The Effect The Contextual Teaching And Learning (Ctl) Model On Phase Learning On Material Properties Of Objects In Class V Sd Private Pab 1 Klumpang

Nurhasanah

{makfathur@gmail.com}

Basic Education Study Program Medan State University Graduate School, Indonesia 2023

Abstract. This research is a quasi-experimental study using a control group pre-test and post-test design. 40 students from class V of SD PAB 1 Klumpang who became the population of this study, with 2 different classrooms as the experimental class and the control class. The research tool is in the form of a research test consisting of 20 multiple choice questions. Data analysis was taken from student learning outcomes before and after the test. In addition, data analysis was carried out for the normality test, homogeneity test and continued with the independent sample t test. Then obtained a significant value of 0.968 > 0.05, then rejecting H0 and accepting H1, which means fifth grade students at SD PAB 1 Klumpang who use the learning model that has been tested namely Contextual Teaching and Learning (CTL) have significantly different science learning outcomes with students who use conventional learning models.

Keywords: Contextual Teaching and Learning, Learning Outcomes, Material Properties of Object.

1 Introduction

A country must have solid foundations in building its nation, and of these foundations education is the most important foundation needed in building a glorious nation [1]. And this is clearly seen from the long series of world history which mentions some of the most advanced nations at that time, one of which was the Arab nation, which was a nation known as a great nation that had extraordinary levels of progress and prosperity during the glorious era of the Khulafaurrasyidin, Umayyad and Abbasid dynasties. At that time, the Arab nation was led by an Islamic leadership which was founded by a noble person named Muhammad bin Abdullah, a leader as well as a lord for Muslims. Prophet Mohamed, that's what he is called in the western world. The glory that was achieved by the Arab nation during these times, was based on Islamic teachings and values that he taught [2].

The leaders or caliphs who led to the heyday of the Arab nation at that time, they followed in the footsteps of the leadership of the Prophet Muhammad in building their nation and dynasty. Where the Prophet taught his people to become an intelligent nation with noble morals [3]. Because of this, the caliphs decided to reach the pinnacle of glory in building a nation and state, so what needs to be prioritized is education. They founded schools, libraries and institutions that support equal distribution and level of education in society. With the

AISTEEL 2023, September 19, Medan, Indonesia

DOI 10.4108/eai.19-9-2023.2340546

increasing level of public education, the human resources needed in nation building will also increase, and the more resources needed, the easier and faster it will be for a nation to achieve its glory. And this can be seen from the various achievements written by the Arab people in gold ink on the pages of world history. Starting from architectural splendor, an orderly financial system, an immeasurably vast territory, and many more advances that have been achieved by the Arab nation at that time and even today. They got all this thanks to a solid foundation called "Education" [4].

In essence, education has a very broad meaning but has the same concept. Namely all efforts made by humans and carried out consciously to develop each personality. Thoughts and skills that last throughout life and wherever they are. In the world of education, all activities that refer to efforts to develop human knowledge are referred to as the teaching and learning process, in which two parties play a role in this process, namely teachers and students [5]. A teacher is a person who provides knowledge and teaches the skills he has to his students. Meanwhile, students are people who need knowledge and hone their skills through the help of teachers. The efforts made by teachers are called teaching and the efforts made by students are called learning. Teachers are people who are role models for students, this is certainly not an easy thing. Because, to be a teacher, someone must be professional as a teacher and educator [6].

The teacher's task is not only to teach knowledge to students but also to educate their character so that they are able to become intelligent human beings with noble character [7] Indonesia, education has its own system. This system has been regulated in laws and policies on education and its implementation, namely Law No. 20 of 2003 concerning the National Education System which later became a guideline for Indonesian education. In this system, there are three main components that need to be known in teaching and learning activities in the world of education, namely teachers, students, and of course the curriculum

The curriculum is a guide or guideline for teaching materials designed and structured by the government in the implementation of education in schools. The Indonesian government has also established a program namely 12 years of compulsory education, where the program has 3 levels, namely 6 years of elementary school, 3 years of junior high school, and 3 years of senior high school. The program was made by the government as an effort to improve education in Indonesia. Although, currently Indonesia is still known as a developing country that still lacks human resources. However, if the government continues to actively improve education for the people, it is certain that in the future Indonesia will become a developed country that has competent human resources and is able to manage Indonesia's vast and rich natural resources [8].

In order to realize these ideals, of course the teacher's role is the main one. But in reality we can see that currently, many teachers are less competent and less professional in teaching students. The development of knowledge and technology is very fast, but the learning methods applied by teachers are still traditional. Ancient methods such as lectures, recording lessons and doing questions are still the main benchmarks in the teaching and learning process. There are no variations in fun learning styles, which of course can make students more active, enthusiastic, creative and innovative. All teaching and learning activities are still centered and focused on the teacher only [9]. Conventional methods like this will not be able to help students catch up with the progress of the times if they are still applied by Indonesian teachers.

In developed countries, teaching and learning methods are very varied, no longer tied to conventional methods alone. Of course, there are many learning models that we can practice with students while the learning process is ongoing. One of them is the contextual teaching and learning (CTL) learning model [10].

The Contextual Teaching and Learning (CTL) model is a learning model that has the concept of student activity in learning by linking real life material. Students take part directly in the learning process and think more creatively in solving problems. Teachers who use this model must relate the subject matter students learn to real life. Even giving direct examples, such as practice or showing real objects or props related to the material. Unlike conventional models, this model is more effective in building students' curiosity [11].

Contextual teaching and learning (CTL) is a learning model that is highly recommended for use in natural science subjects, namely material properties of objects, because in this subject practical work on getting to know nature is the goal of learning. With the CTL method students will find it easier to understand various materials regarding natural phenomena if they are directly related to real everyday life [12].

From various natural science materials, material properties of objects are materials that are related to life, some examples such as mineral water which is consumed daily is a liquid that has its properties and changes, solid objects that are often used by humans such as tables, chairs, bicycles, rubber, and others also have the same properties as gas objects [13].

If only using the conventional model students only know the properties of objects only from the teacher's explanation by imagining these objects in their minds. It is different if using the CTL model, students will more easily understand the properties of these objects because they see and observe these objects directly in the classroom and in the school yard. In this way, it can be ensured that the learning outcomes of students will be very satisfying and their skills and knowledge will be more honed [14]. Although this is still the opinion of the researcher himself, by conducting this research, the researcher hopes that the hypothesis will influence the use of the CTL learning model with more potential to improve student learning outcomes in elementary schools than the application of conventional models.

2 Research Methods

Experimental research using quantitative data is a type of research carried out by researchers. According to Azzahra & Atifah (2023), an effective research strategy is experimental research because if done well it can provide answers to the main hypothesis that is relevant to the cause and effect relationship. This research was attended by all class V students of SD PAB 1 Klumpang which included 40 students from class V-A and class V-B. The sample from this research was taken and used as a sample for the entire population using the total sampling method. At SD PAB 1 Klumpang, there are 20 students in the test class who are taught using the learning model tested, namely Contextual Teaching and Learning (CTL), and in class V-B there are 20 students who are taught using the conventional learning model. The data analysis

used is the T test. and using the kolmogorof sumirnov test, this was done because the sample used was no more than 50 people.

3 Results And Discussion

Following up on the research carried out in the form of teaching and learning activities in two different classes at SD PAB 1 Klumpang, where the learning model tested was used, namely Contextual Teaching and Learning (CTL) in class V-A as an experimental class and the learning model used in class V-B as a control class namely conventional researchers can obtain data analysis of student learning outcomes as follows:

a. Science Learning Outcomes of Students Who Are Taught Using the Contextual Teaching and Learning (CTL) Learning Model

After conducting research, researchers obtain data based on the results of statistical calculations. Researchers obtained student learning outcomes in science subjects with the learning model tested namely CTL obtaining an average score of 93, with scores ranging from 80 to 100. The variance found was 64,408, and the standard deviation found was h8,025. The bar chart depicts the visual distribution of the frequency values of the science learning outcomes of the students being taught. With the Contextual Teaching and Learning (CTL) learning model:

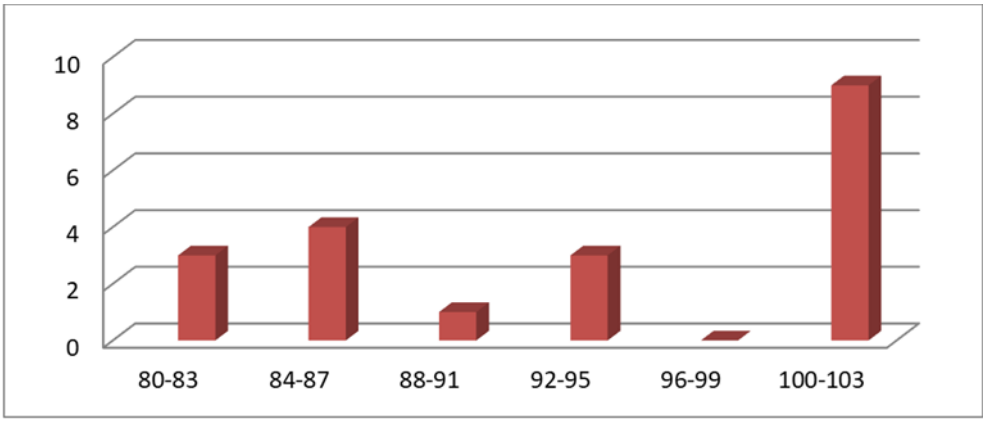

Figure 1. Bar chart of natural science learning outcomes Contextual Teaching and Learning Model

b. Science Learning Results for Students Taught Using Conventional Learning Models

After conducting the research, the researcher obtained information based on the results of measurable calculations which revealed that the value of students' science learning outcomes shown using the conventional learning model had the lowest score of 40 and the highest low score of 70 and the average value obtained was 59; The variation obtained was 73.947 and the standard deviation obtained was 8.559. The distribution of student scores shown using the conventional learning model can be depicted in the form of a bar line below:

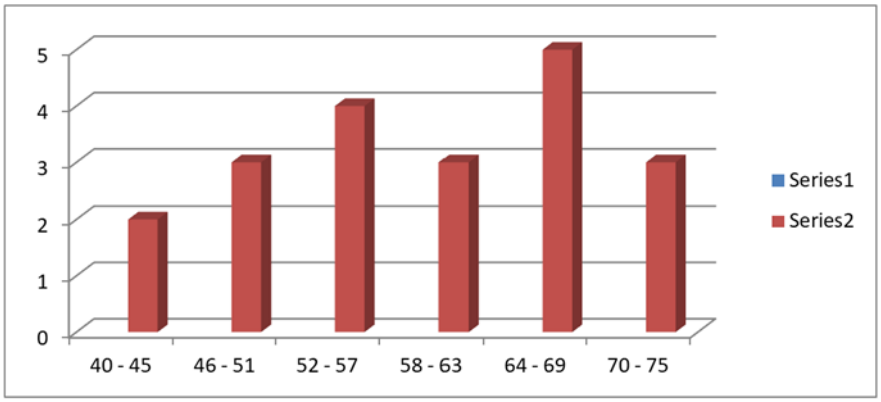

Figure 2. Bar diagram of science learning outcomes from conventional learning models

c. Normality test

To complete this information, researchers tested a normality test. The normality test was carried out by the analyst using the Shapiro-Wilk factual test using SPSS output 25. To see the normality of all exploration information, it can be seen in the table presented below:

Tests of Normality

		Kolmogorov-Smirnova			Shapiro-Wilk		
	Kelas	Statistic	df	Sig.	Statistic	Df	Sig.
Hasil Belajar IPA	Kelas Eksperimen	.267	20	.006	.791	20	.008
	Kelas Kontrol	.175	20	.109	.937	20	.212

a. Lilliefors Significance Correction

Based on the table above which contains the results of the post test data normality test with the Shapiro – Wilk test, the researcher obtained a significant value, namely 0.008 > 0.05. Therefore, researchers can conclude from experimental data that has been tested through the normality test, that the data is normally distributed

d. homogeneity test

After testing through the normality test on all data, the next test is the homogeneity test using SPSS. Homogeneity tests are used to decide whether the variations from at least two disseminations are very similar. Homogeneity test is also generally used as a prerequisite in the Independent sample T test and ANOVA. Homogeneity test information has been seen in the attached table:

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
Hasil Belajar IPA	Based on Mean	.002	1	38	.968
	Based on Median	.027	1	38	.871
	Based on Median and with adjusted df	.027	1	37.847	.871
	Based on trimmed mean	.000	1	38	.983

Based on the table above which contains the results of the post test data homogeneity test, the researcher obtained a significant value of 0.968 > 0.05. Therefore, researchers can conclude

from experimental data that has been tested through homogeneity tests, that the research data collection is relatively the same or homogeneous.

e. T test

After testing through a homogeneity test on the data set, the next test is the Independent Sample T – test. The T-test is used to see whether there is a difference in the meaning of two unpaired examples. Autonomous Example T test information is shown in the table below:

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Hasil Belajar IPA	Equal variances assumed	.002	.968	13.022	38	.000	34.25000	2.63016	28.92551	39.57449
	Equal variances not assumed			13.022	37.820	.000	34.25000	2.63016	28.92468	39.57532

Based on the table above showing the results of the Independent Sample T-test test data post test, the researcher obtained a significance value of 0.968 > 0.05, so the researcher can conclude that there is a very large difference between the science learning outcomes of students in the Experiment class and the Control class.

4 Discussion

The learning model is a factor that can improve learning outcomes. One model that can be used and is quite easy to apply to students during the learning process is CTL or Contextual Teaching and Learning. According to analysts, this learning model is considered capable of influencing student learning outcomes. This is influenced by the fact that this learning model emphasizes student cooperation in cultivating experiences with pairs of learning materials with real-life situations of students. (Hendra, 2021).

When carrying out learning activities by applying the CTL model, of course it can make students more enthusiastic and more dynamic and not easily bored. The CTL model can make it easier for students to find ideas for certain material quickly. With an educational learning model, students can really understand the concept of learning clearly and thoroughly, and can build decisive reasoning and produce students' imaginations in educational experiences.

The assertion above, of course, has been reviewed by the researcher when conducting research that has been carried out on students while testing the use of a learning model that is quite easy and of course fun for students and easy to understand the material being taught, namely the CTL model. Compared to the learning process that uses the usual model or conventional model, where students get bored more easily, are not enthusiastic, are also sleepy and do not understand the material being taught. It has been tried and the results of the Independent T-test or speculation test received a value of 0.968 > 0.05, therefore eliminating H0 and tolerating H1. From the picture that can be seen, it shows that there are indeed differences in the values or learning outcomes that have been tested on students, of course using the learning model used by the researchers in this study, namely CTL or Contextual Teaching and Learning with Conventional learning models.

References

[1] M. Naim, A. Rajab, and M. Alip, “Esensi Metode Pembelajaran Perspektif Pendidikan

Islam," *ISTIQRA' J. Pemikir. dan Pendidik. Islam*, vol. 7, no. 2, pp. 74–88, 2020.
[2] S. Wahyuningsih, "Implementasi Sistem Pendidikan Islam Pada Masa Daulah Abbasiyah Dan Pada Masa Sekarang," *J. Kependidikan*, vol. 2, no. 2, pp. 109–126, 2014.
[3] H. Hafiddin, "Pendidikan Islam pada Masa Rasulullah," *TARBIYA J. Ilmu Pendidik. Islam*, vol. 1, no. 1, pp. 17–30, 2015.
[4] I. E. Limbong, "Aspek Finansial Pendidikan Islam," *J. Kaji. Islam Kontemporer*, vol. 1, no. 3, pp. 147–154, 2021.
[5] A. N. Aeni, "Menjadi guru SD yang memiliki kompetensi personal-religius melalui program one day one juz (ODOJ)," *Mimb. Sekol. Dasar*, vol. 2, no. 2, pp. 212–223, 2015.
[6] Z. Viafarida, M. Meldawati, and R. Nazmi, "PELAKSANAAN MODEL COOPERATIVE LEARNING TIPE TWO STAY TWO STRAY (TS-TS) PADA MATA PELAJARAN IPS TERPADU KELAS VIII.B DI SMP NEGERI 34 KABUPATEN TEBO," *J. Teach. Educ.*, vol. 3, no. 1, pp. 7–13, Sep. 2021, doi: 10.31004/JOTE.V3I1.2064.
[7] I. Indrawan, "Model Pembelajaran Nabi Muhammad SAW (Hiwar , Analogi , Tashbih, dan Amtsal)," *Al-Afkar J. Keislam. Perad.*, vol. 1, no. 2, 2016, doi: 10.28944/afkar.v1i2.43.
[8] Y. U. Lawe and M. Pau, "Pengaruh Model Pembelajaran Kontekstual Terhadap Hasil Belajar IPA Siswa SD," *J. Ilm. Pendidik. Citra Bakti*, vol. 6, no. 1, pp. 64–74, 2019.
[9] A. R. Tibahary and M. Muliana, "Model-model pembelajaran inovatif," *Scolae J. Pedagog.*, vol. 1, no. 1, pp. 54–64, 2018.
[10] I. K. N. Ardiawan and K. P. Y. Diari, "PENERAPAN MODEL PEMBELAJARAN KONTEKSTUAL UNTUK MENINGKATKAN KEAKTIFAN DAN PRESTASI BELAJAR IPA," *Adi Widya J. Pendidik. Dasar*, vol. 5, no. 1, pp. 10–16, 2020.
[11] A. Arnianti and D. W. R. M,si, "PENGEMBANGAN MODUL BERBASIS PENGAJARAN DAN PEMBELAJARAN KONTEKSTUAL (CONTEXTUAL TEACHING AND LEARNING) PADA MATA PELAJARAN IPA KELAS V SEKOLAH DASAR," *Penamas*, vol. 30, no. 2, 2017, doi: 10.31330/penamas.v30i2.154.
[12] I. B. K. M. Ariawan, N. A. P. Lestari, and I. M. A. Dharma, "Implementasi Model Pembelajaran CTL (Contextual Teaching And Learning) untuk Meningkatkan Hasil Belajar IPA," *Indones. Res. J. Educ.*, vol. 2, no. 1, pp. 238–245, 2022.
[13] D. Septian, I. F. Farid, S. Syaifuddin, and S. Hastuti, "Respon dan Pengaruh Pendekatan Contextual Teaching Learning Terhadap Hasil Belajar IPA Materi Perubahan Sifat Benda Pada Siswa Kelas V Sekolah Dasar," *J. Pendidik. Fis. dan Sains*, vol. 4, no. 1, 2021, doi: 10.52188/jpfs.v4i1.153.
[14] I. Fiteriani and I. Solekha, "Peningkatan Hasil Belajar IPA melalui Model Pembelajaran Contextual Teaching And Learning (CTL) pada Siswa Kelas V MI Raden Intan Wonodadi Kecamatan Gadingrejo Kabupaten Pringsewu Tahun Pelajaran 2015/2016," *TERAMPIL J. Pendidik. dan Pembelajaran Dasar*, vol. 3, no. 1, pp. 103–120, 2016.