Journal of Biological Science & Education
~JBSE~
Website: http://usnsj.com/index.php/biology
Email: jbsejournal@gmail.com

THE USE OF PROBING-PROMPTING LEARNING STRATEGY TO IMPROVE BIOLOGY LEARNING OUTCOMES OF CLASS XI IPA 3 STUDENTS AT SMA NEGERI 5 KENDARI

AUTHORS INFO

Alfasri Ahmad
Teacher at SMP Negeri 24 Buton Tengah
alfasriahmad13@gmail.com
+6282319020954

ARTICLE INFO

ISSN: 0000-0000
Vol. 1, No. 1, Desember2019
URL: http://usnsj.com/index.php/biology

Suggestion for the Citation and Bibliography
Citation in Text:
Ahmad, A. (2019)
Bibliography: Ahmad, A. (2019). The Use of Probing-Prompting Learning Strategy to Improve Biology Learning Outcomes of Class XI IPA 3 Students at SMA Negeri 5 Kendari. *Journal of Biological Science & Education, 1* (1, Desember), 31-36.

Abstract

The purpose of the study was to improve the biology learning outcomes of students in class XI IPA 3 at SMA Negeri 5 Kendari. This study was conducted in the second semester of the academic year 2013/2014. The research design of this study was a Classroom Action Research (CAR) with three learning cycles. Each cycle goes through four stages: (1) planning; (2) implementing actions; (3) observation and evaluation; and (4) reflection. The data source of this study were students who were measured by using the learning outcomes test of the cycle I, cycle II, and cycle III. The data obtained were analyzed using descriptive analysis. Biology learning outcomes of Class XI IPA3 students at SMA Negeri 5 Kendari taught using the Probing-Prompting learning strategy showed an increase in each cycle namely cycle I by 71.78%, cycle II by 86.35%, and in cycle III it reached an average of 87 47%. Based on the results of the study concluded that the Probing-Prompting learning strategy could improve the learning outcomes of biology students of class XI IPA3 SMA Negeri 5 Kendari.

Keywords: Probing-Prompting Strategies, Learning Outcomes

A. Introduction

Learning is the process of delivering information or knowledge from the teacher to students (Sanjaya, 2006: 96). Learning is a process of student interaction and learning resources built by teachers to develop thinking creativity that can improve students' thinking abilities, and also improve the ability to construct new knowledge in classroom learning activities (Ministry of National Education, 2003: 62).

Classroom learning activities are part of the educational process that aims to bring students from not knowing to know, in the learning process teachers as educators are expected to have skills in implementing the learning process, especially in applying appropriate learning strategies so that the learning activities carried out are effective and efficient. Wati (2010: 3), states that the selection of learning strategies must be adjusted to the characteristics of the material, the characteristics of students, and the condition of the teacher.

In the teaching and learning process, certainly, every student expects to get good learning outcomes, because good learning outcomes can help students in achieving their goals. Good learning outcomes are only achieved through a good learning process. If the learning process is not optimal, it is very difficult to expect good learning outcomes (Mastari, 2018).

Based on observations on 4-5 October 2013 at SMA Negeri 5 Kendari on the learning process in the classroom, it appeared that learning biology subject matter of the regulatory system is still largely using memorizing concept learning patterns. Learning activities were dominated by teachers, so students were less able to develop their thoughts on the material presented. In addition, student creativity in learning was very lacking. Observation results also indicated that the low student learning outcomes were influenced by various factors, including the use of learning strategies that were not in accordance with the material being taught and the lack of students' interest in receiving the lessons. The use of varied learning strategies was still very low and the teacher dominated all learning activities, so that most of students become passive in learning activities, and students lack confidence in their abilities. Such conditions make students easily bored in learning, thus causing low students learning outcomes.

One of the alternatives to make improvements in the biology learning process is by implementing other learning strategies that prioritize student activity and give students the opportunity to develop their abilities, in this case, the ability to ask and answer. The appropriate learning strategy is by applying the Probing-Prompting learning strategy. The probing prompting learning model is learning by the teacher presenting a series of questions that are both guiding and exploring so that a thought process occurs that links each student's knowledge and experience with new knowledge being learned (Suherman 2003). In the probing-prompting learning model, the teacher tries to make students become more active with the questions asked. Learning practices using probing prompting are presented through a series of questions that explore students' knowledge and guide them towards the expected development (Suyatno 2009).

The probing prompting learning model helps students actively think, discuss different opinions, and provide opportunities to ask unclear questions (Novena & Kriswandari, 2018). Research conducted by Siregar & Mulyana (2016), explain that the Probing Prompting learning method can improve learning outcomes in Building Construction subjects in class X students at SMK Negeri 1 Stabat in the 2015/2016 academic year. Swarjawa (2013) revealed that the application of probing-prompting learning models is more influential on student learning outcomes in science subjects rather than conventional learning models.

Based on the description above, this research was conducted with the aim to show the students' learning outcomes after applying probing prompting strategies in learning biology in junior high school.

B. Literature Review

1. *Principles of Teaching and Learning*

Learning is a process of behavior change of students both from the aspects of knowledge, attitudes, and psychomotor resulted from transferring by conditioning the learning situation and guidance based on the established goals. The teaching and learning process is an interaction between the components of learning in order to create a learning situation that allows the achievement of learning objectives. The learning components consist of objectives, materials, strategies, and evaluation media (Sardirman, 2007:3).

According to Sagala (2003: 54), the principles of learning that have been supported by all educational psychologists as follows:

a. The law of effect is when the relationship between stimulus and response occurs and is followed by satisfying circumstances, then the relationship is strengthened. Conversely, if the relationship is followed by unpleasant feelings, then the relationship will be weak. So, learning outcomes will be strengthened if it fosters a sense of pleasure or satisfaction.
b. The spread of Effect is the emotional reaction that accompanies satisfaction is unlimited to the main source of satisfaction, but satisfaction gets new knowledge.
c. Law of Exercise is the relationship between stimulus and reaction strengthened by exercise and mastery, otherwise, the relationship is weakening if not used. So, learning outcomes can be more perfect if often repeated and trained.
d. The law of Readiness means that the new behavior will occur if the learners are ready to learn.
e. Law of Primacy is the learning outcomes obtained through first impressions that will be difficult to shake.
f. The Law of Intensity is learning to give meaning when pursued through dynamic activities.
g. Law of Recency is a new material that is learned will be easier to remember

h. The phenomenon of saturation is one of the important concerns in learning. Saturation of learning (plateauing) is a certain period of time used for learning but does not give results, because of mental fatigue and senses.
i. Belongingness, which is the interrelation of material learned in a learning situation, will make it easier to change behavior. Learning outcomes that provide satisfaction in the

process of learning and practice received are closely related to the learning life. This learning process will improve student achievement in learning outcomes.

2. *Strategi Pembelajaran Probing-Prompting*

Probing in classroom learning is defined as a strategy guiding students in order to understand the symptoms or circumstances that are being observed so that new knowledge is formed (Wijaya, 2010: 23). Probing prompting learning strategy is a learning strategy that involves questions with the aim to explore and guide students, so students can associate previously acquired knowledge with new knowledge (Widyastuti et al, 2014). Probing prompting strategy is a learning strategy that allows students to learn independently while the teacher is only as a facilitator so that the student-centered learning process will be achieved well (Lasmo et al, 2017).

Probing-Prompting learning strategies can encourage students to actively think, develop courage and skills in answering and expressing opinions and students are trained in solving a problem, able to solve their own problems can develop critical thinking skills which are a process for making reasonable decisions, so what that we think is best about the truth we can do correctly (Irfan, 2010: 4).

The learning steps in the probing prompting learning strategy as revealed by Sudarti (2008) are (1) The teacher exposes students to problems, for example in the form of pictures, tables and so on, (2) The teacher provides opportunities for students to formulate answers to problems that have been given, (3) The teacher asks questions to students to explore knowledge about the prerequisite material, (4) The teacher again provides an opportunity for students to formulate answers, (5) The teacher appoints one student to answer the question, (6) If the answer given is correct, then the teacher asks for responses to other students about the answer. However, if the answer given is wrong, the teacher gives more questions that are guided by students so that they can answer the initial problem, and (7) The teacher asks another question to different students to ensure that the learning indicator on that day has been reached.

C. Methodology

1. Research Design

This research was conducted in the second semester of the academic year 2013/2014 at SMA Negeri 5 Kendari. The subjects in this study were all students of class XI IPA^3 of SMA Negeri 5 Kendari who were enrolled in the 2013/2014 academic year with 42 students consisting of 11 male students and 31 female students. The research design of this study was a Classroom Action Research (CAR) carried out in three cycles. Each cycle consists of planning, implementing actions, observing and reflecting. In conducting research, researchers was assisted by two observers to observe student activities during the learning process.

2. Instruments

The instrument used in this study was a test of learning outcomes in the form of essay tests, used to obtain data on student learning outcomes, the subject of the regulatory system.

3. Technique of Data Analysis

The data analysis strategy used was descriptive analysis which was intended to provide a picture of improving student learning outcomes taught by using the Probing-Prompting learning strategy.The data analysis steps were as follows:

a. Make a tabulation of student learning outcomes and activities
b. Calculate the average:

$$\bar{x} = \frac{\sum x}{n}$$

Information :

$\bar{x}$ = The average value obtained by students

n = Total number of students

x = Grades obtained by each student (Sudjana, 2008:109)

c. Calculating the level of mastery learning achievement:

Individually % TB = $\frac{\text{Value to be achieved}}{\text{Ideal value}}$ x 100%

d. Determine the percentage of completeness:

% TB = $\frac{\sum TB}{N}$ x 100 %

Information :

$\sum TB$ = The number of students who pass the study

N = Total number of students(Usman dan Setiawati, 2001:139)

e. Determine the level of success of the actions of teachers and students in the teaching and learning process:

Average percentage (RS) = $\frac{\text{Total score}}{\text{Maximum score}}$ x 100 %

Success Rates:

90% ≤ RS ≤ 100%: very good

80% ≤ RS < 90% : good

70% ≤ RS < 80% : enough

60% ≤ RS < 70% : less

0% ≤ RS< 60% : very less (Wahyuni, 2008:62).

D. Findings and Discussion

1. *Findings*

Data on learning outcomes in biology were obtained using learning outcomes tests. Based on the descriptive analysis of student Biology learning outcomes shown in the form of a test cycle consisting of three cycles of test. The description of Biology learning outcomes of students in class XI IPA3 from cycle I up to cycle III can be seen in Figure 1.The average value obtained by students

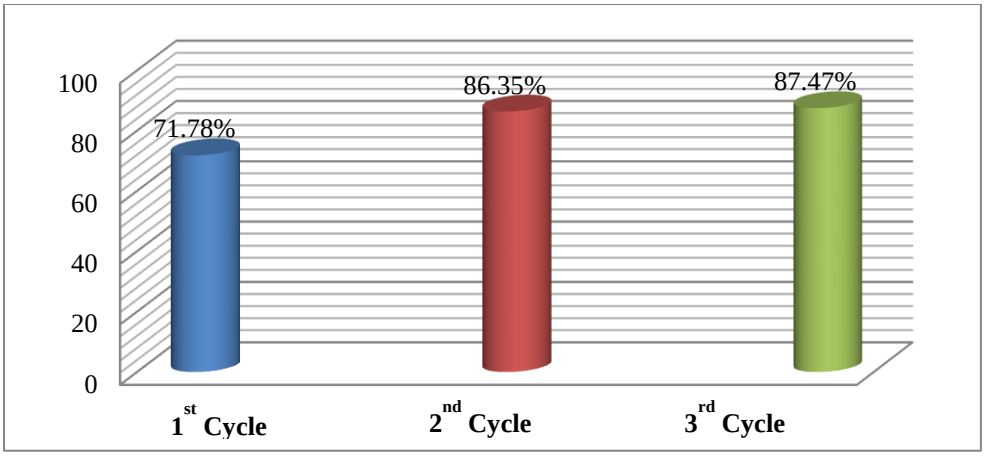

Figure 1. Increase in student's learning outcomes in cycle I, II, and III

Based on the analysis of students' cognitive learning test results showed that the percentage of student learning outcomes in the first cycle was 71.78%, the second cycle was 86.35% and the third cycle was 87.4%.

2. *Discussion*

Based on the analysis of test data on biology learning outcomes in the first cycle obtained a percentage of 71.78%. In the first cycle learning process, students have difficulty in answering questions that were higher levels of thinking, because they were not accustomed to before. In this case, the teacher was expected to motivate more students so students were actively involved in the learning process. For example with questions that were demanding or leading to a conclusion. This was according to what Tobing (2000: 65) stated where demanding questions

were more appropriate to be used to provoke students' motivation to expressed their understanding of facts and daily experiences.

Based on the results of descriptive analysis of student learning outcomes in the second cycle, it appears that student learning outcomes in the subject matter of the sensory system appear to have increased with a value of 86.35%. The increase from cycle I to cycle II was 14.57%. In cycle II, the teacher asked some questions then students were allowed to formulate answers or conduct small discussions with the group. Thus, students are were able to think critically and carefully in giving an answer that was discussed earlier (Dewi, et al, 2019). This is in line with the opinion of Tinio (2003) stated that one of the skills needed to face challenges in the future ~~is~~ was higher order thinking skills or often also called critical thinking skills. These skills are related to the ability to identify, analyze and solve problems creatively and think logically to produce the right judgment and decision.

Improved student learning outcomes from cycle II up to cycle III of 1.12%. This is because the teacher has been able to manage learning by implementing Probing-Prompting learning strategies properly. Jacobsen (2009: 54) stated that the application of the Probing-Prompting learning strategy was an alternative way to facilitate students to accommodate and build their knowledge. The results of the research from cycle I up to cycle III showed an improvement towards better even though there were still some students who have not reached mastery in learning, this was due to the inability of students to remember too much material. Wijaya (2010: 6) stated that changing habits is not an easy thing, especially the habit of exploring the initial knowledge possessed by students.

Probing prompting learning strategy is very closely related to giving questions. As expressed by Neni (2015), that the probing prompting strategy was a learning strategy in which the teacher gave some questions to students that were guiding in nature, so students could gain knowledge and learning experiences independently. The same thing was also expressed by Pratiwi (2017) that the probing prompting learning strategy was a learning strategy that ~~can~~ could train students' mindset through several questions raised by the teacher to guide students to build their knowledge independently. While the response itself was defined as a response or reaction.

The implementation of learning by applying the Probing-Prompting learning strategy succeeded in increasing student activity and student learning outcomes, the Probing-Prompting learning strategy could correct and cover up the deficiencies in the learning process in class. This was empirically tested with research conducted by Ulya, et al (2012) where Probing-Prompting learning could effectively improve student learning outcomes. Besides, research conducted by Rina, et al (2012) concluded that the application of Probing-Prompting learning could improve critical thinking skills and learning outcomes.

E. Conclusion

Biology learning outcomes of students of class XI IPA3 SMA 5 Kendari taught using the Probing-Prompting learning strategy showed an increase with a percentage of 71.78% for the cycle I, 86.35% for cycle II, and 87.47% for cycle III. This showed that the learning strategy applied gives more opportunities for students to expressed their opinions, be active in asking questions and be able to solve the concept of the problem given.

F. References

Depdiknas.(2003). *Pendekatan Konseptual (Contextual Teaching and Learning*). Jakarta: Departeman Pendidikan.

Dewi, N.W.S.K., Parmiti, D.K., & Japa, I.G.N. (2019). Pengaruh Model Pembelajaran Probing Prompting Berbantuan Media Video Terhadap Hasil Belajar IPA. *Indonesian Journal of Educational Research and Review, 2*(2): 229-239.

Irfan. (2010). *Efektifitas Belajar Mengajar Biologi dengan Strategi Probing*. http://physicsmaster.orgfree. Diakses pada tanggal 22 Februari 2012.

Jacobsen, D. (2000). *Methods for Teaching.* Ohio: Merrill Publishing Company.

Lasmo, S.R. (2017). Pengaruh Model Pembelajaran Inkuiri Terbimbing dengan Strategi Probing Prompting Terhadap Aktivitas dan Hasil Belajar Fisika di SMA. *Jurnal Pembelajaran Fisika. Vol. 6.*

Mastari. (2018). *Pengaruh Model Pembelajaran Kooperatif Tipe Student Team Achievement Division (STAD) Terhadap Hasil Belajar IPA Siswa Kelas V di MIS Nurul Hadina Patumbak.* Medan: Skripsi Universitas Islam Negeri Sumatera Utara, Tidak dipublikasikan.

Neni, S. (2015). Meningkatkan Penalaran Siswa Terhadap Soal Matematika Berbasis Cerita Melalui Strategi Probing-prompting pada Materi Bangun Ruang Sisi Datar bagi Siswa Kelas 8 di SMP Negeri 2 Kemranjen. *Sainteks. Vol.12*

Novena, V.V. & Kriswandari. (2018). Pengaruh Model Pembelajaran Probing Prompting Terhadap Hasil Belajar Ditinjau Dari Self-Efficacy*. Jurnal Pendidikan dan Kebudayaan, 8* (2), 189-196.

Nurjannah, S. (2013). *Efektivitas Model Pembelajaran Course Review Horay dan Probing-Prompting Berbasis The Power Of Two Berbantu CD Interaktif Ditinjau dari Jenis Kelamin.* Semarang: Skripsi IKIP Semarang, Tidak dipublikasikan.

Pratiwi, D.D., Ramlah, & Roesdiana, L. (2017). Penerapan Model Pembelajaran Probing-Prompting dalam Meningkatkan Kemampuan Penalaran Matematis Siswa SMA. *SESIOMADIKA.*

Sanjaya, W, (2006). *Strategi Pembelajaran Berorientasi Standar Proses Pendidikan*. Jakarta: PT. Prenada Media.

Sardiman, A.M. (2007). *Interaksi dan Motivasi Belajar Mengajar.* Jakarta: PT Raja Grafindo Persada.

Sagala, S. (2003). *Konsep dan Makna Pembelajaran.* Bandung: PT Alfabeta.

Siregar, H. L. & Mulyana, R. (2016). Penerapan Metode Pembelajaran Probing Prompting Untuk Meningkatkan Aktivitas dan Hasil Belajar Siswa pada Mata Pelajaran Konstruksi Bangunan Di Kelas X Program Keahlian Strategi Gambar Bangunan SMK NEGERI 1 Stabat.

Sudarti, T. (2008). Perbandingan Kemampuan Penalaran Adatif Siswa SMP antara yang Memperoleh Pembelajaran Matematika melalui Strategi Probing dengan Metode Ekspositori. Bandung: Skripsi UPI Bandung, Tidak publikasikan.

Sudjana, N. (2008). *Penilaian Hasil Proses Belajar Mengajar*. Bandung: PT. Remaja Rosdakarya.

Suherman, E. d. (2003). *Belajar dan Pembelajaran Matematika.* Bandung: Universitas Pendidikan Indonesia.

Suyatno. (2009). Menjelajah Pembelajaran Inofatif Sidoarjo . Sidoarjo: MasMedia Buana Pusaka.

Swarjawa, I.W. K.(2013).Pengaruh Model Pembelajaran Probing-Prompting Terhadap Hasil Belajar IPA Siswa Kelas V di SD Negeri 1 Sebatu. *Jurnal Mimbar PGSD Universitas Pendidikan Ganesha, 1*(1), 1-11.

Tinio, V. L. 2003. ICT In Education. Tersedia pada http://www.apdip.net/publication/iespprimerst/ICTinEducation.pdf. (diakses tanggal 13 Desember 2019).

Tobing, R.L. (2000). *Keterampilan Bertanya dalam Proses Belajar Mengajar IPA*. Jakarta: Proyek Pengembangan Pendidikan Guru (P3G) Departemen Pendidikan dan Kebudayaan.

Ulya H., Masrukan & Kartono.(2012). Keaktifan Penerapan Model Pembelajaran Kooperatif Tipe *Probing-Prompting* Materi Pokok Trigonometri Kelas X SMA Negeri 12 Semarang Tahun Ajaran 2011/2012unes. Semarang*: Journal Of Mathematics Education*, 3 (4),

Usman,& Setiawati. (2001). *Evaluasi Pembelajaran*. Jakarta: Rineka Cipta.

Wahyuni, I. (2008). *Pembelajaran Bangun Kerucut dengan Pendekatan Initiating dan Eliciting untuk Membantu Pemahaman Siswa Kelas VIII SMP 06 Diponegoro Wuluhan Kabupaten Jember.* Malang: Tesis Universitas Negeri Malang, Tidak dipublikasikan.

Wati, W. (2010). *Model Pembelajaran.* Padang: Konsentrasi Pendidikan Fisika Program Pasca Sarjana Universitas Negeri Padang.

Widyastuti, D.A. (2014). Penerapan Model Pembelajaran Probing prompting untuk Meningkatkan Prestasi Belajar IPA Siswa Kelas IV SD Negeri 2 Antosari Kecamatan Selemadeg Barat. *eJournal MIMBAR PGSD Universitas Pendidikan Ganesha, 2*.