The Influence of *the Contextual Teaching and Learning Model* on Science Learning Outcomes of Grade V Students of SDN 06 Kelapa Tujuh

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Article Info	ABSTRACT
	Students' ability to understand science material greatly influences learning outcomes. In fact, there are still many students who have low science learning outcomes. Teacher assessment can be considered as an evaluation process that aims to collect data and indicate the level of student ability to achieve learning goals. The problem in this research is whether there is an influence of the application of the contextual teaching and learning model on the science learning outcomes of class V students at SD Negeri 06 Kelapa Tujuh for the 2024/2025 academic year. The aim of this research is to determine the effect of implementing the CTL learning model on the science learning outcomes of class V students at SD Negeri 06 Kelapa Tujuh in the 2024/2025 academic year. The research method used in this research is an experimental method with a quasi-experimental design type. The research instruments used were tests in the form of multiple choice questions, pre-research questions, pre-research questions and post-research tests. Hypothesis test results tcount = 3.905, at a significance level (α) = 0.05, we get ttable 1.677. These results show that tcount > ttable, meaning that H0 is rejected or in other words Ha is accepted. This means that there is an influence of the application of the CTL learning model on the science learning outcomes of class V students at State Elementary School 06 Kelapa Tujuh in the 2024/2025 academic year.

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Introduction

Education is an important aspect of human life. The planned educational process will consider the potential of oneself to have strength and self-control in intellectual intelligence and good morals in students (Griadhi, 2018). Education has a great influence on human activities, because through education it is possible to discover new things that could not be found before and find something that can be useful in the future (Fadlilah, 2019). In education, the process and learning outcomes must be balanced, education that only attaches importance to one of them cannot achieve the desired goals.

Education plays an important role in preparing qualified human resources and able to compete in the development of science and technology, so that education must be carried out as well as possible to obtain satisfactory results. Education should be managed, both in terms of quality and quantity (Panggabean et al., 2021). This aspect can be achieved by implementing timely and appropriate education to achieve learning goals. Learning objectives can be achieved through one of the lessons, namely Natural Sciences (IPA).

Science is the science that underlies the development of modern technology that is global and has a role in various disciplines and advances human thinking in general (Yuliati, 2017). One of the goals of science learning is to help students to have the ability to understand the environment. This goal is in line with the opinion of Suryana (2021) that understanding the surrounding nature is part of science. Science subjects are basically divided into physics, chemistry, and biology (Yeni et al., 2020). To find out the implementation of one of the objectives of science learning, it can be seen from the ability to understand the material.

The 2013 curriculum in science subjects has a scope and objectives that must be achieved, one of the basic competencies that must be achieved by students is 3.5 about analyzing the relationship between ecosystem components and food webs in the surrounding environment (Semester Program of Science Subject Class 5, 2018). In fact, students experience obstacles in analyzing the relationship between ecosystem components and food webs in the surrounding environment, the existence of obstacles and shortcomings is shown by the existence of several studies related to the subject of ecosystem components.

Research conducted by Ernawati (2017) showed that out of 35 students, there were 15 students (43%) who had a score above KKM (70) and 20 students (57%) had a score below KKM (70) with an average score of the students' daily test results which was 64 from the KKM standard (70) set by the school where the research was conducted. The low learning outcomes of students are strengthened by research conducted by Sari (Sari, 2018) Based on the achievement of grades, it can be seen that the mastery of the material has not been completed. Because only 40% have a score above the KKM (Minimum Completeness Criteria). Thus, there are still many students who experience obstacles and shortcomings can be seen from student learning outcomes.

Based on the results of an interview conducted on January 17, 2024 with Mrs. Dini Atfiyani, S.Pd as a grade V teacher at Sekolah Elementary 06 Kelapa Tujuh, science learning still applies a teacher-centered learning model, and has not yet implemented student-centered learning. In addition, students' ability to understand the material is still low. The absorption or understanding of students to the material taught by the teacher is also still lacking, which causes students to be less interested in the material taught by the teacher. The material taught by the teacher is ecosystem material.

The interest of grade V students of State Elementary School 06 Kelapa Tujuh in learning low ecosystem materials. It is shown by the results of daily repetition that the ecosystem material has not been satisfactory from the value of the minimum completeness criteria (KKM) applied. The KKM in science lessons at Sekolah Elementary Negeri 06 Kelapa Tujuh is 70.

Students' mastery in ecosystem learning is low, because learning is still teacher-centered and there is a need for problem-solving in the material, namely by changing the teaching method or learning model that is usually applied by teachers when teaching. A learning model that is able to activate students in the learning process. It is important for teachers to know the learning style of students in accordance with the learning concept of Ki Hajar Dewantara, each student has a different character, by knowing the learning style students can practice to integrate the concepts and skills that have been learned. Among several existing learning models, the learning model that can be an alternative to solving the problem of low student learning outcomes in ecosystem materials is the *contextual teaching and learning* (CTL) learning model.

The CTL learning model is one of the learning concepts that helps teachers relate the material taught to the student's real-world situation and encourages students to make connections between the knowledge they have and its application in their lives as family and community members (Ruwaidah, 2022). With this concept, learning outcomes are expected to be more meaningful for students. The learning process takes place naturally in the form of student activities to work and experience, not to transfer knowledge from teacher to student.

The location chosen for this study was the 06 Kelapa Tujuh State Elementary School because the learning of science of ecosystem materials in class V is still low. Thus, the researcher will use the CTL learning model to find out whether there is an influence on the learning outcomes of students of ecosystem materials.

The application of *the Contextual Teaching and Learning* (CTL) learning model is expected to improve students' motivation and improve their ability to think creatively and fundamentally when collecting data in daily life. Teachers can benefit from using the CTL learning model to help students connect information to real-world scenarios. The CTL learning model is very suitable for solving problems or simple tasks in students who have different learning styles to improve student learning outcomes.

Theoretical Studies

Learning outcomes are the follow-up effects obtained from individuals who collaborate effectively and clearly with their current circumstances (Nurrita, 2018). Meanwhile, Qorimah & Sutama (2022) stated that learning outcomes are a process in which individual behavior changes in line with their interactions in their environment. These learning outcomes are generally used by teachers as a reference in evaluating the achievement of learning objectives. Learning outcomes are related to learning activities because the learning process is a series that involves various aspects (Qorimah & Sutama, 2022). This applies as a result or result of students' interaction with learning experiences as well as learning processes that occur in the classroom environment.

Science learning outcomes refer to students' achievements in understanding natural science concepts and students' ability to apply these concepts in the context of daily life. Science learning outcomes also include students' ability to find solutions to environmental problems and in developing technologies that advance human civilization. Science learning outcomes

also include increasing students' understanding of the importance of preserving the environment and life on earth.

The CTL learning model is expected to be able to help students to be more inspired and develop their ability to think creatively and fundamentally when collecting data in daily life. The CTL learning model can also help teachers relate the subject matter to the context of daily life so that learning is not just about remembering, but also requires understanding (Mazrur, 2020).

Teachers must be able to develop their teaching methods, especially in the teaching area related to natural sciences. The goal is for all students to be able to understand the material well because this material is quite important to observe. The creation of interesting teaching media that can increase students' interest in learning accompanied by the delivery of easy-to-understand teachers is also an important factor in understanding a teaching, especially teaching science.

Method

This study uses *a quasi-experimental* method, with a quantitative approach (Sugiyono, 2022). The sample used as the subject of this study was 2 classes, namely class V B which amounted to 25 students as an experimental group, and class V A which amounted to 25 students as a control group. The sampling technique used in this study is saturated sampling. Amini, Mayangsari, et al., (2019) argue that the saturated sampling technique is used when the total determination of all members of the population is used as a sample. Instruments that can be used for research must be valid, reliable and have differentiating power. The data collection technique in this study is in the form of a test. The test was carried out twice in the study, namely the initial test and the final test using a test measuring tool of 10 questions in the form of multiple choice with four answer choices and one correct one.

The data analysis technique in this study uses parametric statistics. Parametric statistics are used to test population parameters through statistics, or to test population size through sample data the use of parametric statistics requires a lot of assumptions. The main assumption is that the data to be analyzed must be distributed normally and homogeneously. Therefore, the normality and homogeneity of the data will be tested. Before conducting data analysis, it is necessary to hold a prerequisite test of analysis in the form of a normality test, a homogeneity test and then a hypothesis test.

Result

The results of the test questions were carried out outside the research sample, in the validity test of the questions there were 18 valid questions, the results of the reliability test obtained reliable results, and the results of the discriminating power were obtained 12 questions that had discriminating power. The research instrument used for the research on the sample was 10 questions, while 2 questions were not used, because there was the same purpose in the questions used in the test.

The implementation of the distribution of the initial test (*pre-test*) was carried out before the sample received the treatment of the CTL learning model. The data from *the pre-test results* was used to determine the normality and homogeneity of student data as well as students' initial learning outcomes in learning science ecosystem materials. From the results of *the pretest calculation*, the results were obtained with a normal and homogeneous distribution. After that, a hypothesis test is carried out, where a hypothesis test is used to find out if there is a difference in students' initial abilities before being given a treatment in the form of a CTL learning model. The results of the hypothesis test can be seen in the following table.

Table 1. Summary of the Pre-Test Hypothesis Test

df(n_1+n_2-2)	t-statistic	t-table	Conclusion
48	0,611	1,677	H_0 is accepted

In the two-party test at the level α = 0.05 and df = 25+25-2 = 48 obtained in the distribution table, resulting in $t_{(0.05)(48)}$ = 1.677. Based on the summary table of the results of *the pre-test hypothesis* test using Ms. Excel 2010, the tcal value was 0.611 and the ttable was 1.677. The result shows that tcal < ttabl, meaning that H0 is accepted or in other words Ha is rejected. So that there is no difference in initial ability between students in the control class and the experimental class in the science learning of ecosystem material for grade V students at SD Negeri 06 Kelapa Tujuh for the 2024/2025 school year before being given treatment.

The implementation of the research was carried out at the State Elementary School 06 Kelapa Tujuh. The research was carried out on grade V students at SD Negeri 06 Kelapa Tujuh, grade V A students as a control class with a total of 25 students and class V B students as an experimental class with a total of 25 students. The learning process uses the *Contextual Teaching and Learning* (CTL) learning model, in the learning of science ecosystem materials. The research started from July 25, 2024 to August 13, 2024. The implementation of the research was carried out in 6 meetings. The steps for conducting research are *Construktivism, Inquiry, Questioning, Learning Community, Modelling, Reflection, and Authentic Assessment* (Rusman, 2014).

After the implementation of the CTL learning model, the distribution of the final test (*post-test*) was carried out after the sample received the treatment of the CTL learning model. The data from *the post-test results* was used to determine the normality and homogeneity of student data as well as students' initial learning outcomes in learning science ecosystem materials. From the results of *the posttest calculation*, the results were obtained that were distributed normally and homogeneously. After that, a hypothesis test is carried out, where a hypothesis test is used to find out if there is a difference in students' initial abilities before being given a treatment in the form of a CTL learning model. The results of the hypothesis test can be seen in the following table.

Tabel 2. Rangkuman Uji Hipotesis *Post-Test*

df(n_1+n_2-2)	t-statistic	t-table	Conclusion
48	3,905	1,677	H0 is rejected

In the two-party test at the level α = 0.05 and df = 25+25-2 = 48 obtained in the distribution table, resulting in $t_{(0.05)(48)}$ = 1.677. Based on the summary table of the results of the *pre-test hypothesis* test using Ms. Excel 2010, the tcount value was 3.905 and ttable 1.677. The result shows that tcount > ttable, meaning that H0 is rejected or in other words Ha is accepted. So it can be concluded that there is an effect of the application of the CTL learning model on the science learning outcomes of grade V students of state elementary school 06 Kelapa for the 2024/2025 school year after the treatment is given.

Discussion

Based on the results of data analysis in a significant level of 5%, ttable (0.05) (48) = 1.677 while tcount 3.905, from all the above results it can be seen that in a significant level of 5%, it can be seen that t calculates > t of the table, then it can be concluded that H0 is rejected, while Ha is accepted. This means that there is a positive and significant influence on the application of the CTL learning model on the science learning outcomes of grade V students of State Elementary School 06 Kelapa Tujuh for the 2024/2025 school year.

The CTL learning model will provide a positive value to the learning process. The use of the CTL learning model can help students make connections between the knowledge that has been learned and how the knowledge can be applied to daily life. This not only increases the effectiveness of learning, but it also increases the motivation of students because they feel the learning material is relevant to their lives and needs.

In the learning environment, CTL is able to inspire students and be active in learning because students participate fully in learning. The CTL learning model is expected to be able to help students to be more inspired and develop their ability to think creatively and fundamentally when collecting data in daily life. The CTL learning model can also help teachers relate the subject matter to the context of daily life so that learning is not just about remembering, but also requires understanding. In the context of learning about ecosystem materials, students are more confident to try to solve a problem, so that they can hone their skills in thinking and solving problems. So that in the end the student learning outcomes in ecosystem materials increase.

In this study, classes that were treated using the CTL learning model had higher learning outcomes. Meanwhile, the group that was not treated using the CTL learning model, namely the control class, had relatively low learning outcomes. With this explanation, it can be seen that the learning outcomes of students in the experimental class are higher than the average score of students in the control class.

The results of the final test of the experimental class support the theory presented by Sari (2018) that the CTL learning model refers to adjustments to students' interests, learning preferences, and readiness levels to achieve improvements in learning outcomes. Thus, it can be concluded that students taught using the CTL learning model achieve the minimum completeness criteria determined by the school and the learning outcomes of ecosystem science materials can be improved by using the CTL learning model.

Conclusion

Based on the results of the research and also the discussion of the results of data analysis, it is known that the results obtained based on hypothesis testing using the t-test, namely the result of tcount = 3.905 at a significant level (α) = 0.05, then ttable = 1.677 was obtained, the influence of academic ability on the CTL learning model on the science learning outcomes of grade V students of State Elementary School 06 Kelapa Tujuh Academic Year 2024/2025. The conclusion of this study is that there is an effect of the application of *the Contextual Teaching and Learning model* on the learning outcomes of Natural Sciences students in grade V of SD Negeri 06 Kelapa Tujuh for the 2024/2025 school year.

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