

Profile of Student Learning Outcome Using Contextual Teaching and Learning Approach in SMA Negeri 11 Makassar

Khairurrahimin.¹, A. Mu'nisa², Nurhayati B.³, Nur Athirah Hadis⁴

^{1,2,3}Department of Biology, Faculty of Mathematics and Natural Sciences. State University Makassar. ⁴Psychology Study Program, Faculty of Psychology. State University Makassar.

andi.munisa@unm.ac.id

Abstract. This study aims to determine the learning outcomes of students who are taught using the Contextual Teaching and Learning (CTL) approach to the respiratory system material at SMA Negeri 11 Makassar and to determine the effect of using the Contextual Teaching and Learning (CTL) approach on student learning outcomes on respiratory system material at SMA Negeri 11 Makassar. This type of research uses a quasi-experimental research design using the Pretest-Posttest Comparison Group Design research design. In this design, there are two study groups. The XI IPA I study group used the conventional approach and the IPA II study group used the CTL approach. Each study group was first given a pre-test, then learning was carried out, and they were given a post-test. The data analysis technique used in this study is descriptive statistical data analysis to describe the biology learning outcomes obtained by students after being taught using the conventional approach and contextual teaching and learning (CTL) calculated using the SPSS 24.0 application program. And inferential statistical analysis used t-test (t-test) to determine the effect of the CTL approach on student learning outcomes through the SPSS 24.0 application program. The results of this study indicate that the learning outcomes of students who are taught using the Contextual Teaching and Learning (CTL) approach to biology learning outcomes of students at SMA Negeri 11 Makassar improve. There is a significant effect of using the Contextual Teaching And Learning (CTL) approach in learning respiratory system material on student learning outcomes at SMA Negeri 11 Makassar.

Keywords: Contextual Teaching and Learning, Learning Outcomes, SMA Negeri 11 Makassar.

PRELIMINARY

In today's education, teachers are not the only source of learning that exists. The teacher is no longer required to be a transmitter of what is known by the teacher or what is in the book to his students. This allows students as something that must follow the teacher without understanding what the students are thinking. This fact makes students not active in learning, because students only silently accept what the teacher says. This situation is contrary to the theory of Piaget (Mulyani Sumantri and Johan Permana 2001:15) which states that "the child is an active person", therefore the role of the teacher in learning should shift from being a transmitter to being a guide or guide in this case a guide or mentor in teaching and learning. teaching and learning process.



According to Slameto (Djamarah 2008: 13). Changes as a result of the learning process can be shown in various forms such as changes in knowledge, understanding, attitudes and behavior, as well as skills, abilities and abilities, reaction power, acceptance power and various aspects that exist in individuals. Therefore learning is an active process, learning is a process of reacting to all situations that exist around the individual. Based on research conducted (Ritonga, 2016) it is explained that the respiratory system material contains many concepts that students need to understand. The contextual approach (Contextual Teaching and Learning / CTL) is a learning concept that helps teachers relate the material being taught and the relationship between their knowledge and their family and society. With this concept, learning outcomes are expected to be more meaningful for students. That is the role of the teacher in a classroom that is managed using a Contextual Teaching and Learning approach (Aqib, 2009). So it can be concluded that students will learn well if what is learned is related to what has been known and happened in their environment.

The contextual approach (Contextual Teaching and Learning / CTL) is a learning concept that helps teachers link the material being taught and the relationship between their knowledge and their family and society. With this concept, learning outcomes are expected to be more meaningful for students. The teacher's job is to manage the class as a team that works together to find something new and find out on their own, not what the teacher says. That is the role of the teacher in a classroom that is managed using a Contextual Teaching and Learning approach (Aqib, 2009).

A conducive learning environment is very important and very supportive of contextual learning, and the overall success of learning. Therefore, the Contextual Teaching and Learning (CTL) learning model is very suitable to improve student learning outcomes, because in this learning model students will be active and practice directly what they have learned in everyday life, students will feel the importance of learning , and students will get a deep meaning to what they learn.

Based on the facts found in the field when the researchers conducted initial observations at SMA Negeri 11 Makassar, the situation was not as expected. This can be seen from the daily test scores for even semesters. The minimum completeness criteria score (KKM) that has been set by the school is 76. Meanwhile, it was recorded that only 35% scored above the KKM, 15% was limited to the KKM and 50% below the KKM was obtained from interviews with teachers of biology subjects. In the learning process was not optimal, the learning conditions were not conducive. Many students do not pay attention to the teacher and students more often do



things outside of learning activities such as sleepiness and so on. Based on the above background, the researcher proposes a research entitled "The Effect of Contextual Teaching and Learning on Learning Outcomes of Students at SMA Negeri 11 Makassar" with the aim of research to determine the effect of the application of Contextual Teaching and Learning (CTL) learning on student learning outcomes on the respiratory system material at SMA N 11 Makassar.

RESEARCH METHODS

This research is a quasi-experimental quantitative research. Quasi-experimental research is a type of research where not all factors that can theoretically affect the implementation of the experiment (the dependent variable) can be controlled (controlled) by the researcher (Sugiyono, 2010). This research was conducted in the even semester of the 2021/2022 academic year in February-March 2022. This research was conducted in one of the schools in the city of Makassar, precisely at SMA Negeri 11 Makassar. Jl. Andi Mappaodang No. 28, Jongaya, Tamalate Sub-district, Makassar City.

The population in this study was the entire study group for Class XI IPA SMA N. 11 Makassar which consisted of 7 class XI IPA in 1 class consisting of 34-36 students and the research design used in the study was Pretest-Posttest Compration Group Design. In this design, there were two groups, all of which were given treatment. Each group was first given a pre-test, then given a post-test treatment. The research design is as follows:

Group	Pre-test	Treatment	Post-test
I	O1	X1	O2
II	O3	X2	O4

Source: Sarwendah (2013)

Description :

I : Groups of students who are taught with the approach *Contextual Teaching And Learning (CTL)*

II : Groups of students who are taught with the approach konvensional

O1 : *Pre-test* group I

O2 : *Pos-test* group I

O3 : *Pre-test* group II

O4 : *Pos-test* group II

X1 : Learning by using approach *Contextual Teaching And Learning (CTL)*

X2 : Learning by using approach konvensional.



Data Collection Techniques

The instrument used to obtain the data needed in this study is a test of biology learning outcomes in the form of a written test of 25 multiple choice questions with 5 alternative choices. Learning outcomes test is used as a tool to collect data on learning outcomes of biology subjects. The determination of the score for each item refers to the assessment rubric that has been determined by the researcher. For correct answers, a score of 1 is obtained while for incorrect or unanswered answers, a score of 0 is obtained with a maximum score of 25. The scores obtained are processed to obtain learning outcomes using the following formula:

$$\text{Nilai} = \frac{\text{Skor yang diperoleh}}{\text{Skor maksimum}} \times 100$$

Data Analysis Techniques

The data analysis technique used in this research is data analysis

1. Descriptive statistical analysis

a. Descriptive Statistical Analysis of Student Learning Outcomes

This analysis is intended to describe the learning outcomes of biology obtained by students after being taught using Contextual Teaching and Learning (CTL) and Conventional approaches. The scale of the interval category for the biology learning outcomes of students at SMA Negeri 11 Makassar is as follows.

Table 3. 3 Categories of Student Learning Outcomes Score

Interval Nilai	Category
81-90	Very Good
61-80	Good
41-60	Enough
21-40	Not Enough
0-20	Very Less

2. Inferential Statistical Analysis

Inferential statistical analysis was used to test the research learning outcomes by using the t-test (t-test) through the SPSS application program. Inferential analysis is divided into two, namely parametric analysis and nonparametric analysis, but what is used in this study is parametric analysis because population parameters and population size through sample data will be tested in this study. Parametric analysis has a requirement that the data obtained must be normally distributed and have homogeneous variations and the type of data must be interval and ratio data. This analysis



technique is a statistical technique used to analyze sample data and the results are applied to the population. Prior to the t-test analysis, the prerequisite tests were carried out, namely the normality test and homogeneity test. However, if the data obtained are not normally distributed and have non-homogeneous variations, non-parametric analysis will be used. The use of non-parametric statistics can be tested through nominal and ordinal data types. The method used in processing non-parametric statistical data is the chi-square test.

a. Normality test

Normality test is used to determine the sample under study is normally distributed or not. This normality test was carried out on the learning outcomes of students in the class using the CTL approach and the learning outcomes of students in the class using the conventional approach. Testing the normality of learning outcomes data using the SPSS application program, with the test criteria that the data is said to be normally distributed if the Kolmogorov-Smirnov Z (2-tailed) value obtained is > 0.05 . On the other hand, if the value of Kolmogorov-Smirnov Z (2-tailed) < 0.05 , it can be concluded that the research sample is not normally distributed.

b. Homogeneity Test

Testing the homogeneity of the learning outcomes data aims to find out the data in this study has the same variance (homogeneous) or not. Testing the homogeneity of the data on biology learning outcomes using the Statistical Package for Social Science (SPSS) version 24.0 system. The test criteria used with a significance level of $= 0.05$. The decision-making is done by looking at Levene's test of Error Variance, if Levene's test $>$ Hypothesis test $= 0.05$, then the data variation is said to be homogeneous.

The type of t-test used is the Paired Sample t test using the Statistical Package for Social Science (SPSS) version 24.0 for windows. Paired Sample t test is part of a comparative hypothesis test or comparison test. This test aims to determine whether there is a difference in the average of two samples (two groups) that are paired or related. The test criteria are if Sig. (2-tailed) < 0.05 , then the research hypothesis is accepted, meaning that there are differences in student learning outcomes taught by the CTL approach with the conventional approach.

3. N-Gain Test

Normalized gain test (N-Gain) was conducted to determine the increase in student learning outcomes after being given treatment. This



increase was taken from the pretest and posttest scores obtained by students. Normalized gain or abbreviated as N-Gain is a comparison of the actual gain score with the maximum gain score. Calculate the normalized Gain score based on the formula

$$N - Gain = \frac{Skor\ Posttest - Skor\ Pretest}{Skor\ Maksimal - Skor\ Pretest} \times 100$$

The N-Gain criteria are as follows.

Interpretation N-Gain	Range
$0,7 < (g) < 1$	High
$0,3 \leq (g) \leq 0,7$	Medium
$0 < (g) < 0,3$	Low

RESEARCH RESULT

Descriptive Statistical Analysis

- 1. **Descriptive Statistical Analysis of Learning Outcomes**
- a. **Descriptive Pretest-Posttest Values of Students Through Contextual Teaching And Learning (CTL) Approach**

Student learning outcomes data obtained from the Pretest and Posttest scores as presented in Table 1.

Statistik	Group CTL		Group Konvensional	
	Pretest	Posttest	Pretest	Posttest
Highest Score	76	90	70	82
Lowest Score	36	72	36	70
Mean	59.89	82.53	50.89	60.64
Standar Deviasi	12.39	6.07	13.57	9.99
Modus	72	88	44	54
Median	68.00	79.00	50.00	56.00

Source: primary data processed

Table above shows that the average score of students' learning outcomes in the Contextual Teaching and Learning (CTL) group with the Conventional group has increased. In this table, the average value of the posttest in the CTL group was 82.53 and the average value of the posttest in the conventional group was 60.64. However, when viewed from the two study groups, the group that was taught using the Contextual Teaching and



Learning (CTL) approach had a higher improvement value.

Table 2. Distribution of Frequency and Percentage Categories of Students' Pretest-Posttest Learning Outcomes in the CTL Group and the Conventional Group

Category	Group CTL		Group Konvensional	
	Pretest		Posttest	
	F	%	F	%
Very Good	0.00	0.00	17	47.22
Good	20	55.56	19	52.78
Enough	13	36.11	0.00	0.00
Less	3	8.33	0.00	0.00
Very Less	0.00	0.00	0.00	0.00

Source: primary data processed

The pretest results obtained by the Contextual Teaching and Learning (CTL) group were dominated by the good category with a percentage of 55.56% and the posttest in the CTL group was dominated by the good category with a percentage of 52.78%. Whereas in the pretest and posttest the Conventional group was dominated by the sufficient category. The results of these data indicate that students who are taught with the CTL approach have higher learning outcomes compared to the conventional approach.

2. Inferential Statistical Analysis

a. Normality Test of Student Learning Outcomes

Table 3. Normality Test Results Against Average Pretest and Posttest Values Using the N-Gain Test are presented in Table 3.

Variable	Sig-(2-tailed)	
Description		
Pretest-CTL	0.365	Normal
Posttest-CTL	0.365	Normal
Pretest Konvensional	0.200	Normal
Posttest Konvensional	0.200	Normal

Source: primary data processed

The output of SPSS Normality Test for learning outcomes in the CTL group is 0.200 and in the conventional group is 0.365. Data that are



normally distributed have a significant value greater than 0.05 ($\alpha > 0.05$), so it can be concluded that all data for learning outcomes in the CTL and Conventional groups are normally the largest.

b) Homogeneous Test of Student Learning Outcomes

Homogeneity test was conducted to determine whether the data obtained were homogeneous or not for the two treatment groups. The homogeneity test uses Levene Statistics with the criteria that if the leavene statistic is > 0.05 , it can be said that the variation of the data is homogeneity. The results of the homogeneity test are shown in table 4.

Table 4. Test Results of Homogeneity of Learning Outcomes Values

Leavene Statistic	df 1	df 2	Sig
Learning Outcomes	0,366	3	140 0,550

Source: primary data processed

The Levene's Test aims to determine the variance of the data that is the same or different based on the results of data processing according to the test of homogeneity of variances table above, the p-value of learning outcomes is $0.366 = 0.05$ so that it can be concluded that the data comes from the same group. have the same variance (homogeneous).

c. Difference Test

The results of the t-test of the CTL and Conventional approaches to student learning outcomes can be seen in table 5.

Table 5. Paired Samples Test Results

	df	Sig
Learning Outcomes	35	0,00

Source: primary data processed

From the processing results, it can be seen that the significant number for the group variable is 0.00 because the significant value is $0.00 < 0.05$, then the hypothesis is accepted. It was concluded that there were differences in the learning outcomes of students who were taught using the conventional CTL approach on the respiratory system material at SMAN 11 Makassar.

3. N-Gain Analysis

Normalized N-Gain analysis was used to find out how much difference there was in the improvement in learning outcomes in the CTL and conventional groups. The data on the average gain value of students'

learning outcomes are then grouped based on the N-gain category which is presented in table 4.3.

Table 6. Average N-gain Results of Student Learning Outcomes.

Group	Mean N-gain	Category
CTL	0,56	Medium
Konvensional	0,21	Low

Source: primary data processed

Table 4.3 shows that the average N-gain value for the CTL group of 0.56 is in the medium category, while the average N-gain for the conventional group of 0.21 is in the low category. The results of this data analysis show that the change in the increase in the learning ability of conventional group students is higher than the CTL group.

DISCUSSION

Based on the results of the analysis of the data obtained from the above calculations related to the research that has been done at SMA Negeri 11 Makassar, it can be seen that the results of the research and the treatment that has been given to the sample have an influence on the learning motivation of students. This can be seen from the average value (Mean) obtained by the CTL and conventional groups, it is found that there is a difference between the learning outcomes of students who are taught using Contextual Teaching and Learning (CTL) and conventional approaches.

Improvements and differences in learning outcomes in CTL and conventional classes can be seen in table 4.2. Judging from the pretest and posttest scores in the CTL and conventional groups, the learning outcomes of students in the CTL class have higher learning outcomes compared to conventional classes. After conducting the "t" test which aims to determine how much influence the Contextual Teaching and Learning (CTL) approach has on learning outcomes. Based on the results of data analysis carried out by the "t" test, the data obtained that the significance number for the group variable is, 0.00. because the significance value is $0.00 < 0.05$, it means that the hypothesis is accepted. This means that there is an influence between the Contextual Teaching and Learning (CTL) approach to student learning outcomes in biology subjects on the respiratory system material at SMA Negeri 11 Makassar.

This difference is due to the fact that the CTL group experienced an increase in motivation and higher learning outcomes than the conventional group because the acceptance of learning implemented a variety of learning



activities such as at the beginning of learning the teacher gave appreciation and in the form of questions related to the respiratory system material to provoke students' critical thinking patterns so that learning activities not monotonous, then students carry out discussion activities or learning communities, students are directed to find their own problems until students do their own LKPD given by the teacher so that students are more motivated in participating in learning activities. The opinion above is supported by (Arikunto, et al. 2002) who stated that CTL is a holistic education and aims to relate the material to the context of everyday life.

Based on the description above, it shows that different treatments cause different final results between Contextual Teaching and Learning (CTL) classes and conventional classes. Even though it experienced an increase in student learning outcomes, the CTL class experienced a higher increase in learning outcomes. Thus, it is proven that the Contextual Teaching and Learning (CTL) approach can have an effect on improving student learning outcomes. The results of this study have implications that the Contextual Teaching and Learning (CTL) approach can be used as an alternative for creative and innovative learning in an effort to improve the quality of education, especially in learning biology. This is confirmed by the results of research conducted by (Oktaviansa, et al. 2013) it can be concluded that the use of CTL learning in a class has advantages compared to classes that use conventional learning.

CONCLUSION

Based on the results of research and discussion, it can be concluded that there is an effect of applying the Contextual Teaching and Learning (CTL) approach to the respiratory system material on the learning outcomes of students at SMA Negeri 11 Makassar.

BIBLIOGRAPHY

- Aqib, Zainal. 2009. *Model Evaluasi Pembelajaran Sejarah*. Yogyakarta: Ombak.
- Arikunto. 2010. *Prosedur Penelitian Suatu Pendekatan Praktik Ed Revisi*. Jakarta : Rineka Cipta.
- Djamarah, Syaiful B. 2008. *Psikologi Belajar*. Jakarta: Rineka Cipta.
- Mulyani Sumantri dan Johar Permana. 2001. *Strategi Belajar Mengajar*. Jakarta : CV.Maulana
- Oktaviansa, Willi Afdin., dkk. 2013. Pengaruh Model Pembelajaran CTL (Contextual Teaching And Learning) Terhadap Motivasi dan Hasil Belajar Siswa SMKN 1 SIDIORJA. *JPTM*. Universitas Negeri Surabaya. Vol 2 (1) 34 – 43.



- Ritonga, Nurhakima. 2016. Analisis Kesulitan Pada Materi Pokok Sistem Pernapasan Manusia. *Jurnal Wahana Inovasi*. STKIP Labuan Batu. Vol 5 (2).
- Sarwendah, Martini, K., & Utami, B. 2013. Studi Komparasi Pembelajaran Kimian Menggunakan Model Pembelajaran Kooperatif Metode TGT Pada Materi Sistem Koloid. *Jurnal Pendidikan*. 02 (01): 44.
- Sugiyono. 2010. *Metodologi Penelitian Pendidikan (Kuantitatif, Kualitatif, Kombinasi, R&D dan Penelitian Pendidikan)*. Bandung: Alfabeta.

