the standard of class success indicators that have been determined by the researcher, which is proven by the fact that in the first meeting there were 20 students who achieved learning completion "Complete" which if in percentage reached 71.43%, but there were 8 students who had not achieved learning completion "Not Complete" which was presented at 28.57%,

meaning that in the first meeting of cycle two almost reached the standard of success indicator of learning completion in class. Meanwhile, in the second meeting of cycle two, the results showed an increase in students who achieved the "Complete" learning achievement from the first meeting, namely 22 students or if expressed as a percentage, reaching 78.57% and there were 16 students who had not achieved the "Not Complete" learning achievement or if expressed as a percentage, reaching 21.43% which made the results of students who had completed have achieved or exceeded the standard indicator of learning success in class 75% of all students "28 students".

In cycle two, although the learning completion "Complete" has exceeded the standard percentage of success indicators, it still found that; 1) there were several students whose test results at the previous meeting had reached the KKM but at the next meeting changed and did not reach the KKM, but there were also several students who at the previous meeting did not reach the KKM at the next meeting reached or the results exceeded the set KKM, 2) there were students who were late in attending and also took tests outside of class hours due to absence which made the increase in students who completed in cycle two not too significant.

Based on the results of the student knowledge test in cycle two which had reached and exceeded the expected success indicators. Therefore, the researcher concluded that learning had succeeded in achieving the learning completion determined by the teacher and the classroom action research had been successful and there was no need to carry out a third cycle.

The comparison of the student knowledge test results between the pre-test results listed in the introduction with the first and second meetings of cycle one and the first and second meetings of cycle two was clearly different and experienced an increase in learning completion without any decrease. Therefore, it can be interpreted that learning using the STAD type cooperative learning model based on audiovisual media has succeeded in improving students' knowledge in breaststroke swimming material in class VIII at MTs Wali Songo Banjarbaru. Comparison of data between pre-test and cycle can be seen in Figure 3 described in the diagram below.

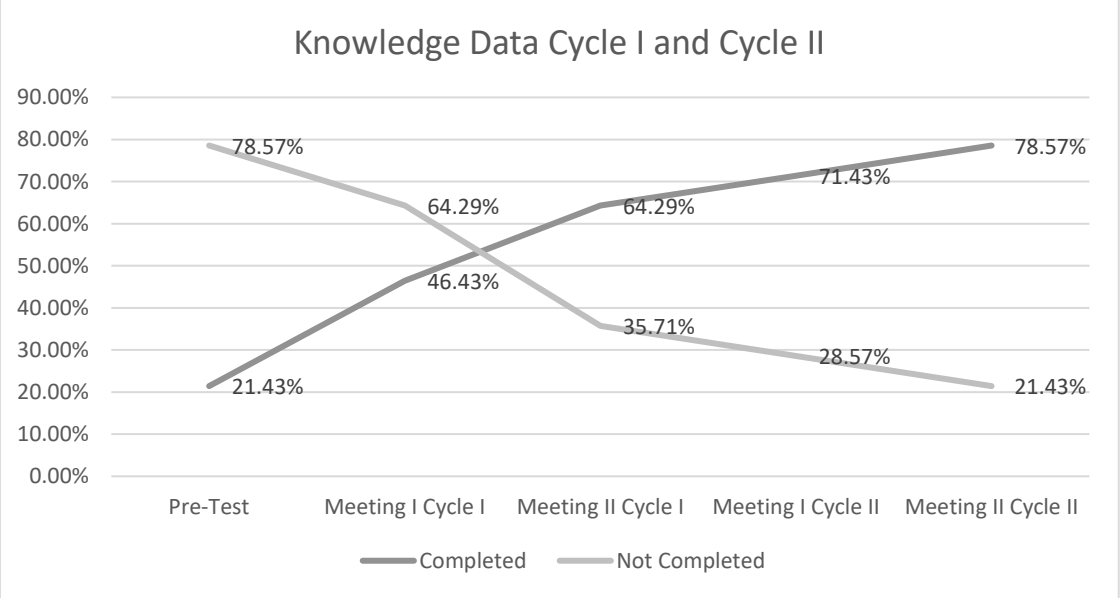

Figure 3. Students' Knowledge Assessment Results in Cycle I and Cycle II

Discussion

Based on the research results that have been described by the researcher, a conclusion was obtained that in learning PJOK for class VIII breaststroke swimming material through the STAD cooperative learning model method based on audiovisual media with a span of two cycles where each cycle has two meetings, the implementation of learning was successful in increasing students' knowledge in breaststroke swimming material at MTs Wali Songo Banjarbaru with a total of 28 class VIII students.

The results of the study showed an increase in student learning completeness in the knowledge aspect from the pre-test with classroom action cycle one reaching 25% in the first meeting and increasing by 17.86% in the first meeting. While in cycle two, there was an increase in student learning completeness based on the test results with a percentage increase of 7.14% and in the second meeting there was another increase of 7.14%.

Therefore, in the last meeting or in cycle two in the classroom action research, student learning completeness in the knowledge aspect had exceeded the minimum limit of the class scale success indicator, which reached 78.57%, where the success indicator set was 75%.

There are several fundamental findings from classroom action research using the STAD Cooperative learning model based on audiovisual media in terms of improving students' breaststroke swimming knowledge. The application of audiovisual media in learning found findings during the study, including; 1) increasing students' enthusiasm in participating in learning because the learning material is presented in a power point displayed via an LCD projector, and 2) making it easier for students to listen and understand the material provided by the teacher during the learning process, especially understanding the process of various movement techniques in breaststroke swimming. These findings are in line with the results of relevant Nughroho & Khory (2020) which uses audio-visual media and drill exercises to improve breaststroke swimming learning outcomes, which found that there was an influence which was evidenced by an increase of 12.8% in cognitive aspects and 18.3% in psychomotor aspects in breaststroke swimming learning outcomes. The results of this study are similar to the results of research conducted by researchers that audio-visual media can be a medium that can improve students' knowledge where the media acts as a delivery of information that is easy for students to understand. This is reinforced by research findings Liang et al. (2019) dan Pratiwi et al. (2022), which show that audiovisual learning tools increase students' understanding, engagement, interest and practical application of physical education content, leading to increased knowledge acquisition and motivation and learning efficiency.

The findings observed by researchers during the two-cycle action research using the STAD (Student Themes Achievement Divisions) cooperative learning model were the most significant, including; 1) the formation of social interaction between students and teamwork during the learning process because at each meeting in the implementation of learning, the members of each group always change, which makes students interact with several friends, not just the same members, 2) students motivate each other so that when listening to learning materials displayed through the LDR projector, they must be more focused on understanding, and 3) in the syntax phase of learning, students are enthusiastic about giving awards because they know they will get a prize for the best group and the best individual which is seen from the results of the highest score in the knowledge test carried out, which makes each subsequent meeting students more serious in following the learning process using the STAD cooperative learning model. These findings are in line with the advantages of the STAD type cooperative learning model according to (Wulandari, 2022), which facilitates collaborative learning, where each group member helps each other to achieve common goals. In addition, based on research Zen & Ariani (2023) related to a systematic literature review, it shows that it has highlighted the positive impact of the STAD model on student learning outcomes in a subject at school. The research results are further strengthened in line with research Carbonero Sánchez et al. (2022) which shows effective results in learning using cooperative models in terms of improving aspects of knowledge, skills, and attitudes in physical education according to the material being studied. From several relevant studies, there are differences with the research conducted, namely this study uses audio-visual media in addition to using the STAD cooperative learning model in implementing learning in physical education, sports and health subjects in schools, especially class VIII. Another difference in the results is the finding of increased student enthusiasm when using audiovisual media in the form of learning materials displayed via an LCD projector screen, where almost all students do not use technology because apart from being students, they are also students in the Islamic Boarding School environment.

There were several findings of problems and obstacles in the implementation of learning in the research conducted during the two cycles, the most frequent of which were that there were several students who were sleepy and inconsistent results of the knowledge tests carried out by students. The sleepiness was because the students were also students of the Islamic boarding school where the MTs school was a school under the auspices of the Islamic boarding school, making almost all students students of the Islamic boarding school. Schools in the Islamic boarding school environment not only carry out formal learning but also non-formal (Arifin & Fudholi, 2022). Students undergo two learning processes, namely general learning (morning-afternoon) and diniyah learning (evening-night). Diniyah learning is a non-formal learning process that studies the Qur'an and akhlaqul karimah for students in an Islamic boarding school (Wahid et al., 2021). Therefore, students often rest late at night to sleep, making sleepiness during the learning process in the morning a natural thing in schools in the Islamic boarding school foundation environment.

Based on the description related to the discussion of the results of the study, the implementation of learning using the STAD type cooperative learning model based on audio-visual media in breaststroke swimming material in class VIII MTs at the Wali Songo Banjarbaru Islamic Boarding School Foundation is effective in increasing student knowledge with various findings in the form of percentage results of increases and supported by findings of student activities during the learning process. Therefore, the researcher provides an implication that the selection of a learning model is an important thing in a learning plan that will be

implemented and the media is the right means for a tool to convey or direct information. The selection of a method must also be adjusted to the characteristics of students and problems based on the results of observations that have been carried out before determining the right method to improve an aspect of learning. In the learning process, it refers to three domains that must always be considered, namely cognitive or knowledge, psychomotor or skills, and affective or attitudes.

The learning implications in the results of classroom action research are as a proven reference using the STAD cooperative model method based on audio-visual media successfully increasing the knowledge of class VIII students at MTs Yayasan Pondok Pesantren Wali Songo, where the results of this study provide information and scientific studies that have proven effectiveness in a problem in learning. However, of course, the implementation of this research learning has not been proven in other classes in the same school environment. This makes a recommendation for teachers and further researchers, when they want to apply the learning method according to this study, careful consideration is needed by conducting observations first regarding the problems in learning whether they are the same as this classroom action research and reviewing the conditions of the school where the research is conducted whether the facilities support the use of audiovisual media in particular.

Conclusion

Based on the description of the research results and the existing discussion, a conclusion can be drawn that the application of the STAD (Student Themes Achievement Divisions) cooperative learning model based on audio-visual media has been proven to be able to improve students' knowledge of breaststroke swimming material for class VIII at MTs Yayasan Pondok Pesantren Wali Songo Banjarbaru. Classroom action research was conducted for two cycles, where each cycle was carried out twice for implementing learning using the specified method. The conclusion is based on the results of the study showing an increase in the percentage of success indicators from the pre-test of only 20.43% to 64.29% in cycle one and increasing again to 78.57% in cycle two, which exceeds the specified success indicator of 75%.

The researcher provides a suggestion for physical education teachers in schools, when learning problems and student conditions have similarities with this study. Research using the STAD type cooperative learning model method based on audio-visual media can be a reference in learning activities to improve student knowledge. Knowledge is one of the important aspects in education besides skills and attitudes, where through knowledge students will have an initial foundation to implement into a skill or attitude to gain experience.

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