The Effect of Collaborative Learning Assisted by Audiovisual Media on Learning Motivation and Student Learning Outcomes

Karunia Tiara Vani*, Saida Ulfa, and Dedi Kuswandi

Abstract—After the pandemic, teachers attempted various learning media and learning methods to facilitate learning in the Social Studies subject so that students were motivated and had good learning outcomes. This research aimed to determine the effectiveness of learning outcomes using collaborative learning implemented with audiovisual media in Social Studies to find differences in learning motivation. The method used in this research is a quasi-quantitative experiment. The research was conducted on 40 junior high school students in the Social Studies subject. Both classes will participate in learning with the help of audiovisual media. Then the control class will continue the material conventionally, while the experimental class will continue learning with collaborative learning. After the experiment was carried out, namely collaborative learning, both classes took part in the post-test based on the material that had been taught. Based on the T-test results, the two groups significantly differed in learning outcomes (Sig <0.05). The experimental class has better learning outcomes than the control class. Then the learning motivation questionnaire concluded that the two groups had significant differences in learning motivation (Sig <0.05). From the questionnaire result, it can be concluded that the experimental class has an average learning motivation that is higher when compared to the control class.

Index Terms—Audiovisual media, collaborative learning, quantitative-quasi-experimental, t-test

I. INTRODUCTION

For decades, learning with audio-visual media has become an attraction at various levels of education, including during the pandemic and the transition after the pandemic. When learners use technology, learners have the opportunity to get a more precise illustration of the learning material [1]. Audio-visual media has a function to communicate information more efficiently because it can transmit information in the form of images clearly, like in the real world [2]. For example, in History subjects, students often have difficulty in understanding materials, so it is helped by the existence of audio-visual media to provide an overview of events following the learning context. One of the materials on the History of Indonesia is the Efforts to Defend the Independence of the Republic of Indonesia. This material is essential for students to understand because it relates to

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Indonesia's struggle for independence. Therefore, usingaudio-visual media can provide a clear picture so that students can construct the proper understanding because audio-visual media provides space for students to participate in class. After all, students more easily understand the learning context [3].

The use of audio-visual media is also considered more effective in transferring knowledge because the availability of devices is currently adequate [4]. In addition, audio-visual media is considered to increase student motivation and interest in learning [5]. Currently, access to audio-visual media is more accessible due to the emergence of various platforms that provide movies or short videos, such as Netflix, Disney Hotstar, and others. Therefore, teachers as learning facilitators can choose teaching materials which is suitable for the learning context. Using audio-visual media in the classroom can improve students' skills in managing information when combined with analysis after learning audio-visual media [6, 7].

Learning with audio-visual media also has disadvantages, such as students tend to be passive because they only play a role as spectators [8]. In addition, the proportion of time that is quite long is not proportional to the learning outcomes because the available audio-visual media is only able to accommodate some essential aspects of learning [9]. This condition makes using audio-visual media unable to support the interest in learning. In other words, audio-visual media cannot describe objective reality or measure knowledge optimally [10].

The long duration of audio-visual media makes it difficult for students to ask questions or discuss learning topics. This results in difficulties in being actively involved in understanding the learning content [10]. Based on Edgar Dale's learning pyramid regarding understanding states that students will be better able to understand learning if learning accommodates students to apply theory [11]. The limited scope of the use of audio-visual media also often makes the use of audio-visual media cannot be an adequate learning resource. Hence, students' understanding becomes less comprehensive [12].

Therefore, to maximize the use of audio-visual media in learning, collaborative learning can complement the shortcomings of using audio-visual media [13]. This combination can improve student learning outcomes. After all, students can share knowledge and skills [14]. Furthermore, through collaborative learning, students can also identify errors in their understanding through group discussions [15].

In addition, in collaborative learning, students'

engagement and motivation in learning can increase [15]. This is because students can be responsible for understanding their group mates, which ultimately impacts the learning process. In collaborative learning, students can also explore a more deeply related topic so that it can improve their understanding of the learning material. When discussing, students can ask the teacher if they have difficulties. This can impact students' understanding of learning so that students can have better engagement in learning.

Furthermore, collaborating between students can affect students' connection and cooperation skills [15]. This is because students can be responsible for understanding their group mates, which ultimately impacts the learning process. In collaborative learning, students can also explore a more deeply related topic so that it can improve their understanding of the learning material. When discussing, students can ask the teacher if they have difficulties. This can impact students' understanding of learning so that students can have better engagement in learning.

Based on the background described, this research will use collaborative learning assisted by audio-visual media to see the impact on learning outcomes and student motivation. During the learning activity, students will learn through audio-visual media, then students will be given questions to discuss with the group. In the discussion, students can add points that enrich their discussion results and are still related to the learning topic.

Therefore, to evaluate the impact of collaborative learning with audio-visual media, the problem formulation of this research is as follows:

1) Is there a significant difference in learning outcomes between students who learn with collaborative learning assisted by audio-visual media and students who learn with audio-visual media assistance without collaboration?

2) Is there a significant difference in motivation between students who learn with collaborative learning assisted by audio-visual media and students who learn with audio-visual media assistance without collaboration?

II. LITERATURE REVIEW

A. Collaborative Learning

Collaborative learning is a learning approach that involves students in groups to solve problems, complete assignments, or create work. [16]. Collaborative learning is carried out with the aim of building students' understanding cognitively, socially, and also in terms of motivation [17]. Some features that can be accommodated in collaborative learning are (1) the use of online tools to provide instructions to students, (2) interaction and communication between students and teachers, and (3) cooperation as an approach to solving problems [18].

Then in terms of benefits, collaborative learning provides several social, psychological, and academic benefits [19]. It is further explained that the social benefits include students building support among each other and working work together despite having different backgrounds. In other words, collaborative learning can provide a positive atmosphere in building cooperation and learning communities [19]. While from the psychological side, collaborative learning is considered to increase students' confidence and reduce worries [19]. This is because, in collaborative learning, students feel that they can share the burden when working on tasks, making it easier to understand the learning context. In addition, collaborative learning is also proven to encourage students to show a positive attitude toward friends and teachers [15].

In terms of academics, collaborative learning has been shown to improve critical thinking skills [19]. This happens because, in collaborative learning, students have the space to hold question-and-answer sessions to build understanding. This makes students' overall learning outcomes can improve, and students' problem-solving skills can develop better.

Some types of collaborative learning are group discussion, peer teaching, or collaborative project work [20]. Collaborative learning also has several models, such as the jigsaw model, think-pair-share model, peer teaching model, group investigating model, and other models. In this study, the model that will be used is a model consisting of (1) the engagement phase, (2) the exploration phase, (3) the transformation phase, (4) the presentation phase, and (5) the reflection phase [21].

In the engagement phase, the teacher's task is to (1) connect the material with relevant things, (2) encourage students to make hypotheses and predictions, (3) provide structured resources, (4) demonstrate new skills, (5) encourage students' questions and interest. Furthermore, in this phase showing videos or organizing short trips can be used as learning activities to be more interested in learning. [22].

Then in the exploration phase, students are responsible for contributing to learning. In this phase, the teacher's duties are (1) to provide time for students to be able to discuss, (2) to provide direction through open-ended questions, (3) to supervise the discussion without interrupting, (4) to reflect on students' understanding in groups [22].

Meanwhile, in the transformation phase, teachers need to ensure the challenges faced by students in groups. In addition, in this phase, it is necessary to ensure that the objectives and directions are clear. Equally important is that students need to understand that they are working with information, not just copying existing information, so that their level of thinking is used to make syntheses, generalizations, and hypotheses. In this phase, the teacher also each group's progress group [22].

In the presentation phase, several presentation models can be used. In this phase, the teacher needs to provide opportunities and encouragement for each group to convey the results of their discussion in front of the class. In this phase, each group also needs to develop skills in writing, designing and layout, editing, public speaking, and multimedia. In addition, in this session, students can conduct a question-and-answer session and evaluate their work [22].

The teacher can provide a reflection bar as a checklist or open-ended questions in the final reflection phase. In this phase, the teacher can look back at the learning process and encourage students to evaluate their progress or things that can be improved [22].

B. Audio-visual Media

Audio-visual learning media is a technology that shows

images and sounds for learning purposes [23]. Audio-visual media has several types, namely (1) computers, (2) visual media, (3) sound and media, (4) video, and (5) social media or audio-visual platforms [1]. Using audio-visual media in learning can stimulate students' hearing and vision to increase their understanding and memory of the material studied [6]. In addition, audio-visual media also expands the experience, incredibly if the experience is challenging to obtain in actual conditions [24].

Fig. 1. Collaborative learning phases.

Then the use of audio visuals in learning is considered to encourage student participation in learning and provide a stimulus so that students have an interest in learning [25]. The use of audio-visual media is also still relevant because various digital platforms are currently easy to use in learning. The use of digital platforms in learning shows an increase in students' skills, competencies, and literacy [26].

In this study, the audio-visual media used is a movie that will be taken from one of the digital platforms. Students will watch together but can still access the movie at home if they subscribe to the digital platform.

C. ARCS Motivation

ARCS motivation is a theory developed by John Keller as a model based on motivation theory that aims to stimulate student motivation to learn [27]. Furthermore, Keller explains four factors in learning motivation that can provide a stimulus to interest in learning, namely (1) attention, (2) relevance, (3) confidence, and (4) satisfaction [28]. Attention relates to activities that capture student interest and encourage curiosity to learn. While relevance is related to meeting student needs that impact positive behavior. Confidence means students' confidence in success in learning. The last thing is satisfaction related to the feelings that arise from achievement, both internally and externally [28].

ARCS motivation theory is considered relevant to be measured in learning with audio-visual media to evaluate the basis of students' understanding and interest in learning [29]. Furthermore, ARCS motivation theory is considered to measure variables related to learning, namely (1) learning interest, (2) learning methods, (3) student behavior, and (4) student satisfaction [30]. Therefore, in this study, in addition to measuring student learning outcomes, variables related to learning will also be measured and based on ARCS motivation theory.

III. METHODOLOGY

This research uses a quantitative-quasi-experimental method. In this study, both classes will follow an introduction to the material at the beginning with an explanation from the teacher, then a pretest will be conducted to measure the ability of all students. After that, the control and experimental classes will follow audio-visual media-assisted learning. Then the experimental class will continue with collaborative learning. Meanwhile, the control class will continue the material by listening to the teacher's explanation without collaborative learning. The learning phases in collaborative learning used to consist of (1) engagement, (2) exploration, (3) transformation, (4) presentation, and (5) reflection.

After that, at the end of the lesson, both classes will take a post-test and be given a questionnaire in the form of learning motivation based on ARCS motivation [28]. The motivation questionnaire uses Susanti's 36 statement items [32]. The subject of this study is one of the junior high schools in Malang City, Indonesia. The total population was 40 students. The experimental class consists of 20 students, while the control class is 20. The following is the flow of the research.
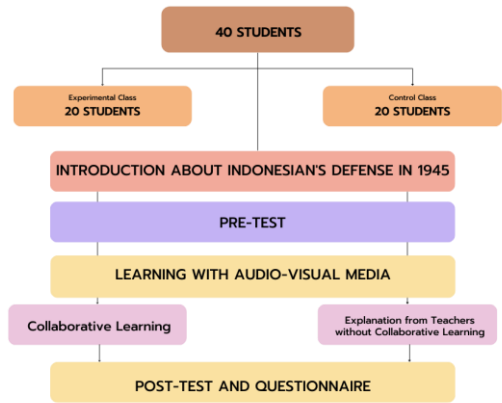

Fig. 2. Experiment procedure.

IV. RESULT

Before the experiment, the control and experimental classes were given a pretest to measure the initial ability of both classes. Based on the Kolmogorov Smirnov Normality Test of the pretest results (Table I), it was found that both groups were normally distributed (Sig>0.05). Also, the data came from a homogeneous population (Sig>0.05). Then, based on the T-test results, it was statistically found that the two groups did not significantly differ in the initial material taught (Sig>0.05).

TABLE I: T-TEST RESULT OF PRE TEST

Variable	Group	N	Mean	S.D	t	Sig.
Pretest	Control	20	90.35	7.58999	0.044	0.965
	Experiment	20	90.25	6.85853		

The mean for the control class is 90.35 with a standard deviation of 7.58999, while for the experimental class is 90.25 with a standard deviation of 6.85853. Therefore, the experiment can be continued to test the differences in learning outcomes and learning motivation if collaborative learning is applied in the experimental class.

After the experiment, namely collaborative learning, both

classes took a post-test based on the material taught in both the experimental and control classes. Based on the Kolmogorov-Smirnov Normality Test of the post-test results, it was found that both groups were normally distributed (Sig>0.05). Also, the data came from a homogeneous population (Sig>0.,05).

Then based on T-test results, the T-test found that the two groups had a statistically significant difference in learning outcomes (Sig<0.05). Therefore, there is a significant difference in learning outcomes between classes taught with collaborative learning and classes taught without collaborative learning, even though both classes use audio-visual media (see Table II).

TABLE II: T-TEST RESULT OF POST TEST

Variable	Group	N	Mean	S.D	t	Sig.
Post-test	Control	20	79.45	9.48947	−4.118	0.000
	Experiment	20	89.10	9.66219		

Then in the experiment to measure learning motivation, a learning motivation questionnaire was given to the experimental and control classes after attending the lesson. Based on the Kolmogorov-Smirnov Normality Test of learning motivation, it was found that both groups were normally distributed (Sig>0.05). Also, the data came from a homogeneous population (Sig>0.05). Based on the mean value, it was found that the experimental class had significantly better learning motivation than the control class (t=-5.217, Sig<0.05) (see Table III).

TABLE III: T-TEST RESULT OF LEARNING MOTIVATION

Variable	Group	N	Mean	S.D	t	Sig.
Learning	Control	20	3.5120	0.53072	−5.217	0.000
Motivation	Experiment	20	4.2745	0.38161		

Therefore, there is difference in learning motivation between classes taught with collaborative learning and classes taught without collaborative learning. However, both classes use audio-visual media in the learning process.

V. DISCUSSION

This research uses collaborative learning as a learning strategy that is implemented in the field of Social Studies, especially the material of Efforts to Defend the Independence of the Republic of Indonesia. Collaborative learning is used because it can allow students to participate and take responsibility in small group activities by analysing, providing ideas, and discussing [33]). In this experiment, collaborative learning was conducted in 5 stages, namely (1) engagement, (2) exploration, (3) transformation, (4) presentation, and (5) reflection.

In the engagement stage, students are given questions based on audio-visual media content. Then in the exploration stage, learners and groups conduct discussions and analysis to answer the questions. Then in the transformation stage, learners and groups begin to design and compile answers into an attractive display in the form of visual media with Canva. After completion, learners enter the fourth phase to present to the class and conduct questions and answers. After all, groups have presented the discussion results; learners write a reflection on learning related to the content and the skills gained. In addition, in this stage, students assess learning based on the learning motivation questionnaire.

This study aims to determine the differences in learning outcomes and motivation between classes treated with collaborative and conventional learning after getting material from audio-visual media.

After conducting the research in accordance with the research design, it was concluded that the learning outcomes of students taught with collaborative learning were higher when compared to the learning outcomes of students taught with conventional methods.

Based on the Mean results, it was found that the experimental class had significantly better learning outcomes than the control class. The control class has a Mean of 79.45, while the experimental class has a Mean of 89.10. This is in accordance with the research concluding that the collaborative learning model implemented with other media is effectively applied to obtain better cognitive, affective, and psychomotor learning outcomes [34].

In addition, collaborative learning can also improve student learning outcomes both in cycle I and cycle II from research conducted on science learning research [35]. In line with this research, in research on elementary school students, it was found that collaborative learning has a positive and significant effect on student learning outcomes [36]. Students can construct their understanding through discussion and exchange of ideas among friends [19].

In learning, motivation supports students' learning outcomes [37]. Therefore, this study also aims to see the significance of differences in learning motivation between classes taught with collaborative learning and conventional methods.

Based on data collection with the ARCS learning motivation questionnaire instrument, it is concluded that the learning motivation of students taught with collaborative learning is higher when compared to conventional methods. In addition, based on the Mean results, it is also significant that the experimental class gets significantly better learning motivation than the control class. The control class has a Mean of 3.5120, while the experimental class has a Mean of 4.2745. The results of this study are also supported by previous research conducted in the United States, which states that collaborative learning has a positive effect on learning outcomes [38]. In addition, in English lessons in Korea, collaborative learning is proven to strengthen learning motivation [39].

This is also because collaborative learning provides interactions that can increase the motivation to understand concepts and content [40]. ARCS motivation consists of Attention, Relevance, Confidence, and Satisfaction. Attention is related to the learner's interest. Relevance relates to the relationship between learning content and learners' actual condition. Meanwhile, confidence relates to the belief of the learners to be able to achieve success in learning. The last component is satisfaction, where the learners feel happy and encouraged because they succeeded in following the learning well. Therefore, in this study, the stages of collaborative learning can influence students' learning motivation.

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