IMPLEMENTATION OF THE CONTEXTUAL TEACHING AND LEARNING (CTL) MODEL IN SCIENCE LEARNING AT STATE E LEMENTARY SCHOOL 28 BANDAR BARU

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Abstract
This research aims to examine the implementation of the contextual teaching and learning (CTL) model in science subjects at SD Negeri 28 Bandar Baru and to identify supporting and inhibiting factors in the implementation of the CTL model in science subjects at SD Negeri 28 Bandar Baru. This quantitative research was conducted at SD Negeri 28 Bandar Baru. The results show that the Implementation of the Contextual Teaching and Learning (CTL) Learning Model in Science Learning at SD Negeri 28 Bandar Baru has run smoothly. In the learning process, the CTL model uses 7 components: constructivism, inquiry, questioning, learning community, modeling, reflection, and authentic assessment. The supporting factors for this CTL model include teachers as educators, student abilities, and facilities and infrastructure. At the same time, the inhibiting factors include teachers' lack of understanding of the material and lack of time.

Keywords*:* Implementation, Learning Model, Contextual Teaching and Learning (CTL), Science.

INTRODUCTION

Quality education is one of the main keys to creating an intelligent and critical generation. The current digital era is experiencing rapid development, especially in science and technology. Amidst the rapid development of science and technology, education must be able to accommodate these changes to produce human resources who are qualified, innovative, and ready to compete globally. Understanding basic concepts, such as energy, is especially important (Harjo et al., 2020). Science lessons study natural phenomena that occur around us. Science subjects in elementary schools include material on natural sciences that are close to the lives of elementary school students. Through science learning, teachers can deliver lessons by selecting learning strategies and engaging, innovative models to create an effective, efficient, and active learning atmosphere, thereby maximizing student learning outcomes and achieving science learning objectives.

The use of the CTL model in science lessons emphasizes the importance of linking learning materials to students' daily lives, so they can more easily understand and apply the knowledge gained (Nurhidayah et al., 2016). Using this model, it is expected that students will not only understand energy theory but also apply it in real situations. Based on initial observations conducted by researchers at SD Negeri 28 Bandar Baru in collaboration with one of the fourth-grade science

teachers, it was found that in classroom learning activities, educators still use a conventional approach, namely the lecture method. With this method, it is acknowledged that learning remains suboptimal because students tend to be more bored and tired in class. However, SD Negeri 28 Bandar Baru has also implemented CTL learning in science learning. However, not all teachers use the CTL learning model; only 50% do. The purpose of implementing the CTL approach in fourth-grade science learning at SD Negeri 28 Bandar Baru is to make students more active and better understand the material being taught, as the material is not only heard but also practiced and applied in real life. The CTL model emphasizes teaching.

Qoriah, Stamyis, and Hasan (2023) examined the effectiveness of the CTL model in improving students' critical thinking skills in the subject of Fiqh. Using a mixed-methods approach and purposive sampling, the study found that CTL positively impacted students' ways of thinking. Rizka Ghina Fauziyah (2024); Sirait, Sirait, et al. (2022). This study aims to evaluate the effectiveness of an interactive learning model based on Contextual Teaching and Learning (CTL) on student learning outcomes in science subjects in grade 2 of Elementary School, especially on the material of recognizing plants as living things. This study aims to determine the implementation of the use of the Contextual Teaching and Learning (CTL) Model in science subjects at SD Negeri 28 Bandar Baru and to find supporting and inhibiting factors in the implementation of the use of the Contextual Teaching and Learning (CTL) Model in science learning at SD Negeri 28 Bandar Baru.

RESEARCH METHODS

The approach used in this study is qualitative. The research was conducted at SD Negeri 28 Bandar Baru, Pidie Jaya Regency. The timeframe for this research is estimated to in from June 2025 through completion. The data source in this study is primary data obtained directly in the field. The primary data source is the main data source in this study, namely the Science learning teacher, in the form of data in the form of words, assumptions, arguments, or opinions related to the Contextual Teaching and Learning approach) Implemented in Science learning. Data collection techniques used include observation, interviews, and documentation. Data analysis consists of: data reduction, data presentation, and concluding (Michael Huberman et al., 1992).

RESULTS AND DISCUSSION

Based on research conducted at SD Negeri 28 Bandar Baru, using data collection methods such in observations, interviews, and documentation, the researcher conducted. The results of the research regarding the Analysis of the Implementation of the Contextual Teaching and Learning Model in Science Learning at SD Negeri 28 Bandar Baru are:

1. Implementation of the CTL Model in Science Learning

The implementation of contextual teaching and learning is carried out by explaining and directing, enabling practice in everyday life. This Contextual teaching and learning model provides opportunities for students to learn about changing forms of energy in everyday life. The results of an interview with Mrs. Wilda Nuzualla S.Pd, she said that: "The implementation of contextual teaching and learning has been applied. Contextual teaching and learning at SD Negeri 28 Bandar Baru, in other words, is learning in the formation of student character. This learning is expected to shape the character of students, encourage students to be active and meaningful and also be able to relate

concepts to everyday life including in science subjects the material of changing forms of energy ". In addition, during the learning process, the classroom atmosphere is not free from obstacles, this has been said by Mrs. T who said that: "Obstacles during the learning process are definitely there, including from students who sometimes still do not pay attention, chat among themselves, are difficult to control. Moreover, to overcome these obstacles, teachers must be creative in managing the class, must be able to condition it well, and must be the center point during the learning process."

Implementation of the CTL Model planning in the grade IV science material at SD Negeri 28 Bandar Baru has been carried out systematically by the teachers. This can be seen from the Grade IV Homeroom Teacher, Mrs. Wilda, who planned learning outcomes in accordance with learning objectives. According to Mrs. Wilda, planning the use of the CTL learning model before implementation is very important. Mrs. Wilda said that: "making a learning implementation plan with the CTL model can help teachers in the learning process, because this CTL learning model is a learning model that requires students to be active and makes students think critically in following the learning. According to the Constructivist theory, students must find themselves, transform complex information, check new information against old rules, and revise those rules if they are no longer appropriate.

2. Implementation of the CTL Model in Science Learning

The implementation of the CTL learning model can be seen from the learning steps carried out by the teacher, which are outlined as follows:

a. Preliminary Activities

"In the preliminary activities, as usual, preparations are made to start learning, such as greeting, asking how they are, checking attendance, and children are invited to pray first before starting the learning process. As the results of an interview with a fourth grade student named Kamila who stated that: "Yes, sir, that's right, before entering, you greet, ask how you are, then the teacher takes our attendance, then before starting learning, we read a prayer first which is led by the class leader's child, sir, we also sing the national song before starting learning, the teacher also always motivates or tells us to be smart children and makes us enthusiastic. The teacher also always repeats what we have learned before so that we do not easily forget the material. The teacher also asks a trigger question before conveying the learning objectives, after which the teacher presents the objectives of the material to be studied. " Based on the results of interviews and observations conducted, it can be seen that Mrs. Wilda, in carrying out preliminary activities with the implementation of the CTL learning model, is quite good.

b. Core activities

In accordance with the principles of CTL, learning begins with constructivism activities, namely the teacher provides material on energy changes through a PPT that has been made by the teacher and students observe it. Next, the teacher provides simple examples, and students are invited to make predictions about the introduction of the material. Then it continues with an inquiry activity: the teacher gives 2 picture cards on energy changes to each group, after which the teacher poses questions that encourage them to think critically and relate them to everyday relationships. In addition, science learning is conducted through the formation of study groups. By studying in groups, students will develop cooperation regardless of individual differences. The way teachers stimulate students to ask questions, as expressed by Mrs. Wilda Nuzulla, a fourth-grade teacher, is "In order

for students to feel curious and motivated to ask questions, I usually start my learning with apperception activities, either by showing pictures or learning media first. In this module, in accordance with the CTL stages in the core activity of the asking stage, the teacher facilitates discussions in class about what has been learned and their explorations, and provides opportunities for students to ask and answer questions from their classmates. Thus, students will be encouraged to ask questions and to be curious about the science subject matter to be studied at the meeting.

c. Closing

Closing activities are the final step in learning activities. In this closing activity, the teacher invites students to review the material learned, assess the activities they completed, obtain information about the learning plan, and close the learning with prayer and greetings. Based on the results of an interview with Mrs. Wilda Nuzulla, namely "My children and I always hold reflection activities at the end of the lesson. The way I do this is by asking the children questions about the material they learned today and the difficulties they faced. In addition, I invite students to write conclusions about the science learning we did that day.

3. Supporting and Inhibiting Factors of the CTL Model

a. Supporting Factors

The supporting factors include:

1) As educators, teachers need to be able to manage the classroom atmosphere so that students can learn information and apply what they have learned in real life. Teachers must be able to handle students who are bored, talkative, or sleepy during the lesson. With a wide range of knowledge and the ability to master several learning models, they can minimize problems in the classroom. Teachers who can manage the class well, understand students' characteristics to attract students' interest in learning, and easily understand the lesson can be categorized as supporting factors.
2) Students with a strong interest in learning will influence the success of the learning process. The learning situation of students at SD Negeri 28 Bandar Baru serves as a benchmark for implementing the Contextual Teaching and Learning model. Students at SD Negeri 28 Bandar Baru follow the teacher's instructions when learning begins. They also strive to perform at their best during discussions, creating an interactive learning environment. Student engagement is a supporting factor in the Contextual Teaching and Learning model, as students are highly engaged during the learning process.
3) Facilities and infrastructure are supporting factors for learning, especially in the CTL model. The facilities at SD Negeri 28 Bandar Baru are considered sufficient to support learning, such as whiteboards, markers, projectors, and other equipment.

b. Inhibiting Factors

The inhibiting factors in the implementation of the CTL learning model at SDN 28 Bandar Baru are:

1) Teachers, including their teaching style and teaching methods, are also important factors. Teacher behavior and personality, their level of knowledge, and how they teach that knowledge to their students all determine the learning outcomes achieved. Based on

observations, interviews, and documentation, there were no inhibiting factors from the teachers themselves, indicating that the implementation of the CTL learning model in grade IV of SD Negeri 28 Bandar Baru has been very effective.

2) Students can become obstacles if their abilities are lacking and the characteristics of low-level students are not considered, which will hinder the implementation of CTL learning. Based on the study results, some students had low knowledge, which became one of the factors hindering the CTL learning model. Based on observations of Mrs. Wilda during the learning process, the researcher identified learning obstacles, namely, students with low knowledge. These students still participated in the learning process, but the teacher re-explained the material.
3) Inadequate facilities can be a factor that hinders the learning process. The inhibiting factor in implementing the CTL model at SD Negeri 28 Bandar Baru is the network, as the school is located in a remote area and has difficulty accessing it. This is because the implementation of the CTL model in science learning uses technology that displays, such as PowerPoint, which requires internet access. Other facilities, such as whiteboards, markers, projectors, and laptops, are already provided at the school, but the only obstacle is the network.
4) The surrounding environment can be a key factor in the success of the learning process. When students feel comfortable, safe, and harmonious with their environment, it will support the implementation of CTL learning in the energy transformation material for grade IV. However, it will become an obstacle if the surrounding environment is unsafe, uncomfortable, or even poorly maintained. Interview results show that there are still factors that can influence the learning process. For example, the distance between home and school is too far, requiring a relatively long transportation journey, which is tiring. Many children also do not learn to capitalize on good results. They cannot improve their learning due to the lack of opportunities caused by busy work every day, a negative environment, and other factors beyond their capabilities. The environment can contribute to the success of the learning process to varying degrees. When students feel comfortable and harmonious in the environment, this will support the implementation of CTL learning in the main material on energy transformation for grade IV.

CONCLUSION

Based on an analysis of research findings in the field, the following research conclusions can be presented regarding the implementation of the CTL learning model in science learning, organized by planning and implementation focus, assessment, and factors that influence the CTL learning model in science learning.

1. In the implementation of the CTL learning model in class IV of SD Negeri 28 Bandar Baru, the overall results are good for both teachers and students. The process of planning the CTL learning model in science learning is carried out through learning device planning activities. The learning device for implementing the CTL model comprises seven stages: constructivism, finding (inquiry), asking (questioning), learning community (learning community), modeling (modeling), reflection (reflection), and authentic assessment. Science learning activities use Student

Worksheets (LKPD) as a guide. There is the use of PowerPoint learning media and picture cards, as well as the preparation of assessment techniques equipped with assessment rubrics.

2. Supporting factors and inhibiting factors in the implementation of the Contextual Teaching Learning (CTL) model in science learning. In implementing the CTL model at SD Negeri 28 Bandar Baru. Supporting factors in the implementation of this CTL model include teachers: teachers in the class can be a supporting factor when they have the skills and ability to enliven the classroom atmosphere. Supporting factors from students, namely those at SD Negeri 28 Bandar Baru, are that when learning begins, they follow the teacher's instructions. In addition, adequate facilities and infrastructure can be a supporting factor for the CTL model. At the same time, the inhibiting factors for implementing the CTL learning model are students with low knowledge. These students still engage in ongoing learning, but the teacher re-explains to them. Inhibiting factors from facilities: if facilities are not in good condition for their intended uses and benefits, they can hinder the learning process. Inhibiting factors from the surrounding environment, namely, will be an obstacle if the environment is not safe, comfortable, or properly fulfilled.

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