



The Effect of Reciprocal Teaching Learning Model on Student Learning Outcomes

Muh. Anas¹, Warda Murti², Nana Erna³, Muqtakdir Nurfalaq Syarif⁴

^{1,4} Biology Education Study Program, Faculty of Teacher Training and Education Patempo University, Jl. Inspection of Citraland Canal No 10, Makassar, Postal Code 90233, South Sulawesi, Indonesia.

² Biology Education Study Program, Faculty of Teacher Training and Education Muslim of Maros University, Jl. Dr. Ratulangi No 62, Maros, 90512, South Sulawesi, Indonesia.

³ English Education Departmen, Letters Faculty, Sawerigading University of Makassar, Jl. Kandeana No 127, Makassar, Postal Code 90213, South Sulawesi, Indonesia.

ARTICLE INFO

Article History

Received 25-10-2022
Revised 29-11-2022
Accepted 26-12-2022
Published 03-01-2023

Keywords:

Learning Outcomes,
Reciprocal, Teaching Model.

ABSTRACT

The learning process is important because human learning can add and update knowledge that is useful for the future. Science is growing from age to age, so the learning process will develop and the learning methods will be more varied. One of the learning methods that can be applied is the method reciprocal teaching which is one of the effective methods because it trains students' process skills. This study aims to see how the effect of using the method on student learning outcomes, this type of research is pre-experimental research by giving pretest and posttest treatments to one experimental class. The sample of this research is Biology Education students of FKIP UMMA in the Basic Microbiology course program with a total of 26 students consisting of 13 male students and 13 female students where the sampling method used is Purposive Sampling. One experimental class was taught using the Reciprocal Teaching learning method. The research instrument used was a multiple choice test of 20 items which had been validated by two experts, namely content and language experts. The research data were analyzed descriptively and inferentially. The results of this study indicate that there is a higher effect on student learning outcomes who are taught by learning using the reciprocal teaching model than before being given the treatment. These differences indicate that the reciprocal teaching model is an effective learning method used in these subjects because this learning model trains students to be more active and enthusiastic in the learning process.

Copyright © 2021 State University of Medan. Open Access article under license CC-BY-4.0 (<https://creativecommons.org/licenses/by/4.0>)

How to Cite

Anas, M., Murti, W., Erna, N., Syarif, M. N. (2022). The Effect of Reciprocal Teaching Learning Model on Student Learning Outcomes. *Jurnal Pendidikan Biologi*, 11(3), 37-44.

INTRODUCTION

Education has a very important influence on human life. Through education

a person can get experiences that will be very useful for his life in the future. Education as the key determinant of changing times

through education means that mastery of technology is easier to master, therefore education is an absolute necessity for humans (Anas & Murti, 2021; Aris, 2014).

The importance of education makes countries compete to improve their education system in order to create the nation's next generation who can create changes that are beneficial for the nation and the country. In higher education, education is obtained through the learning process which is the most important activity, in which there is an interaction between the learning components, namely methods, environment and support for learning media to make it easier to achieve learning objectives (Akinsola, *et al.*, 2007). In order to improve the quality of education itself so that educational goals can be achieved optimally, it is necessary to pay attention to several components in teaching and learning activities. The learning process is the most basic activity. The success of learning is not only determined by the factor of the teacher, but is strongly influenced by the activity of students. Teachers are not the only source of information or learning resources, but act as facilitators, motivators, and evaluators in learning activities (Schunk & Usher, 2012; Danim, 2011).

Biology is a part of science that deals with problems related to living things; often every research has many processes and scientific approaches to produce scientific results. Process skills are the skills needed to create and use scientific information, conduct scientific research, and solve problems. One of the things that mark the importance of process skills in learning is that students will find it easier to understand complex concepts if accompanied by concrete and reasonable examples (Hamalik, 2011).

According to Yusrizal & Fatmawati (2020) learning outcomes are the output of The aim of education is to acquire

knowledge, mastery of skills, and attitude formation. Therefore, lecturer ideally design a process learning that is able to make the whole students are actively involved in the learning process which is conducted. Thus teacher required to be able to design a model appropriate learning to obtain high learning outcomes. The low learning outcomes of students are influenced by various factors, one of which is the less attractive way of learning they have to deal with in the classroom, so that students prefer to do other things than pay attention to learning. Less interesting learning in the classroom can be caused by the use of learning strategies that are less precise and less memorable. Finally, students get bored easily and laziness appears so that learning is no longer effective (Adhani, 2014; Siraji & Yusuf, 2014).

Reciprocal Teaching learning model is a learning model that can increase student participation in learning. This Reciprocal Teaching learning model is a learning model in the form of activities to teach material to friends. In this learning model, students act as lecturers to convey material to their friends. Meanwhile, the Lecturer acts more as a facilitator. Reciprocal Teaching is a learning model where students are given the opportunity to learn the material first. Then, the students re-explained the material learned to other students (Seli, 2020; Sanjaya, 2011). Therefore, providing direct experience coupled with process skills makes it easier for students to understand concepts that will affect learning outcomes.

Founded by Agoro & Akinsola (2013) about the Reflective-Reciprocal Peer Tutoring was more effective than the Modified Conventional Teaching Strategy probably due to the fact that the group of pre-service teachers had complete control over all of the activities involved in the practical class. This result is consistent with that of Driscoll (2000) and Mulyono, *et al.* (2018) who discovered that learners' preparation, interactions with others, and

active participation and involvement were key factors in the development of science process skills.

Based on the results of observations, it was found that students of Biology education study program, FKIP UMMA Maros tend to be negligent and lack enthusiasm so that they are lazy to do assignments and do not focus on listening to lecturers' explanations in learning biology because the learning method usually used by lecturers is a lecture method which causes students to get bored quickly. So, one of the efforts to develop students' process skill is to use the Reciprocal Teaching model. Through the principle of independent learning that is owned by Reciprocal Teaching and the provision of direct learning experiences through the discussion method, maximize the development of process skills and student learning outcomes.

Based on the above background, the purpose of this study is to find out how the effect of using the Reciprocal Teaching learning model on student learning outcomes. The benefits of this study can add new understanding that demands productive creative activity in real contexts for both teachers and students. It gain for teachers is to add references to teaching methods while for students the application of this method can encourage students to think and rethink and then demonstrate.

METHOD

This type of research is a pre-experimental research involving one class as the experimental class. The class is selected based on Purposive Sampling. The sample in this study amounted to 26 students with 13 female students and 13 male students programming the Basic Microbiology course for Biology education students' in University of Muslim Maros, 2021/2022 academic year. In this research there are several procedures that will be carried out, this aims to make the research run well and structured. The procedure in this study is divided into 3 stages, namely:

Preparation Stage or Planning Stage

The first stage of the research began by creating and compiling research tools in the form of RPS and SAP for Basic Microbiology courses and test instruments related to these courses, Consulting and validating teaching materials and test instruments used by 2 experts, namely content experts and linguists.

Implementation Stage

Giving a pretest at the 1st (first) meeting before treatment then carrying out the teaching and learning process with the Reciprocal Teaching learning model at meetings 2, 3, 4. It is conducting observations and data collection in the learning process in the form of observation, giving a posttest at meeting 5 which is the last meeting.

Final Stage

Collecting research data that has been done, processing and analyzing research data using SPSS version 25 for windows. The series of information collection in this study was carried out in several ways, including the following: Observations carried out by researchers were by conducting initial direct observations of the research location. This observation is done to observe directly about the problems that are taking place in the classroom. This is done by paying close attention to the student learning process, student behavior during the learning process using 4 observers. The test technique consists of a written test in the form of multiple choices with 20 numbered questions. The data analysis used by the researcher is a quantitative analysis carried out by the researcher reflecting on the results of observations of the learning process carried out by researchers and students in the classroom.

According to Trianto (2017) and Sugiyono (2016) descriptive statistical analysis, the data obtained from the research results were analyzed by statistical analysis techniques, namely descriptive statistics. In this study, descriptive statistical analysis was used to describe student learning outcomes

and activities in each selected group. This analysis includes the highest value, lowest value, average, and standard deviation. The following describes the descriptive statistical

analysis used in this study. The criteria used to determine the category of learning outcomes can be seen in table 1 below:

Table 1. Distribution of Frequency and Percentage of Student Learning Outcomes

Interval In Score	Category
$0 \leq x < 75$	Not enough
$76 \leq x < 80$	Enough
$81 \leq x < 90$	Good
$91 \leq x \leq 100$	Very good

The normality test used is the Shapiro-Wilk test using SPSS 25 Windows. Phyphothesis testing based on the average student learning outcomes using the Paired Samples Test technique. Testing can also be done by observing the significance value of t at the level used (this study uses a level by 5%). The analysis is based on a comparison between the significance values of t with a significance value of 0.05

Based on the results of research that has been carried out in the biology education study program, FKIP UMMA, from the provision of learning outcomes tests, namely pre-test and post-test in the basic microbiology course, the following data were obtained:

Descriptive Analysis

From the calculation results, in this study the pretest and posttest scores of students can be seen in Table 2 below:

RESULTS AND DISCUSSION

Table 2. Descriptive Statistics Score on Student Pretest and Posttest

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest	26	20	90	63.65	18,707
Posttest	26	70	95	88.46	6,445
Valid N (listwise)	26				

Based on table 2 it can be seen that the pre-test score of students obtained the highest score of 90, the lowest score of 20, the average score obtained was 63.65 with a standard deviation of 18.707. Posttest scores on students obtained the highest score of 95,

the lowest score of 75, the average score obtained was 88.46 with a standard deviation of 6.445. The distribution of student learning outcomes through pretest can be observed in table 3 below:

Table 3. Distribution of Frequency and Percentage of Student Pretest Scores

Score	Category	Frequency	Percentage (%)
$0 \leq x < 75$	Not enough	20	77
$76 \leq x < 80$	Enough	5	19
$81 \leq x < 90$	Good	1	4
$91 \leq x \leq 100$	Very good	0	0
Amount		26	100

From table 3 above, it shows that student learning outcomes after giving the pretest are still in the less category or as many as 26 people are at a value below 75 while for the category enough, good and very good

there is none of the students reached that category. Meanwhile, the distribution of learning outcomes after the posttest can be seen in table 4 below:

Table 4. Distribution of Frequency and Percentage of Student Posttest Result Scores

Score	Category	Frequency	Percentage (%)
$0 \leq x < 75$	Not enough	1	4
$76 \leq x < 80$	Enough	2	8
$81 \leq x < 90$	Good	16	61
$91 \leq x \leq 100$	Very good	7	27
Amount		26	100

It can be seen from table 4 above that the frequency of the number of students who scored below 76 or less was 1 person, for the enough category as many as 2 people, in the good category as many as 16 people and the very good category amounting to 7 people.

Based on the results of the research above, it shows that the application of learning using the Reciprocal Teaching learning model has an effect on student learning outcomes. This can be seen by the difference in the results of the pretest and posttest given to students. Learning outcomes are said to be effective if students in the class achieve a classical mastery level of at least 75%. The results of data analysis of student learning outcomes after learning Biology through the application of the Reciprocal Teaching model showed that students who did not reach the Minimum Completeness Criteria (KKM) were 1 student or 4% this was due to the fact that more students were not included in learning and others. While 24 students or 96% of students have reached the Minimum Completeness Criteria (KKM). In other words, Model Reciprocal Teaching learning is said to be influential, this has been seen and fulfilled the indicators of effectiveness and student learning outcomes in basic microbiology courses.

According to Yusrizal & Fatmawati (2020) stated that the application of the Reciprocal Teaching learning model affects student learning outcomes because this learning model trains students to be more active and enthusiastic in the learning process. There is a lot of interaction between students and their peers. They discuss each other and exchange opinions with other groups, besides the use of the language used is the language they use in a simple way so that the material being studied is easier to understand and understand. This results in all

participating in the learning process. The atmosphere that occurs in the learning process becomes more fun, does not get bored easily, and becomes more receptive to the lessons given so as to improve their learning outcomes.

The results of this study are also in linewith the research of Adiwijaya, *et al.* (2016). In his thesis entitled The Effect of the Reciprocal Teaching Learning Model on the Interests and Learning Outcomes of Science in Class V students of MIN 2 Blitar "which states that there is a positive and significant influence between the Reciprocal Teaching learning model and students' interest and learning outcomes in Science. Class V MIN 2 Blitar. Similarly, research that conducted by Adhani (2014) entitled "Pengaruh Strategi Pembelajaran Reciprocal Teaching dan Kemampuan Akademik terhadap Aktivitas Lisan dan Hasil Belajar Kognitif Biologi" which states that the effect of applying the Reciprocal Teaching learning model can improve learning outcomes student.

The results of this study are the same as the research conducted by Khusnia & Nuraida (2017) with the title Application of Reciprocal Teaching Learning to Improve Mathematical Communication Skills and Students' Mathematics Learning Independence with the result that there is no difference in student learning independence between those using reciprocal teaching learning and those using direct learning. Although in testing hypothesis 1 on learning independence, rejecting H1 which states that student learning independence using the reciprocal teaching learning model is different from student independence using the conventional model, it does not mean that this reciprocal teaching learning model has no effect on increasing student learning independence.

According to Murti, *et al.* (2022) and Izadi & Nowrouzi (2016). That factors that influence learning independence are factors from within, factors within the child include factors of age maturity, gender, and intelligence. Thing It is evident that the samples used in this study were students of biology education study program, where the age of the students was included in the category of growing up, meaning that they could It is said that students with this age category have been able to develop their independence well. In addition, in the learning process, researchers observed student behavior in learning, where students have the motivation and interest in learning such as when given a question students are able to answer the question by relying on his knowledge and looking for information related to the question through books or on the internet. This shows that students have good independence in learning process.

According to opinion Ostovar & Shahhosse (2011) declare agree a student can be said to be an independent (self-regulated learner) if the student has a strategy to activate metacognition, motivation, and behavior in their own learning process. In addition, the researchers also found that the factors that led to increased or not independent student learning does come from within the students themselves, such as the efforts he made in study. This is evident from the learning independence data that the researchers obtained, namely the consequence indicator. This self-consequence indicator indicates the student's efforts in preparing or imagining and implement rewards or punishments for success and failure. Differences in student learning outcomes who are taught using the reciprocal teaching learning model and student learning outcomes who are taught using conventional methods (lectures).

The results of this study are also in line with research Sahab (2014) with the title The Effectiveness of the Reciprocal Teaching Learning Model in Increasing Students' Motivation and Learning Outcomes in Economic Social Science Subjects Experimental Research in Class VIII

Students of SMP N 5 Pontianak, with the result that there is a significant increase in student learning outcomes using the reciprocal teaching learning model. When the learning process takes place in the experimental class, treatment is given using the reciprocal teaching learning model, where the use of the reciprocal teaching learning model is able to improve student learning outcomes, because students are strongly required to play an active role. The researcher found that in the use of this reciprocal teaching learning model students were very enthusiastic and active in learning, students carried out learning activities in accordance with the learning procedures to summarize, formulate questions and predict.

According to Khusnia & Nuraida (2017) to achieve effective learning, the following points need to be considered: first, mastery of the subject matter by the lecturer will be able to increase the effectiveness of a lesson. If a lecturer cannot master the teaching materials that will be delivered to students, students will have difficulty understanding the material and this will have an impact on their learning outcomes. Second, personal experience and knowledge that students already have. Students who have studied the material being taught and who can relate their experiences during learning will affect the effectiveness of learning, because it will lead to dialogue between lecturers and students. Third, the variation of learning methods/models. One way to increase the effectiveness of learning is that lecturers should be more creative and innovative in creating models or approaches in delivering subject matter, where students can be actively involved so that they can increase students' potential in learning. Fourth, a lecturer must always increase his knowledge in order to improve his ability to teach. Fifth, lecturers must always provide actual knowledge, so that it will cause effective stimulation for student learning. Sixth, lecturers must dare to give praise, because praise given properly can motivate student learning positively. And lastly, lecturers must be able to generate enthusiasm for student learning individually where

students can be actively involved so that they can increase their potential in learning.

The weaknesses of the learning model reciprocal teaching that researchers found, namely: the lack of seriousness of the students who act as teachers causes the goal to not be achieved, listeners (students who do not play a role) often laugh at the behavior of students who become lecturers so that it spoils the atmosphere and the lack of student attention to lessons and only pays attention to the activities of students who act as lecturers makes final conclusions difficult achieved. It is line with the research that conducted by Pilten (2016) stated that the lack of students' attention to the lesson and only paying attention to the activities of students who act as teachers makes final conclusions difficult to reach. The learning process with a reciprocal approach teaching should be able to use more interesting learning media so that students only focus on the material explained by the lecturer.

CONCLUSION

Based on the results of the research data analysis and discussion that have been described previously, it can be concluded that the use of the reciprocal teaching learning model has an effect on student learning in terms of student biology learning outcomes. This happens because this learning model trains students to be more active and enthusiastic in the learning process. There is a lot of interaction between them and other colleagues. All students discuss each other and exchange opinions with other groups.

REFERENCES

- Adhani, A. (2014). Pengaruh Strategi Pembelajaran Reciprocal Teaching dan Kemampuan Akademik terhadap Aktivitas Lisan dan Hasil Belajar Kognitif Biologi. *Jurnal Pendidikan Sains*, 2(3), 148–158.
- Adiwijaya, H., Suarsini, E., & Lukiati, B. (2016). Penerapan Pembelajaran Reciprocal Teaching Berbantuan Peta Konsep Untuk Meningkatkan Kemampuan Berpikir Kritis Siswa Pembelajaran Biologi. *Jurnal Pendidikan*, 1(12), 2379–2387.
- Agoro, A. A., & Akinsola, M. K. (2013). Effectiveness of reflective-reciprocal teaching on pre-service teachers' achievement and science process skills in integrated science. *International journal of education and research*, 1(8), 1-20.
- Akinsola, M. K., Tella, A., & Tella, A. (2007). Correlates of academic procrastination and mathematics achievement of university undergraduate students. *Eurasia Journal of Mathematics, science and technology education*, 3(4), 363-370. <https://doi.org/10.12973/ejmste/75415>.
- Anas, M & Murti, W. (2021). The Effectiveness of Google Classroom Learning Applications on Student Learning Outcomes. *Jurnal Biosfer*. 12(2), 99-109. <https://doi.org/10.24042/biosfer.v12i2.9723>.
- Aris, S. (2014). *Model Pembelajaran Inovatif Dalam Kurikulum 2013*. Yogyakarta: Ar-Ruzz media.
- Danim, S. (2011). *Pengantar Kependidikan Landasan, Teori, Dan Metafora Pendidikan*: Bandung: Alfabeta.
- Driscoll, M. P. (2000). *Psychology of learning for instruction*. Needham, MA: Allyn & Bacon.
- Hamalik, O. (2011). *Proses Belajar Mengajar*. Jakarta: PT Bumi Aksara.
- Izadi, M., & Nowrouzi, H. (2016). Reciprocal teaching and emotional intelligence: A study of Iranian EFL learners' reading comprehension. *The Reading Matrix: An International Online Journal*, 16(1), 133-147.
- Khusnia, D., & Nuraida, D. (2017). Pengaruh Model Pembelajaran Reciprocal Teaching (Pengajaran Terbalik) terhadap Hasil Belajar Siswa pada Pokok Bahasan Pencemaran Lingkungan. In *Proceeding Biology Education Conference: Biology, Science, Enviromental, and Learning*. 14(1), 484-489.
- Mulyono, D., Asmawi, M., & Nuriah, T. (2018). The effect of reciprocal teaching, student facilitator and explaining and learning independence on mathematical learning results by controlling the initial ability of students. *International Electronic Journal of Mathematics Education*, 13(3), 199-205.
- Murti, W., Maya, S., & Lestari, P. (2022). Pengaruh Penggunaan Buku Pedoman Praktikum Ekologi Tumbuhan Terhadap Hasil Belajar Mahasiswa. *Binomial*, 5(1), 13-24.

- Ostovar, N, A.,I & Shahhosse M.R. (2011). On the Effect of Reciprocal Teaching Strategy on EFL Learners' Reading Proficiency. *Journal of Language Teaching and Research*, 2(6), 1238–1243.
- Pilten, G. (2016). The Evaluation of Effectiveness of Reciprocal Teaching Strategies on Comprehension of Expository Texts. *Journal of Education and Training Studies*, 4(10), 232-247.
- Sahab, R. M. (2014). The use of reciprocal teaching procedure in teaching narrative texts to improve students' reading comprehension. *Journal of English and Education*, 2(2), 81-90.
- Sanjaya, W. (2011). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: Kencana Prenada Media Group.
- Schunk, D. H., & Usher, E. L. (2012). Social cognitive theory and motivation. *The Oxford handbook of human motivation*, 2, 11-26.
- Seli, I. N. (2020). Pengaruh Model Pembelajaran Reciprocal Teaching Terhadap Hasil Belajar Kognitif Pada Mata Pelajaran Pai Di SMA Negeri 1 Talang Padang Tanggamus. Doctoral Dissertation. *UIN Raden Intan Lampung*.
- Siraji S. Z & Yusuf, M. G. (2014). *Self Concept, Learning Styles, Study Habits and Academic Achievement of Adolescents in Kashmir*. Anchor Academic Publishing.
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
- Trianto. (2017). *Model-Model Pembelajaran Inovatif Berorientasi Konstruktivistik*. Jakarta: Prestasi Pustaka.
- Yusrizal, Y., & Fatmawati, F. (2020). Pengaruh Model Reciprocal Teaching dan Kecerdasan Intrapersonal terhadap Hasil Belajar IPS Siswa. *Jurnal Tematik*, 10(2), 90-95.