

Improvement of Biology Learning Results Through the Application of Problem-Based Instruction Approach Oriented Think Pair Share Learning Model

Fandi Ahmad^{a*}, Nur Indah Sari^b

^aSTKIP Pembangunan Indonesia, Jl. Inspeksi Kanal Citraland No. 10 Makassar, Indonesia, fandi.chem@gmail.com

^bSTKIP Pembangunan Indonesia, Jl. Inspeksi Kanal Citraland No. 10 Makassar, Indonesia, indahsari0404@gmail.com

Abstract

This research is a Classroom Action Research with the application of Problem Based Instruction approach oriented Think Think Share learning models in the learning process. The subjects of this study were 40th-grade students of SMP Negeri 40 Makassar in the first semester of the 2018/2019 school year. The implementation of this research consisted of two cycles. The data collected was analyzed descriptively. Based on the results of the study note that in the first cycle has not reached the expected standard classical limitations, this can be seen from the final value which only reached an average of 61.50 with a percentage of completeness of 65%. While in the second cycle the final grades of students have increased. This can be seen with the increase in the average value of student learning outcomes which reached 73.50 with a percentage of completeness of 80%. Based on the results it can be concluded that the application of the Problem Based Instruction approach oriented to Think Pair Share learning models can improve learning outcomes in biology subjects in the eighth grade at SMP Negeri 40 Makassar.

© 2019 Author(s). All rights reserved.

Keywords: Problem Based Instruction, Think Pair Share, Learning Outcomes.

1. Introduction

The learning process is an interactive activity that occurs between the teacher and students and reciprocal communication that takes place in educational situations to achieve learning goals [1]. Interaction and mutual communication between the teacher and the student are the main characteristics and conditions for the ongoing teaching and learning process. Interaction in the teaching and learning process between the teacher and the student is an educational interaction that not only serves to convey the learning material but also serves to instill the nature and values in students who are learning [2].

Formal or non-formal education is an important tool for developing a human mindset to have success. This is because of education influences and plays a direct role in the development of all aspects of human life [3]. Education that is

* Corresponding author.

E-mail address: fandi.chem@gmail.com (Fandi Ahmad)

merely material-oriented will produce students who are only oriented towards the final results in the form of numbers, while the understanding and knowledge gained shallow, so students only have verbal understanding [4].

Factors that influence learning include teachers, students, and the environment. In supporting learning, the teacher does not merely convey the material but is also obliged to create a learning atmosphere that is fun, creative, dynamic, and logical. The activeness of students is also influenced by initial ability. The initial ability is necessary to communicate further knowledge [5].

One alternative learning that can be applied in the learning process that is considered capable of encouraging motivation and directly influencing student learning outcomes is Problem Based Instructions (PBI). PBI is a type of learning approach for students on real-life problems, by helping students to develop thinking ability, problem-solving and intellectual skills, learning as a role through learning experiences in real life [6].

2. Methods

2.1. Research time and place

The study was carried out in July 2018 Academic Year 2018/2019, located at SMP Negeri 40 Makassar with the research subjects of Grade VIII students.

2.2. Research Procedures

The procedure of this research was carried out with a cyclical classroom action research design with the following stages: planning, action implementation, observation, and reflection. The stages of conducting classroom action research according to [7] are as follows in figure 1.

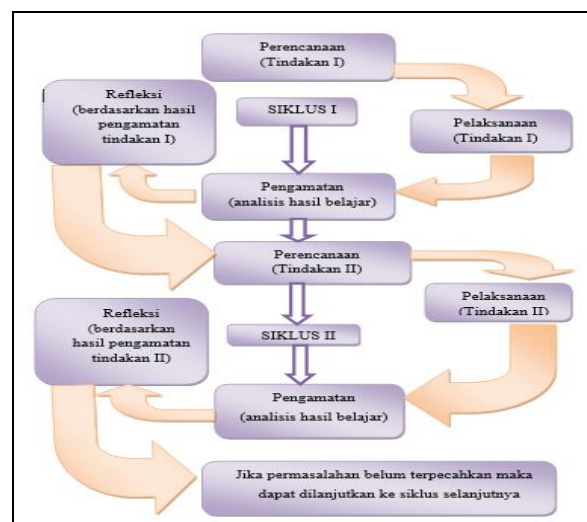


Figure 1. Classroom action research procedure (in Indonesia)

2.3. Data Collection Techniques and Tools

Data collection techniques and tools used were observation sheets, interview guides, field notes, and an assessment format for learning outcomes. Observation is carried out to collect data by observing activities that take place, everything that happens in the learning process. Interviews were conducted with the teacher concerned. These interview guidelines are in the form of questions to the teacher regarding teaching and learning activities, regarding the teaching difficulties experienced by the teacher. Field notes are used during the learning process, and serve to record what happens when the problem-based approach to instruction-oriented thinking pair share learning is applied.

And this form of written test is a multiple-choice test. The written test serves to measure the ability of student learning outcomes after being given treatment.

2.4. Data Analysis Techniques

The data analysis technique used in this study is a descriptive method by comparing student learning outcomes before the action and after the action in cycle I and cycle II, including class average and classical completeness.

2.5. Indicators of Success

Indicators of the success of this study are 1) Student activity is said to be active in the learning process in each cycle increases. 2) Student learning outcomes are said to be complete if they get a score of 65, and complete classically if at least 65% of the total students have completed.

3. Result and Discussion

3.1. Biology learning outcomes in Cycle I

Data on student biology learning outcomes in the cycle I obtained after administering a biology learning outcome test at the end of the cycle can be seen in the following table.

Table 1. Student Learning Outcomes Grade VIII of SMP Negeri 40 Makassar on the Final Grade Cycle I

Description	Cycle I
Number of Students	20
Top Rated	85
Lowest Value	30
Average Value of	61.50

If the learning outcomes scores are grouped into 5 categories according to the categories set by the Ministry of Education and culture, the frequency distribution and percentage of learning outcomes obtained for grade VIII students of SMP Negeri 40 Makassar in cycle I. For more details can be seen in the following table.

Table 2. Frequency Distribution and Percentage of Biology Learning Outcomes of Class VIII Students at SMP Negeri 40 Makassar in each category in Cycle I

Value Interval	Category	Frequency	Percentage (%)
80-100	Very high	3	15%
66-79	high	3	15%
56-65	Normal	8	40%
40-55	Low	4	20%
0-39	Very Low	2	10%
Total		20	100%

Based on Table 1 and Table 2, it can be seen that of the 20 students who took part in learning through the application of the Problem Based Instruction approach oriented Think Pair Share learning model in the first cycle, the value of learning outcomes obtained by students in the very high category was 3 people or by 15%, in the high category as many as 3 people or by 15%, in the medium category as many as 8 people or by 40%, in the low category as many as 4 people or by 20% and in the very low category as many as 2 people or by 10%.

The value of mastery learning biology can be seen based on the absorption of each student. If grouped into complete and incomplete categories, then the distribution and percentage of completeness of learning biology are obtained in cycle I in table 3 and figure 2 below.

Table 3. Descriptive Completion of Biology Learning for Class VIII Students of SMP Negeri 40 Makassar Cycle I

Category	Score	Frequency	Percentage (%)
Not Complete (Tidak Tuntas)	0-64	7	35%
Complete (Tuntas)	65-100	13	65%
Total		20	100 %

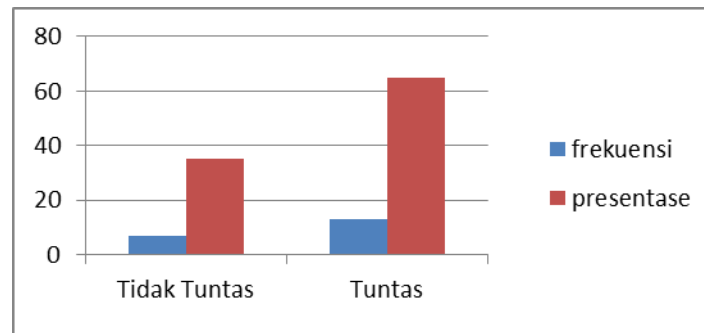


Figure 2. Descriptive Graph of Completeness of Biology Learning for Class VIII Students of SMP Negeri 40 Makassar in Cycle I

Figure 2. shows that in cycle I, the results of biology learning for VIII grade students of SMP Negeri 40 Makassar have not been completed as many as 7 people or 35%, while only 13 people reached the completeness standard or 65%.

3.2. Biology learning outcomes in Cycle II

Data on biology learning outcomes of students in the second cycle obtained after giving the biology learning outcomes test at the end of the cycle can be seen in the following table.

Table 4. Student Learning Outcomes Grade VIII Students of SMP Negeri 40 Makassar at the Final Value in Cycle II

Description	Cycle II
Number of Students	20
Top Rated	95
Lowest Value	50
Average Value of	73.50

If the scores of biology learning outcomes are grouped into 5 categories according to the categories set by the national education department, the frequency distribution and percentage of Biology learning outcomes obtained for class VIII students at SMP Negeri 40 Makassar in cycle II are obtained. For more details, it can be seen in the frequency distribution table and the percentage of student learning outcomes in the following cycle II.

Table 5. Frequency Distribution and Percentage of Biology Learning Outcomes of Class VIII Students at SMP Negeri 40 Makassar in each category in Cycle II

Value Interval	Category	Frequency	Presentase (%)
80-100	Very high	7	35%
66-79	high	7	35%
56-65	Normal	4	20%
40-55	Low	2	10%

Value Interval	Category	Frequency	Presentase (%)
0-39	Very Low	0	0%
Total		20	100%

Based on observations of the implementation of actions in the second cycle, it can be concluded that with the application of Problem Based Instruction oriented Think Pair Share learning models, the learning outcomes of class VIII students at SMP Negeri 40 Makassar have increased with the results they achieved from the previous cycle. This increase is caused because students have understood the learning model of Problem Based Instruction approach oriented Think Pair Share learning models used, wherewith the learning model the Problem Based Instruction approach is oriented to Think Pair Share learning model students can think critically and can exchange ideas freely. The value of mastery learning biology can be seen based on the absorption of each student. If grouped into complete and incomplete categories, then the distribution and percentage of completeness of learning biology obtained in the second cycle septic in Table 6 and Figure 3 below:

Tabel 6 Descriptive Completion of Biology Learning for Class VIII Students of SMP Negeri 40 Makassar Cycle II

Category	Score	Frequency	Percentage (%)
Not Complete (Tidak Tuntas)	0-64	4	20%
Complete (Tuntas)	65-100	16	80%
Total		20	100 %

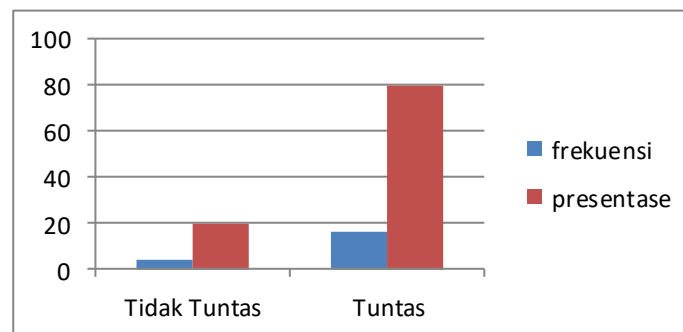


Figure 3. Descriptive Graph of Completeness of Biology Learning for Class VIII Students of SMP Negeri 40 Makassar in Cycle II

Based on the analysis of the data that has been done descriptively this study revealed that biology learning outcomes of Class VIII students of SMP Negeri 40 Makassar through the application of the Problem Based Instruction Approach oriented to Think Pair Share learning models experienced success wherein cycle I students who received grades in the incomplete category totaled seven students, while thirteen students score in the complete category. After reflecting on cycle I in cycle II an increase occurred as the incomplete category decreased to four students, while the value of students in the complete category increased to sixteen students, this was because students already understood the importance of the learning process and the importance of cooperation such as which is demanded from the learning model used.

Some of the improvements that occurred in the second cycle were due to the second cycle that researchers provided more motivation and appreciation before applying the Problem Based Instruction Approach oriented to Think Pair Share learning models, and giving examples in the learning process that were easier to understand such as linking the

material with the environment, other than that the increase occurred in cycle II because students already understood the learning material. After all, the material in cycle I and cycle II were the same.

The learning outcomes achieved by the students above show that the application of the Problem Based Instruction approach oriented to ThinkPair Share learning models can improve the biology learning outcomes of Grade VIII students of SMP Negeri 40 Makassar. Through the application of the Problem Based Instruction approach which is oriented in Think Pair Share learning models where students learn from real life to solve problems either in groups or attend.

As for what causes this, because, in the TPS type of cooperative learning model, many students are allowed to work alone and cooperate with colleagues in learning activities. This learning model provides opportunities for students to think, then in pairs to share knowledge, students feel happy because they are valued and well served how to learn to discuss and accept opinions. Small group discussions and inter-group discussions on learning with a cooperative type TPS model according to the theory can sharpen thinking to understand difficult concepts and deepen students' understanding to solve problems that can foster student learning outcomes. [5]

4. Conclusion

Based on the results of data analysis and discussion previously described, the researchers concluded that there was an increase in learning outcomes by applying a Problem Based Instruction approach oriented to Think Pair Share learning models, especially for students in class VIII of SMP Negeri 40 Makassar. The material taught can be increased from the average value in the first cycle of 61.50 to 73.50 in the second cycle. All this is inseparable from the activeness of students in following the lessons, and has perseverance and responsibility in learning and working both individually and in groups.

Acknowledgments

Thank you, the writer say to SMP Negeri 40 Makassar for giving the opportunity for the writer to carry out this research.

References

- [1] F. Ahmad and D. S. Ahmar, "The Effect of Treffinger Learning Model combined Lottery Card Method to Self Regulation," in *Journal of Physics: Conference Series*, 2018, vol. 1114, no. 1.
- [2] J. J. Pongkendek and D. S. Ahmar, "Analysis of Learning Styles of Students in Class of XI Science 1 dan XI Science 2 at SMAN 3 North Luwu," *J. Appl. Sci. Eng. Technol. Educ.*, 2020.
- [3] F. Ahmad, "Penerapan Model Pembelajaran Kooperatif Tipe Pair Checks Dalam Meningkatkan Motivasi dan Hasil Belajar IPA Tepadu Siswa Kelas VIIIA SMP Negeri 1 Tabulahan Kab. Mamasa," *Sainsmat*, 2016.
- [4] L. Mufidah, D. Effendi, and T. T. Purwanti, "Penerapan Model Pembelajaran Kooperatif Tipe Tps Untuk Meningkatkan Aktivitas Belajar Siswa Pada Pokok Bahasan Matriks," *J. Pendidik. Mat.*, 2013.
- [5] F. Ahmad, "Pengaruh Model Pembelajaran Dan Kemampuan Awal Terhadap Hasil Belajar Peserta Didik Dalam Materi Kimia Kelas Xi Ipa Sman 4 Makassar," *Chem. Educ. Rev.*, 2017.
- [6] A. Arif and H. Lina, "Penerapan Pendekatan Problem Based Instruction (Pbi) Berorientasi Model Pembelajaran Think Pair-Share (Tps) Dalam Upaya Meningkatkan Motivasi Dan Hasil Belajar Mahasiswa," *J. Biotek*, 2018.
- [7] S. Arikunto, "Prosedur Penelitian Tindakan Kelas," *Bumi Aksara*, 2006.