



The Influence of the Contextual Teaching and Learning Model Assisted by Learning Videos in Improving Student Learning Outcomes and Motivation at SDN Sibangkua South Tapanuli

Lenni Marlina Siregar¹, Hasratuddin², Rifat Shafwatul Anam³, Syahril⁴

^{1,3,4} Universitas Terbuka, Indonesia

² Universitas Negeri Medan, Indonesia

Corresponding Author:  lennicikgu@gmail.com

ABSTRACT

The research aims to describe the difference in influence between the CTL learning model assisted by learning videos and ordinary learning on students' mathematics learning outcomes, describe the difference in influence between the CTL learning model assisted by video learning and ordinary learning on students' learning motivation, describe the interaction between learning and students' initial abilities on results students' mathematics learning, and describing the interaction between learning and students' initial abilities on students' learning motivation at SDN 100106 Sibangkua, South Tapanuli Regency. The research method used is a quasi-experimental method because students' conditions cannot be controlled. The data analysis technique uses 2x3 factorial Anova. The population of this study were students at SD Negeri 100106 Sibangkua, South Tapanuli Regency for the 2021/2022 academic year. The sample consisted of 2 classes consisting of 1 experimental class and 1 control class. The experimental class with the CTL model was assisted by video learning and the control class was taught using regular learning. The results of the research concluded that there was a difference in students' mathematics learning outcomes using the video-based CTL learning model with an average of 78.83 compared to regular learning with an average of 67.67. There is a difference in students' learning motivation using the video-based CTL learning model with a score of 70.42 and regular learning with a score of 66.07. There is an interaction between the learning model and initial mathematics abilities on students' mathematics learning outcomes ($0.006 < 0.06$). There is an interaction between the learning model and initial mathematics abilities on students' learning motivation ($0.001 < 0.05$).

Contextual Teaching and Learning Model, Learning Motivation, Learning Outcome.

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INTRODUCTION

According to the Indonesian Ministry of National Education in 2003 Number 20 article 1, education is defined as a planned effort to create a learning atmosphere and learning process. The goal is for students to actively develop their potential, so that they have spiritual strength, self-control skills, good personality, intelligence, noble morals, and skills that are beneficial to themselves, society, nation, and state.

Improving education through learning is a very important strategic step to achieve better quality education. Innovative and student-centered learning can encourage students to be actively involved in the learning process. By using various methods, such as project-based learning, group discussions, and the use of technology, teachers can create an interesting and challenging learning atmosphere.

Mathematics in Elementary School plays a very important role in building the foundation of children's numerical understanding and logical thinking skills. At this stage, students are introduced to basic concepts such as addition, subtraction, multiplication, and division, which form the foundation for subsequent mathematics subjects. Mathematics learning in elementary school must be done in an interesting and fun way, such as through games.

Learning mathematics is closely related to the development of logical abilities, because mathematics requires students to think critically and systematically. Through learning mathematics, students are taught to understand patterns, analyze information, and construct coherent arguments. Concepts such as proof, problem solving, and data analysis help students practice logical thinking skills that can be applied in various situations. In addition, practice in solving mathematical problems encourages students to use different and creative approaches, thereby increasing their competitiveness in facing complex challenges.

There are still various problems in mathematics learning in schools that need serious attention. One of the main obstacles is the lack of student interest in this subject, often caused by less interesting teaching methods. In addition, many students find it difficult to understand basic concepts, which can hinder the development of their mathematical abilities at a higher level. Mathematics as one of the subjects taught in schools plays a role in realizing national education goals and building a productive, creative, innovative and insightful Indonesian nation. Students need mathematics to meet real-world needs and solve problems. There are still many students who consider mathematics difficult because previously students had fear, were not enthusiastic about learning so that they were finally lazy to learn mathematics (Widayati, 2022).

The lack of students' ability to increase their practice of working on problems is one of the factors that hinders their understanding of the subject matter, especially in mathematics. Many students find it difficult and lack confidence in dealing with various types of problems, so they tend to avoid additional practice. This can be caused by a lack of motivation, support from teachers, or limited access to a variety of learning resources. Without sufficient practice, students not only lose the opportunity to deepen their understanding, but are also not trained in applying the concepts they have learned (Ilham, 2022).

The low motivation to learn mathematics among students is a significant problem in today's education. Many students feel that mathematics is a difficult and boring subject, so they are less enthusiastic about learning. Factors such as monotonous teaching approaches, lack of relevance of the material to everyday life, and previous negative experiences can reduce student interest. In addition, the lack of recognition of small achievements in learning can also make students feel unappreciated. To overcome this problem, it is important for teachers to adopt more interesting teaching methods (Herdiansyah & Purwanto, 2022).

Lack of variety in the teaching methods used by teachers is often the cause of ineffective classroom learning, especially in subjects like math. When teachers rely too heavily on one method, such as lecturing, students can become bored and lose interest in learning. Variations in teaching approaches such as group discussions, educational games, or the use of technology can increase student engagement and help them understand concepts better.

Findings about low student mathematics learning outcomes are a serious concern in the world of education. Many studies show that a large number of students have difficulty in understanding basic mathematical concepts which impact their performance in exams and learning evaluations.

Learning models are one of the important supporting factors in an effective learning process. Choosing the right model can increase student engagement, help them understand concepts better, and encourage collaboration among peers. For example, project-based learning models allow students to learn practically and apply their knowledge in real situations, while group discussion models can improve communication and critical thinking skills (Sriariati, 2020).

The contextual learning model greatly assists teachers in creating relevant and meaningful learning experiences for students. By linking subject matter to real-life situations, teachers can make it easier for students to understand the concepts being taught. This model encourages students to actively participate,

discuss, and collaborate, so that the learning process becomes more interactive. The contextual approach helps develop thinking skills (Ester et al., 2023).

Contextual learning connects lessons to the real world, so students can see the relevance of the material being learned in everyday life. By connecting academic concepts to situations they experience, students find it easier to understand and apply the knowledge. For example, in a math lesson, teachers can use examples related to personal finance or measurement in everyday projects (Hasudungan, 2022).

Student motivation is very important in the learning process, because it directly affects their engagement and academic success. Motivated students tend to be more active, enthusiastic, and ready to face challenges in learning. When students feel motivated, they will be more willing to participate in discussions, explore materials, and find solutions to problems faced (Diandaru, 2023).

Motivation serves as a driving force that drives individuals to achieve goals and face challenges in the learning process. In the context of education, motivation can increase students' desire to learn, actively participate in class activities, and overcome obstacles they may face. When students feel motivated, they are more likely to invest time and effort in understanding the material, and strive to achieve good academic performance. Therefore, it is important for teachers and educators to understand what motivates students, be it rewards, personal interests, or support from the surrounding environment (Yogi Fernando et al., 2024).

Research by Aruan dkk (2022) research on the Influence of the CTL Learning Model on the Understanding of Mathematical Concepts of Class VII Students of Imelda Private Middle School, Medan. The results of the study concluded that the contextual learning model has a significant influence on students' understanding of mathematical concepts. By linking subject matter to real situations, students can see how mathematical concepts are applied in everyday life, which makes learning more relevant and meaningful. For example, when students learn about fractions through dividing cakes or measurements in recipes, they can better understand how the concepts work outside the classroom.

Research by Sari dkk (2020) on the Effectiveness of Mathematics Learning Outcomes Through the Open Problem-Based CTL Model for Grade IV Elementary School Students. The results of the study concluded that the contextual learning model trains students more to actively participate and think critically in the learning process. With this approach, students do not only receive information passively, but are directly involved in exploring and

solving problems related to everyday life. For example, through group projects or case studies, students are invited to analyze real situations, work together in teams, and apply the concepts they have learned. This approach encourages them to practice communication, collaboration, and analysis skills which are very important. Thus, the contextual model not only strengthens students' academic understanding but also equips them with practical skills that can be applied in various aspects of life.

Research by Sadilah dan Winarto (2021) on Systematic Literature Review: Implementation of Contextual Teaching and Learning Model in Elementary Schools. The results of the study concluded that the contextual learning model effectively supports student motivation and learning outcomes by making the material more relevant and interesting. When students can relate the concepts learned to real situations, they feel more involved and motivated to learn. This approach invites students to actively participate in the learning process, such as through projects, discussions, or practical activities, which makes the learning experience more enjoyable.

Setiawan (2020) research on the Influence of the CTL (Contextual Teaching and Learning) Learning Model on Student Learning Outcomes in Subtheme 1 Theme 2 of Class V SD N 1 Nusa Bakti, Belitang III District, East Oku Regency. The results of the study concluded that the contextual learning model supports improved learning outcomes by creating relevant and meaningful learning experiences for students. By linking subject matter to real situations and problems, students find it easier to understand and apply the concepts taught. This approach encourages students to be actively involved in discussions, collaborations, and problem solving, which not only improves their understanding but also their critical thinking skills. In addition, the contextual model makes students feel more motivated because they see firsthand the relevance of the lesson to everyday life. When students feel involved and motivated, they tend to try harder.

RESEARCH METHOD

Experimental research is a research method conducted to test a hypothesis by observing the effect of independent variables on dependent variables under controlled conditions. In this research, researchers usually divide subjects into experimental and control groups. The experimental group will receive special treatment, while the control group will not.

This research method is quasi-experimental is an approach used to evaluate the effects of an intervention or treatment without full randomization in the placement of subjects into experimental and control groups. In this study,

researchers choose existing groups and observe the differences between groups that receive treatment and groups that do not.

The population of this study consisted of students at SD Negeri 100106 Sibangkua, South Tapanuli Regency. All classes have uniform characteristics, meaning that each student follows the same curriculum. This ensures consistency in the learning context analyzed in this study. The sample in this study is part of the population that is considered to be able to represent the entire population as a source of information or data. In this study, the sample consisted of two classes: one experimental class and one control class. The experimental class used the CTL model assisted by video media, while the control class was taught using the usual learning method.

The instruments used were students' mathematics learning achievement tests and learning motivation questionnaires. Learning achievement tests are tools used to measure students' understanding and achievement after participating in the learning process. These tests can be written exams, oral exams, or practical assignments, and are designed to evaluate the extent to which students can apply the knowledge and skills they have learned. The results of these tests not only provide information about the level of individual student understanding, but can also be used to evaluate the effectiveness of the teaching methods applied. Motivation questionnaires are instruments used to measure students' motivation levels in the learning process. Through this questionnaire, researchers can collect data on factors that encourage or inhibit learning motivation.

Analysis of research data using the analysis of variance (ANOVA) technique allows researchers to evaluate the average differences between several groups in a study. The process begins by establishing a null hypothesis, which states that there is no significant difference between the groups, and an alternative hypothesis, which indicates that there is a difference.

RESULTS AND DISCUSSION

Results

The results of the 2x3 ANOVA test calculations on the interaction data of the learning model and students' initial abilities on students' mathematical learning outcomes are presented in Table 1.

Table 1.
Results of ANOVA Test of Model Interaction and Initial
Ability on Student Learning Outcomes

Tests of Between-Subjects Effects					
Dependent Variable: Test result					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3958.861 ^a	5	791.772	12.908	.000
Intercept	230577.856	1	230577.856	3.75903	.000
Model	1049.086	1	1049.086	17.103	.000
KAM	1823.835	2	911.917	14.866	.000
Model * KAM	700.498	2	350.249	5.710	.006
Error	3312.389	54	61.341		
Total	320475.000	60			
Corrected Total	7271.250	59			
a. R Squared = ,544 (Adjusted R Squared = ,502)					

Based on Table 1, it can be stated that the CTL learning model assisted by learning videos and students' initial mathematical abilities have an effect on students' mathematics learning outcomes, as shown by the sig. $0.006 < 0.05$, which means that there is an interaction between the CTL learning model assisted by learning videos and students' initial mathematical abilities on students' mathematics learning outcomes.

The results of the 2x3 ANOVA test calculation on the interaction data between the learning model and students' initial abilities on students' learning motivation are presented in Table 2.

Table 2. Results of ANOVA Test of Model Interaction
and Initial Ability on Student Learning Motivation

Tests of Between-Subjects Effects					
Dependent Variable: Learning Motivation					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4299.421 ^a	5	859.884	15.380	.000
Intercept	219792.802	1	219792.802	3.93103	.000

Model	433.284	1	433.284	7.750	.007
KAM	2109.324	2	1054.662	18.863	.000
Model * KAM	931.708	2	465.854	8.332	.001
Error	3019.162	54	55.910		
Total	304829.000	60			
Corrected Total	7318.583	59			
a. R Squared = ,587 (Adjusted R Squared = ,549)					

Based on Table 2, it can be stated that the CTL learning model assisted by learning videos and students' initial mathematical abilities have an effect on students' learning motivation with a sig. 0.001 < 0.05, which means that there is an interaction between the CTL learning model assisted by learning videos and students' initial mathematical abilities on mathematics learning motivation. Thus, it can be stated that the results of this study related to the learning model, initial abilities and students' learning motivation are valid.

During contextual learning, students showed a higher level of activeness compared to traditional learning methods. In this approach, students are invited to be directly involved in the learning process through discussion, exploration, and application of concepts in real situations. They are encouraged to ask questions, share opinions, and work together in groups, which creates a dynamic and interactive classroom atmosphere. This activeness not only improves understanding of the material but also builds students' confidence in conveying ideas and contributing to discussions. Thus, contextual learning not only facilitates academic learning but also develops students' social skills and critical thinking abilities, making it a more meaningful learning experience.

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The results of the study above are in line with the research of Tamur et al., (2021) which emphasizes that an effective learning model has an important role in supporting student learning outcomes. By using the right approach, such as project-based learning or contextual models, students can more easily

understand and internalize the material. Interactive and collaborative learning models encourage students to actively participate, thereby increasing their motivation and involvement in the learning process. In addition, models that prioritize direct practice and real applications help students see the relevance of the material to everyday life, which in turn can increase their interest and learning outcomes. Thus, the application of an appropriate learning model greatly influences students' academic achievement, creating a more positive and productive learning experience.

The results of the study by Kombu et al., (2020) confirmed that the contextual learning model supports student activities by creating a more dynamic and relevant learning environment. In this approach, students are invited to be actively involved through various activities that link subject matter to real situations and experiences. This encourages students to think critically, discuss, and work together in groups, thereby increasing social interaction in the classroom. Activities that focus on applying concepts in the context of everyday life help students feel more connected to the material, making learning more interesting and meaningful. Thus, the contextual model not only increases student engagement but also strengthens the understanding and skills needed to face real-world challenges.

The results of the study by Rahman et al., (2023) confirmed that the contextual learning model has proven effective in improving student learning outcomes. By linking subject matter to relevant situations and experiences in everyday life, students can more easily understand the concepts taught. This approach encourages students to actively participate, ask questions, and collaborate, which in turn improves their critical and analytical thinking skills. In addition, contextual learning allows students to see the relevance between theory and practice, thereby increasing their motivation and interest in learning. As a result, students not only achieve better understanding but also show significant improvements in academic performance, making the contextual model the right choice to support learning success in the classroom.

There must be student self-motivation as the main driver in the learning process. Self-motivation plays an important role in forming a positive attitude towards learning, encouraging students to take the initiative, and setting goals to be achieved. When students have intrinsic motivation, they tend to be more responsible for their own learning, try harder to understand the material, and do not give up easily when faced with challenges.

Students with high learning motivation usually show a high level of engagement in the learning process. They tend to be more active participants in class, asking questions, and finding out more about the material being studied.

This strong motivation encourages them to face challenges with a positive attitude and not give up easily when they encounter difficulties. In addition, motivated students tend to set clear learning goals and work consistently to achieve them, resulting in better academic performance. They are also more open to feedback and constructive criticism, which can help them improve. Therefore, creating a learning environment that supports and facilitates student motivation is essential in encouraging their academic success and personal development.

The results of this study are in line with the opinions and results of previous studies, namely Handayani et al., (2021) concluded that the contextual learning model helps in increasing students' self-motivation by making the subject matter more relevant and meaningful to them. By linking the concepts taught to everyday experiences, students feel that learning has a clear purpose and can be applied in real life. This approach encourages students to participate more actively, both through group discussions and practical projects, so that they feel in control of their learning process. When students can see the progress they make and feel achievement in a real context, their self-motivation increases. In addition, the contextual model develops students' self-confidence, because they are empowered to apply knowledge and skills in relevant situations.

The results of research by Saleh et al., (2022) show that the contextual learning model significantly increases student learning activities due to the strong motivational drive. By linking subject matter to real situations and experiences, students feel more involved and interested in participating in the learning process. Interactive activities, such as discussions, projects, and simulations, encourage students to actively contribute and collaborate, creating a dynamic classroom atmosphere. When students are motivated, they are more willing to take the initiative, ask questions, and explore concepts more deeply. This increased activity not only helps them understand the material better but also strengthens social and communication skills. Thus, the contextual model not only increases motivation but also optimizes the overall learning experience.

The results of research by Rasul et al., (2022) confirmed that the contextual learning model increases students' learning interest by presenting relevant subject matter that is related to everyday life. By linking academic concepts to real experiences, students can see firsthand the benefits and applications of what they are learning. This approach creates a more engaging and interactive atmosphere, where students function not only as listeners but also as active participants in the learning process. Activities such as collaborative projects and

case studies allow students to engage directly, which in turn arouses their curiosity and interest.

Discussion

Contextual Learning Model

Learning models play an important role in designing an effective and interesting learning process. In designing learning, teachers must consider various aspects, such as learning objectives, student characteristics, and learning contexts. The right learning model can help teachers organize teaching strategies, choose appropriate methods, and determine relevant evaluation tools (Al Fasya, *et.al.*, 2022; Adnyani, 2023).

Contextual models relate learning materials to real-world situations, so that students can see the relevance and practical application of what they are learning. By connecting the concepts taught to everyday experiences, these models help students understand how the knowledge can be applied in real life. For example, in mathematics learning, teachers can use examples from everyday situations (Wassalwa, 2023; Kinanti et al., 2024).

The contextual model in learning often begins with oral Q&A, which serves to activate students' prior knowledge and stimulate their interest in the material. In this approach, the teacher asks relevant questions and triggers discussions, so that students can share their thoughts and experiences. This Q&A activity not only helps students to be actively involved, but also allows them to relate new concepts to existing knowledge (Intan, 2024).

The contextual model assumes that children learn best when they experience the learning process themselves through direct experience. This approach emphasizes the importance of interaction with real environments and situations, where students can apply the concepts they learn in relevant contexts. By experiencing directly, students not only receive information, but also have the opportunity to explore, practice, and overcome challenges. These practical experiences help them understand the material more deeply and strengthen long-term memory (Taufik, 2020).

The contextual model links learning to the real world, so that students can understand the relevance of the material being taught in everyday life. This approach allows students to see how academic concepts can be applied in situations they encounter around them. For example, in a math lesson, teachers can use examples of calculations related to spending or budgeting, while in a science lesson, students can explore natural phenomena they observe in their surroundings (Sastradiharja et al., 2020).

Student Learning Outcomes

Learning is also a dynamic process of change, in which individuals develop new knowledge, skills, and attitudes over time. During this process, students not only accumulate information, but also adapt and change their ways of thinking, opening up to new ideas. For example, when someone learns about different cultures, they may begin to change their views and attitudes toward differences, which can increase empathy and tolerance (Motoh et al., 2022).

Learning about behavioral change is an important process that allows individuals to understand how their actions and responses can affect others and the situations around them. By exploring different approaches and strategies in social interactions, students can learn to adjust their behavior to achieve more positive outcomes. For example, in an educational context, a teacher who learns to adopt a more inclusive approach can change the way students interact, creating a more supportive and collaborative environment (Agusti & Aslam, 2022).

Learning objectives are closely related to behavior, because the educational process is not only aimed at transferring knowledge, but also at shaping individual character and attitudes. Through planned learning, students are taught to develop positive behaviors, such as discipline, responsibility, and cooperation. For example, in project-based learning, students not only learn about academic material, but also practice communicating and collaborating with their friends, which can strengthen interpersonal skills (Pipit Mulyah, Dyah Aminatun, Sukma Septian Nasution, Tommy Hastomo, Setiana Sri Wahyuni Sitepu, 2020).

Learning objectives for mastery of a particular subject matter focus on achieving a deep understanding and skills in the subject being taught. By setting clear objectives, students can be directed to understand key concepts and their practical applications. For example, in mathematics, objectives for mastery of the subject matter might include the ability to solve various types of problems, understand basic principles, and apply formulas in real-world situations (Henniwati, 2021).

Learning objectives that focus on improving learning outcomes aim to maximize academic achievement and overall student development. By setting clear goals for both students and educators, the learning process can be directed towards achieving higher standards and better outcomes. For example, through varied teaching methods, such as collaborative learning or the use of technology, students can be more actively engaged and motivated to learn (Krisnayanti & Wijaya, 2022).

Motivation to Learn

Motivation is a state that drives individuals to act and pursue certain goals. Factors that influence motivation can vary, from basic needs, the desire to achieve, to the urge to meet social expectations. When someone is motivated, they tend to be more committed and enthusiastic in carrying out tasks, which has a positive impact on performance and the results achieved (Yogi Fernando et al., 2024).

Motivation serves as the primary driver of individual action, encouraging them to take action toward achieving goals. When a person has strong motivation, they tend to be more committed and persistent in facing challenges. For example, an athlete who is motivated to win a medal will train hard and try to overcome his physical limitations (Pranjani et al., 2022).

Motivation is a source of energy that drives reactions within individuals, influencing how they respond to situations and challenges. When someone feels motivated, they tend to show higher enthusiasm and involvement in the activities they do. For example, an employee who is motivated to achieve work targets will be more proactive and strive to meet expectations. The energy generated from this motivation can also increase productivity (Basompe & Soetjningsih, 2023).

Motivation can be raised and measured through various indicators that reflect the extent to which individuals are involved in certain activities or goals. These indicators include the level of participation, consistency in effort, and emotional responses to challenges faced. For example, a student who shows high motivation will actively participate in class, do assignments well, and not give up easily even though they experience difficulties during learning (Candra et al., 2023).

CONCLUSION

Based on the description above, it can be concluded that there is a difference in students' mathematics learning outcomes using the CTL learning model assisted by video with regular learning. Students' learning outcomes with the CTL learning model assisted by video learning are better than those with regular learning ($78.38 > 67.67$). There is a difference in students' learning motivation using the CTL learning model based on video with regular learning. Students' learning motivation using the CTL learning model assisted by video learning is better than those with regular learning ($70.42 > 66.07$).

There is an interaction between learning and initial mathematical ability on students' mathematics learning outcomes. This is proven through the results of the study which showed a significance value of 0.006, which is smaller than

0.05. This finding shows the meaning that the effectiveness of learning in improving mathematics learning outcomes is influenced by students' initial mathematical abilities. Students with higher initial abilities tend to achieve better learning outcomes, especially when the learning methods used are in accordance with their level of understanding. Conversely, students with lower initial abilities may require a more intensive approach in order to achieve optimal learning outcomes.

There is an interaction between the learning model and initial mathematical ability on students' learning motivation. The results of the study showed a significance value of 0.001, which is smaller than 0.05. This finding indicates that students' learning motivation is influenced by a combination of the learning model used and students' initial mathematical ability. Students with high initial ability tend to be more motivated when the learning model applied is in accordance with their learning style and needs. On the other hand, students with lower initial ability need a more supportive and motivating learning model to stay enthusiastic in the learning process.

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