



The Implementation of Student Teams' Achievement Divisions Applying Multimedia to Improve Learning Outcomes for Fifth Grade Students at Elementary School

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Abstract: The study aims to determine the improvement of social science learning outcomes about national events during the colonial period. This study used participatory action research methods conducted in three cycles. The stages were planning, implementing, observing, evaluating, and reflecting. The subjects were teachers and 23 fifth-grade students at an elementary school in the Kebumen district. The data collection methods were observation, interviews, and tests. Data analysis techniques used quantitative and descriptive qualitative analysis. The results indicate that implementing Student Teams Achievement Divisions (STAD) applying multimedia improves student social science learning outcomes since it obtains 73.91% in the first cycle, 80.43% in the second cycle, and 86.96% in the third cycle. The students are active in group discussions and question and answer. It concludes that implementing Student Teams Achievement Divisions by applying multimedia improves social science learning outcomes about national events during the colonial period for fifth-grade students. This study is a diversification of learning strategies, so it can be an alternative solution to develop the quality of learning in elementary schools.

Keywords: STAD, multimedia, social science learning outcomes

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Introduction

Social science at the elementary is taught in an integrated manner, including sociology, history, geography, and economics (Aslamiah et al., 2021). According to Tirtoni (2018), social sciences are subjects taught in schools centered on phenomena, problems, and social reality using an interdisciplinary approach such as citizenship, history, geography, economics, sociology, and educational anthropology. Social science is a subject that integrates concepts from various social sciences and humanities so that students have a holistic understanding and train their attitudes, values, morals, and skills based on the concepts that they already have (Mutiani & Syahrudin, 2020). Social science is not just instilling rote knowledge in students. Still, it focuses on helping students to understand what they have learned, participate in daily life in the community, and prepare students for further education. However, many teachers believe that teaching social science is more difficult since it explores social life. Social science is understandable and applicable (Fauzi, 2017; Puspitasari, 2018). Many teachers tend to provide social science conceptually that cannot be applied so that students get low learning outcomes.

In learning social sciences in elementary school, students often face various problems that hinder their learning process. One of the main problems is the lack of interest and motivation in social studies material, which is often considered boring and irrelevant to daily life (Hawise et al., 2019; Marsini, 2023). Many students have difficulty understanding the abstract concepts presented in social studies,

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such as maps, history, and social structures, especially if the teaching methods used are not varied or too theoretical (Adeliawati et al., 2020; Farika et al., 2020). The limitations of interesting and interactive learning media are also an obstacle because text-based dominant learning can make students feel bored quickly (Heny et al., 2023). Another contributing factor is the difference in academic ability among students; Some students may need more support and guidance than others, but not all teachers are able to provide enough individualized attention in a class with a large number of students (Putri & Rachmadyanti, 2024). Finally, a less conducive learning environment, such as a lack of supporting facilities and an unpleasant classroom atmosphere, can also reduce the effectiveness of social studies learning. Based on observations and interviews with fifth-grade teachers of Tamanwinangun Kebumen 1 Elementary School conducted on December 6, 2022, the teachers delivered the lesson by lecturing and giving assignments. Teachers rarely used media and had limited teaching methods, so students were passive in learning. The students had difficulty in delivering their opinions, asking questions, and interacting with friends during group discussions. The student's learning outcomes were under the passing grades. Another problem was that the students needed teacher guidance to deliver their opinions and answer questions. Consequently, the student's learning outcomes were disappointing. The researcher is interested in determining student learning outcomes at the school.

Learning outcomes and learning processes determine successful learning (Kurniawan et al., 2017). Several alternative solutions can be implemented effectively to improve learning. First, the use of various interactive learning models (Pingge et al., 2023; Setyawan et al., 2023). Second, the integration of technology in learning, such as the use of multimedia, educational applications, and online learning resources, can make the material more interesting and relevant (Djuwari, 2024; Safitri & Sari, 2023). Third, the development of creative and contextual learning media, such as videos, educational games, and simulations, can help students understand abstract concepts better (Ariesta, 2019; Kristanti & Sujana, 2022). The learning model is the most effective solution for improving the quality of learning because it is able to increase student engagement, motivation, and learning outcomes while meeting diverse learning needs and creating many meaningful learning experiences (Maghfiroh, 2022). The use of innovative learning models often involves technology and media that are relevant to students' lives (Albina et al., 2022). Not only does this make the subject matter more engaging, but it is also easier to understand and apply in real-world contexts.

The solution offered to overcome these problems is to use innovative learning models to improve learning outcomes (Bali et al., 2021; Haryana et al., 2022; Susanti et al., 2019). A learning model that increases student motivation is needed so that the student's ability to deliver opinions and learning outcomes increases. The Student Teams Achievement Division (STAD) is a type of cooperative learning model. According to (Slavin, 2015), the STAD is a very simple cooperative learning model and the best method for teachers dealing with the cooperative model. It consists of several steps, namely: (1) class presentation, (2) team, (3) quizzes, (4) individual progress scores, and (5) team recognition (Rønningsbakk et al., 2019).

The STAD motivates students to support each other and helps group members master the taught abilities and work together in learning the material and achieving maximum achievement (Chairuddin & Farman, 2022; Farizawati et al., 2022; Rianti et al., 2021). If students want their team to get awards, then students must teach their group members and learn the material for themselves ((Alman, 2017; Zahro et al., 2018). In line with (Ghufron et al., 2023; Rumahlatu et al., 2020), the STAD trains students to develop social aspects and cognitive skills at the learning stage in teams. In addition, the role of teachers as facilitators, mediators, motivators and evaluators has become- more active and focused (Schiefele, 2017). As a facilitator, a teacher creates a fun and comfortable learning atmosphere in the classroom, assists and encourages students to explore their interests individually and in groups, provides learning resources and tools that students need, guides students to be useful resources for the group, and explains the purpose of group activities and organizes participation in giving opinions. As a mediator, the teacher acts as a liaison between learning material and daily problems faced by students. As a motivator, the teacher guides and directs the discussion. As an evaluator, teachers provide assessments of the learning process (Isjoni, 2014).

In addition to innovative learning models, another factor supporting successful learning is learning media (Heo & Toomey, 2020; Purwanita et al., 2019). The use of learning media helps teachers convey information easily, increasing student understanding in learning (Manurung & Panggabean, 2020; Rubini et al., 2018). Media is anything conveying messages from sender to receiver (Price et al.,

2017; Ran et al., 2016). The STAD is effective if it is combined with the appropriate media, such as the use of multimedia. According to (Hasan et al., 2021; Mayer, 2017), multimedia is the presentation of information using words and images.

The STAD (Student Team Achievement Division) is better applied in the learning process since it is effective in improving learning outcomes (Yanda & Ramadhanti, 2021). According to Made Suardiana (2021) and Sumilat & Matutu (2021), STAD is more effective for improving student learning outcomes. This cooperative learning causes students to be more enthusiastic and responsible in learning and helps students absorb learning material better (Syafiq & Rahmawati, 2017). The findings that previous researchers have carried out have both focused on the application of the learning model. However, they are more focused on learning outcomes. In addition, previous research has focused on the implementation of STAD steps. This research focuses not only on the application of STAD and learning outcomes but also integrates multimedia into STAD steps.

The learning model will be more effective if students get the opportunity to contribute directly and develop creativity in expressing ideas, such as the use of multimedia. In the learning process, the material presented in multimedia gives students the opportunity to process information. Multimedia provides an interactive way for students to understand information in various aspects, such as text, images, video, audio, and animation (Abdulrahman et al., 2020; Komalasari & Rahmat, 2019). The use of multimedia in the form of text, video, audio, animation, and interactivity in learning is highly preferred by students as learning media ((Ge, 2021; Kustyarini et al., 2020; Munir, 2013). The implementation of the Student Teams Achievement Divisions (STAD), which apply multimedia, it is expected to improve social science learning outcomes about national events during the colonial period for elementary school students. The previous studies do not discuss the presentation of material in multimedia integrated with the STAD. This study provides several differences and updates from the previous studies. Based on the background described above, the study aims to examine the social science learning outcomes about national events of the colonial period through the Student Teams Achievement Divisions (STAD) applying multimedia to fifth-grade students of Tamanwinangun 1 Elementary School in the academic year of 2022/2023.

Methods

The study was a participatory action research conducted in three cycles (Arikunto, 2016; Echeverría et al., 2011; Rytivaara, 2012). Each cycle was based on Kemmis and Mc Taggart's model, consisting of planning, implementing, observing, evaluating, and reflecting (Nazari, 2022; Purwanti et al., 2018; Widyaningsih et al., 2019). Participatory action research provided opportunities for many parties to participate in solving learning problems.

The study was conducted at an elementary school in the Kebumen District at Tamanwinangun Kebumen 1 Elementary School. The subjects were teachers and 23 fifth-grade students which consist of 12 boys and 11 girls. Researchers chose this school for several reasons: the principal is committed to improving the quality of learning, teachers are open to receiving suggestions and input from several parties, and the school has the potential for a learning community.

The data collection techniques were observation, interviews, and tests. Observation was used to obtain data about teacher and student activities in implementing STAD, which consists of (1) class presentations with multimedia, (2) forming small groups, (3) learning in teams with multimedia, (4) giving quizzes with multimedia, (5) individual progress scores with multimedia, and (6) team awards. Interviews were used to obtain data about obstacles and solutions in the implementation of STAD. Tests are used to obtain data about student learning outcomes after participating in STAD learning. The research instrument has gone through an expert validation process by lecturers and practitioner validation by school principals and teachers.

The data analysis techniques were quantitative and qualitative. Quantitative data analyzed social science learning outcomes. Qualitative data analysis used an analysis model from Miles and Huberman, including three steps, namely data reduction, data presentation, and conclusion drawing (Donkin et al., 2011; Hariyani et al., 2022; Mezmir, 2020; Sugiyono, 2021). The performance indicators were the implementation of the Student Teams Achievement Divisions (STAD) applying multimedia in learning

through observation and interviews by 85% and the improvement of social science learning outcomes about national events during the colonial period, and the passing grades were 75 or above 85%.

Results and Discussion

The 2013 curriculum requires students to be active in the learning process. However, only a few students are active. Some students do not pay attention to the lessons in the learning process. When working in groups, only some students participate in doing assignments. Students only rely on their intelligent friends.

STAD is considered one of the basic approaches to introduce learners to cooperative learning. This method is regarded as an effective and efficient way to teach well-defined educational subjects. The STAD focuses on activities and interactions between students to motivate and help in master lessons to obtain maximum achievement (Sutinah, S., & Degeng, 2016). The average scores of the group meet certain criteria. According to Chairuddin & Farman (2022), Farizawati et al. (2022), and Rianti et al. (2021), the STAD emphasizes cooperation in groups and provides opportunities for students to share experiences and opinions and motivate each other.

The learning process will be more interesting if there is cooperation between students. The students with low skills obtain knowledge and information from students with higher skills so that the learning process is more practical, and students do not feel bored. While (Asoodeh et al., 2012; Ebrahim, 2012) states that cooperative learning positively impacts students' academics, achievement development, and social skills.

The steps of the Student Teams Achievement Divisions (STAD) applying multimedia to improve social science learning outcomes about national events during the colonial period to fifth-grade students of Tamanwinangun 1 Elementary School in the academic year of 2022/2023 are: (1) conducting presentations applying multimedia, (2) forming small groups, (3) studying in teams applying multimedia, (4) giving quizzes applying multimedia, (5) counting individual progress scores applying multimedia, and (6) providing team awards. The steps are based on the theory proposed by (Slavin, 2015). The observations of the Student Teams Achievement Divisions (STAD) applying multimedia on teachers and students from cycles I, II, and III are as follow.

Table 1. The Comparison of Observations on Teachers and Students

Step	Cycle I		Cycle II		Cycle III	
	Teacher	Student	Teacher	Student	Teacher	Student
	(%)	(%)	(%)	(%)	(%)	(%)
Conducting presentations applying multimedia	77.09	72.92	85.42	83.33	91.67	87.50
Forming small groups	81.25	77.09	85.42	85.42	95.83	91.67
studying in teams applying multimedia	82.50	80.84	87.50	86.67	93.33	91.67
Quizzing applying multimedia	82.29	81.25	88.54	87.50	91.67	93.75
Counting the progress of individual scores by applying multimedia	80.00	79.17	85.83	84.17	93.33	90.00
Providing Team awards	85.42	85.42	89.59	89.59	91.67	91.67
Average	81.42	79.45	87.05	86.11	92.92	91.04

Table 1 shows that the percentages increase from cycle I to cycle III. In the first cycle, the class presentation applies multimedia, teachers do not use multimedia optimally in presenting material, and students do not ask questions about learning material. In the second cycle, teachers presented the material by applying multimedia. They explained the material by displaying videos about events during the national period of colonialism, but the students did not actively ask questions about the learning material. In the third cycle III, some students begin to actively ask questions and answers about learning material that they do not understand and enthusiastically pay attention to the teacher's explanation.

In the step of forming small groups, in Cycle I, teachers have formed heterogeneous groups, but students still want to choose their groups. In cycle II, the teacher divided students into groups fairly, but the students were still crowded, which made the class uncomfortable. In Cycle III, students pay attention to the rules and stay calm when forming groups, and the teacher has directed students to divide the roles of each group equally.

At the step of learning in teams applying multimedia, in cycle I, teachers do not guide students in doing live worksheets on laptops, so students find difficulty. In cycle II, the teacher is better at guiding students in working on live worksheets so that students understand. In cycle III, students do live worksheets on laptops easily, and teachers only supervise students doing discussions about the live worksheets.

At the step of giving quizzes applying multimedia, Cycle I, the teachers do not explain the quizzes to the students in live worksheets, so students have difficulty. In cycle II, the teacher has explained how to do the quiz so that students begin to understand how to do the quiz in live worksheets. In Cycle III, students begin to get used to quizzes and live worksheets so that they are disciplined and on time. Then, the teacher discusses the quiz with students.

In conducting the progress of individual scores by applying multimedia, Cycle I, the teacher does not calculate the student's initial score, so the students find problems in calculating the progress score. In cycle II, the teacher calculates the students' initial scores, but some students still have difficulty calculating their progress scores. In cycle III, the teacher calculated the students' initial scores, and the students calculated their progress scores. On the team awards, Cycle I, the teacher does not deliver the group score, and only a few groups get awards, so students are disappointed with the results. In cycles II and III, teachers submitted group scores, and each group received awards.

Based on the observations, the steps for implementing the STAD applying multimedia were as follow.

1. Conducting Class Presentation Applying Multimedia

The teacher presents social science materials, namely the arrival of Western nations, events of the Dutch and British colonial periods, and early events of the national movement, using PowerPoint presentations containing text, images, and videos through LCD Projectors. Then, the teacher conducts questions and answers about learning materials. These activities are in accordance with opinions by Puspitarini & Hanif (2019), which state that in the class presentation, the teacher delivers the material so that students can answer the quiz submitted by the teacher.

2. Forming Small Groups

The teacher divides students into heterogeneous groups based on academic achievement. Each group consists of 4-5 students. According to (Rusman, 2015; Webb, 2009), forming small groups can help students interact and communicate cooperatively with each other.

3. Studying in Teams Applying Multimedia

The laptop is a multimedia device used to access live worksheets. The teacher prepares laptops for each group connected to the school internet, and the teacher supervises the discussion. The teacher provides group discussion assignments to watch videos and then do live worksheets. The students in their groups help each other who have not mastered the learning material. Studying in a group is one of the learning activities in mastering the material given by the teacher and helping group mates to master the material by providing activity sheets to evaluate their abilities (Li, M. P. & Lam, 2013).

4. Giving Quizzes Applying Multimedia

Teachers give multiple-choice quizzes to students using live worksheets accessed via laptop / mobile phone. The quiz scores are as individual development scores and contributed to group scores. In line with the opinion (Wyk, 2011), students do quizzes independently to show what they have learned while studying in groups. The quiz scores are used as individual development scores and included in group scores. (5) Individual progress scores applying multimedia.

Teachers and students calculate individual progress scores from quiz scores displayed through LCD Projectors. The final scores are added to team scores compared to the beginning score. Individual progress scores are obtained from teacher quiz scores to add individual scores and provide maximum points to their teams (Ariani & Agustini, 2018; Mudhofir, 2019; Wahyudi & Hidayat, 2021). (6) Team awards. Teachers give awards, for instance, snacks, if the group's average score exceeds certain criteria. (Chairuddin & Farman, 2022; Farizawati et al., 2022; Rianti et al., 2021). Furthermore, teams with

average scores reaching certain criteria will receive certificates or other awards. The following is a comparison of social science learning outcomes from cycles I, II, and III in Table 2.

Table 2. Comparison of Social Studies Learning Outcomes Cycle I, II, and III

Value	Cycle I		Cycle II		Cycle III
	Meeting 1	Meeting 2	Meeting 1	Meeting 2	Meeting 1
95-100	1	1	1	1	4
85-94	-	3	7	10	9
75-84	15	14	10	8	7
65-74	2	3	4	3	2
55-64	5	2	1	1	1
45-54	-	-	-	-	-
<45	-	-	-	-	-
Percentage Complete	69.57%	78.26%	78.26%	82.61%	86.96%

Table 2 indicates that the passing grades of social science learning outcomes increase from cycle I to cycle III. The percentages of student passing grades are 73.91% in Cycle I, 80.43% in Cycle II, and 86.96% in Cycle III. The percentages from Cycle I to Cycle II increase by 6.51%, and from Cycle II to Cycle III increase by 6.53%. Thus, the implementation of STAD applying multimedia improves social science learning outcomes about national events during the colonial period since the percentages meet the criteria.

Through multimedia-assisted STAD, the learning is more interesting. The students actively participate and provide graphics, images, video, sound, and animation. The advantage of multimedia-assisted STAD is that it helps the teachers by providing extensive learning materials so that social science learning outcomes related to national events during the colonial period improve.

The findings show that the implementation of STAD applying multimedia meets the design prepared previously. Learning models are effective in the teaching process (Fu et al., 2012; Khan & Masood, 2015). This learning model makes students work together in small groups consisting of various levels of achievement, gender, and ethnic backgrounds to help each other in studying (Afinda et al., 2019; Liebech-Lien, 2021; Putra & Putra, 2021). This allows students to help each other, discuss, and debate with each other to hone their current knowledge and close the gap in their understanding (Haryono, 2020; Ruengtam, 2013; Stone et al., 2013).

In addition, the use of learning media during the teaching process is also very helpful in improving the learning atmosphere (Alfiah et al., 2018; Komalasari & Rahmat, 2019). One of the developments in the world of education is the invention of various and interesting learning media. Thus, the learning atmosphere is more conducive and proper (Amali et al., 2020; Indrianto & Kurniawati, 2020). The main function of learning media is to provide effective learning (Boyd, 2019; Ismara et al., 2021). This will affect the quality of learning outcomes if the use of media is appropriate. The appropriate media used in this study is multimedia. Multimedia will make students understand an abstract concept easily by displaying learning videos and pictures about the materials (Rohmah & Yuyarti, 2018; Suniati et al., 2013). Khoiri et al. (2013) stated that the implementation of multimedia makes learning more interesting, and students can easily understand the messages.

Other research findings also state that the multimedia-assisted STAD determines social science learning outcomes for fourth-grade students of 59 Kota Elementary School (Maharani et al., 2022). Other research findings also state that the STAD creates a pleasant learning atmosphere to improve student learning outcomes (Alfiani & Sopiyan, 2014; Laksono, 2016; Widowati, 2011). This is in line with the opinion by Elpisah & Bin-Tahir (2019), which reveals that student learning becomes better after applying the STAD since students are highly motivated and active in the learning process. The teachers use STAD in teaching other social science and other materials to improve student learning outcomes. The study implies that teachers apply the STAD multimedia to improve student learning outcomes.

This study made a significant contribution and strengthened previous research. By combining STAD and multimedia, the study shows greater improvements in student motivation, engagement, and learning outcomes, as well as the development of technological skills, making it a more comprehensive

and relevant solution to modern educational needs. The STAD model with multimedia encourages better interaction and collaboration among students. Multimedia allows students to work together on projects and group assignments, which strengthens their team dynamics and social skills.

Conclusion

To conclude, STAD's implementation of multimedia improves social science learning outcomes about national events during the colonial period for fifth-grade students of Tamanwinangun 1 Elementary School in the academic year of 2022/2023. The percentages of student learning outcomes are 73.91% in the first cycle, 80.43% in the second cycle, and 86.96% in the third cycle. Further, researchers are expected to identify other findings and theoretical studies about STAD from international journals for a higher level of research. The results of this study show that the application of the cooperative mode STAD type with multimedia can improve social studies learning outcomes of national events during the colonial period. Through the application of this model, the learning process becomes more interesting and improves student learning outcomes, as well as encourages students to interact and communicate through group activities. Therefore, this study can be used as a reference to teachers in an effort to improve their ability and the quality of learning in teacher professional development.

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