PROBING PROMPTING TECHNIQUE TO IMPROVE STUDENT'S LEARNING OUTCOMES IN THE OPPORTUNITY MATERIALS

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Abstract

Mathematics is still often a boring subject for students, especially when faced with story problems, because they are lazy to read. As a result, they find it difficult to interpret and make mathematical models of the problems given. So that student learning outcomes are low. One of the materials in the form of story questions is probability material. The researcher chose the probing prompting technique so that students are active in the learning process, and this technique forces the teacher as a mentor who directs students with questions that lead to learning materials by the teacher presenting a series of questions that are guiding and exploring so that there is a thinking process that links each student's knowledge and experience This research was conducted at MTS Nurul Yakin, Badung Village, with the type of classroom action research with 2 cycles. Student learning outcomes after the application of learning with the Probing Prompting technique on opportunity material, 55.6% of students who completed the first cycle and classical completeness had not been achieved. However, in the second cycle, classical completeness was achieved, which was 80.6%.

Keywords: Completeness of Learning Outcomes, Probing Prompting Technique, Opportunity

1. INTRODUCTION

The learning pattern developed in Indonesia today requires students to be active in the process of teaching and learning activities. Learning technique is a method used to implement plans that have been prepared in real activities so that the objectives that have been prepared are achieved optimally. Therefore, learning techniques are used as a way to overcome the problem of grading the educational path. In addition, this learning technique is used to help students who have difficulty in understanding concepts. Through a learning technique, it is expected that students can play an active role and learn together with teacher guidance in the teaching and learning process.

Based on the observations of researchers when accompanying students in teaching practice, it was found that there were still many students experiencing difficulties in mathematics in solving problems related to story problems. So that the motivation and activeness of students is very less. From the results of the researcher's observations, students were less interested in story questions because they were lazy to read so it was difficult to interpret and create mathematical models from the questions given. One of the materials in the form of story questions is probability material. In this material, students are invited to solve story problems related to the probability of simple events, so it takes the ability to interpret story problems into mathematical models. If it is not handled immediately, students will be increasingly lazy to learn mathematics and ultimately affect their learning outcomes.

The probing prompting technique is a technique that makes students active subjects in the learning process, while the teacher as a supervisor directs students with questions that lead to learning materials (Suherman, 2013). The probing-prompting technique is learning by means of the teacher presenting a series of questions that are guiding and exploring so that a thought process occurs that links each

student's knowledge and experience with the new knowledge being studied. Furthermore, students construct the concept-rules into new knowledge, thus new knowledge is not notified. With this learning technique, the question and answer process is carried out by appointing students randomly so that each student inevitably has to participate actively, students cannot avoid the learning process, at any time they can be involved in the question and answer process. It is possible that there will be a tense atmosphere, but you can get used to it. To reduce this condition, the teacher should give a series of questions accompanied by a friendly face, soothing voice, soft tone.

Many previous studies have been carried out regarding the application of this probing prompting technique, including (Muthmainnah, 2019; Sari, 2019 ; Syamsuddin, 2018 ; Jayanti, 2018 ; Susanti, 2017 ; Elvandari, 2016 ; Susanti, 2016). The results obtained are very good including, delivery of more interesting material, the teacher emphasizes to students the importance of playing an active and confident role, and giving individual questions to help improve student's understanding of mathematical concepts. However, there is no research that applies this technique to the material of opportunity by using stories question. So based on the above background, the researcher is interested in conducting Classroom Action Research with the title Probing Prompting Technique to improve student learning outcomes in the Opportunity Material.

2. LITERATURE REVIEW

According to Siregar (2016), the probing prompting technique is a learning strategy that explores student's previously acquired knowledge, in this case the prerequisite material for relations and functions, then guides students to understand the new material that will be given. In addition, according to Lasmo et al. (2017) the probing prompting strategy is a learning strategy that directs students to learn independently while the teacher is only a facilitator, so that the student-centered learning process will be achieved well. In the probing prompting strategy, students will be given questions called probing questions. Probing questions are questions that are given with the aim of exploring students' knowledge of the prerequisite material.

Next is the prompting question stage, which means questions with the aim of guiding students to find new learning concepts. Suherman (2013) revealed that the probing prompting strategy is a learning strategy in which the teacher gives several questions to students that are exploring and guiding students to find new concepts. There are two interrelated student activities in probing prompting learning, namely student activities which include thinking activities and physical activities that try to build their knowledge, and teacher activities that try to guide students by using a number of questions that require low-level thinking to high-level thinking.The probing-prompting technique is learning by means of the teacher presenting a series of questions that are guiding and exploring so that a thought process occurs that relates the student's residual knowledge and experience with the new knowledge being studied. Furthermore, students construct the concept-principles of the rules into new knowledge, thus new knowledge is not notified.

With this learning the question and answer process is carried out by randomly appointing students so that each student inevitably has to participate actively, students cannot avoid the learning process, at any time they can be involved in the question and answer process. There is a possibility that there will be tension in the dressing, but you can get used to it. To reduce this condition, the teacher should ask a series of questions accompanied by a friendly face, soothing voice, soft tone. There are jokes, smiles, and laughter, so that the atmosphere becomes comfortable, fun, and cheerful. Don't forget, that the student's wrong answer must be appreciated because wrong is a sign that he is learning, he has

participated

The probing prompting learning steps are described through seven stages of the probing technique (Sudarti, 2013) which was developed with prompting as follows:

1. The teacher exposes students to new situations, for example by paying attention to pictures, formulas, or other situations that contain problems.
2. Wait a while to give students the opportunity to formulate answers or have a small discussion in formulating them.
3. The teacher poses questions to students that are in accordance with specific learning objectives or indicators to all students.
4. Wait a while to give students the opportunity to formulate answers or have a small discussion in formulating them.
5. Appoint one student to answer the question.
6. If the answer is correct, the teacher asks other students to respond to the answer to ensure that all students are involved in the ongoing activity. However, if the student experiences a bottleneck in the answer, in this case the answer given is inaccurate, incorrect, or silent, then the teacher asks other questions whose answers are directions for solving the answer. Then proceed with questions that require students to think at a higher level, until they can answer questions according to basic competencies or indicators. The questions carried out in this sixth step should be asked to several different students so that all students are involved in all probing prompting activities.
7. The teacher asks a final question to different students to emphasize that the TPK/indicator has really been understood by all students.

The general pattern in learning mathematics using the probing technique goes through three stages namely, 1). Initial activity: The teacher explores the prerequisite knowledge that students already have by using the probing technique. It serves for introduction, revision and motivation. If the prerequisites have been mastered by students, then the sixth 15 steps of the probing technique stage do not need to be carried out. To motivate students, the probing pattern only requires three steps, namely steps 1, 2 and 3. 2). Core activities: material development and material application are carried out using probing techniques. And 3). Final activity: probing technique is used to determine the success of students in learning after students have completed the core activities that have been previously determined. The pattern covers all seven steps and is applied primarily to achievement indicators.

3. RESEARCH METHODS

Types Of Research

This research is a classroom action research which has four stages, namely: Planning, Implementation, Observation, Reflection. According to Suharsimi (2002) classroom action research is defined as the activity of observing an object by using certain methods and methodologies to obtain data or information that is useful in solving a problem. Action is an activity that is intentionally carried out with a specific purpose. The researcher uses an instrument in the form of story questions to support the implementation of learning with the probing prompting technique on opportunity material about the probability value of an event to increase the completeness of student learning outcomes for class IX-A MTS Nurul Yaqin Badung village, Proppo sub-district, Pamekasan for the 2021-2022 school year.

The data needed in the study were obtained by using data collection techniques with the test method. This research was conducted to determine the increase in mastery of student learning outcomes. The

tests used in this study were multiple choice and descriptions in the form of story questions about the probability of simple events. To find out the students' initial abilities, look at the acquisition of students' scores on the material in the form of story questions before the opportunity material. Meanwhile, the final ability test and the improvement in mastery learning outcomes were analyzed after the material was taught.

Data analysis technique

In this research, data about the completeness of student learning outcomes were analyzed descriptively qualitatively. Learning Outcome Test Data can be used to determine the completeness of student learning outcomes. The steps of data analysis carried out are as follows:

1. The results of problem solving are analyzed by taking into account the scoring guidelines
2. From the score obtained, it is then used as a reference to determine the mastery of individual and classical student learning applied by mts Nurul Yaqin with the following conditions:
   a. Individual Completeness
      Students are declared complete individually if the score obtained reaches 70% of the overall score
   b. Classical Completeness = $\frac{\text{number of students who completed}}{\text{number of students who took the test}} \times 100\%$
      The minimum completeness criteria on the opportunity material MTS Nurul Yaqin is 70.00 and is said to be classically complete if in one class there are 75% of students who have achieved completeness of 70%.

4. RESEARCH RESULT

Previously, researchers had data on the completeness of student learning outcomes in class IX-A before the opportunity material, as shown in the table below:

Table 1. Initial Data on Student Learning Outcomes Completeness

No	Congeniality		Solid figures		Statistics		Category
	Score	Completeness	Score	Completeness	Score	Completeness	
1	76	√	47		63		**1**
2	48		87	√	71	√	**2**
3	100	√	100	√	97	√	**3**
4	29		67		57		**0**
5	47		51		41		**0**
6	74	√	46		48		**1**
7	53		62		50		**0**
8	74	√	87	√	52		**2**
9	39		57		50		**0**
10	48		92	√	65		**1**
11	41		59		37		**0**
12	51		95	√	72	√	**2**
13	81	√	85	√	42		**2**
14	69		69		54		**0**
15	81	√	70	√	70	√	**3**
16	50		82	√	70	√	**2**
17	88	√	87	√	83	√	**3**
18	69		87	√	88	√	**2**

No	Congeniality		Solid figures		Statistics		Category
	Score	Completeness	Score	Completeness	Score	Completeness	
19	45		79	√	54		**1**
20	41		65		58		**0**
21	81	√	87	√	76	√	**3**
22	67		47		39		**0**
23	60		84	√	37		**1**
24	58		85	√	44		**1**
25	62		32		29		**0**
26	69		75	√	46		**1**
27	76	√	95	√	88	√	**3**
28	76	√	79	√	58		**2**
29	67		85	√	50		**1**
30	41		59		34		**0**
31	67		85	√	33		**1**
32	74	√	85	√	47		**2**
33	67		85	√	34		**1**
34	41		77	√	55		**1**
35	36		75	√	25		**1**
36	62		80	√	44		**1**
Number of students who completed		**11**		**24**		**9**	

From the table above, it can be seen that the level of completeness of student learning outcomes is still low, for the congeniality material only 11 students have completed from 36 students in grades IX-A, while for the solid figures and statistics, only 24 and 9 students have completed, respectively.

The application of learning with the probing prompting technique was carried out in two cycles. This is based on the results of the first cycle which are still unsatisfactory and the results of the second cycle have shown the expected increase. The first Cycle was hold on November 12, 2021 and the second Cycle was hold on November 19, 2021.

Cycle I

The test of student learning outcomes in cycle I was given when the material had been taught at the previous meeting. This test is given to determine the completeness of student learning who has been taught by applying the probing prompting learning technique that has been implemented. The test scores for student learning outcomes and a description of the completeness of each student can be seen in the table which presents a summary of learning outcomes in the following cycle I:

Table 2. Student's Learning outcomes in Cycle I

Criteria	Number of students
Completed student	20
Uncompleted student	16
Total	36

From the table above, it can be seen from the 36 students who took the learning outcomes test, there were 20 students who completed the first cycle. This means that 55.6% of the students who completed the first cycle and classical completeness had not been achieved. The results of the student's THB are still far from expectations, because classical completeness only reaches 55.6% of the minimum 75% expected. THB scores varied from 25 to 100, where 11 students or around 30.6% got the lowest score, namely 25. So that reflection was carried out to determine the next steps in cycle II, namely:

1. Compressing the material in cycle 11 by reducing the problems discussed in class but some are used as homework to be discussed at the next meeting.
2. Learning Outcome Test in cycle II was changed from the original multiple choice of 10 questions and a description of 2 questions, to just a description of 5 questions. It is expected that students will be more focused and thorough in completing the THB cycle II.
3. Give full attention to students who are still passive and whose THB scores are still very low. Passive student data can be seen on the observer's observation sheet.
4. Reducing the dominance of the teacher by asking students to actively ask questions or opinions as well as in completing the assigned tasks

Cycle II

The student learning outcomes test will be held on November 25, 2021. The test is given when the compound probability material has been taught at the previous meeting. This test is given to determine the completeness of student learning who has been taught by applying the probing prompting learning technique that has been implemented. The test scores for student learning outcomes and a description of the completeness of each student can be seen in the following table:

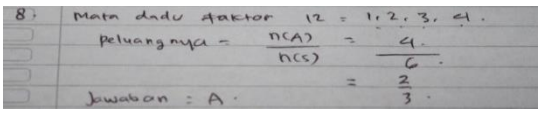
Table 3. Comparison of Student Learning Outcomes Cycle I and II

Criteria	Number of Students	
	Cycle I	**Cycle II**
Completed student	20	29
Uncompleted student	16	7
Total	36	36

Dari tabel di From the table above, it can be seen that from 36 students who took the learning outcomes test, there were 24 students who completed the first cycle and 29 students who completed the second cycle. This means that 55.6% of students who completed the first cycle and classical completeness have not been achieved. However, in cycle II, classical completeness was achieved, which was 80.6%.

Based on the analysis of the learning outcomes test, the number of students who did not complete the first cycle and the second cycle were 16 and 7 students, respectively. This is caused by :

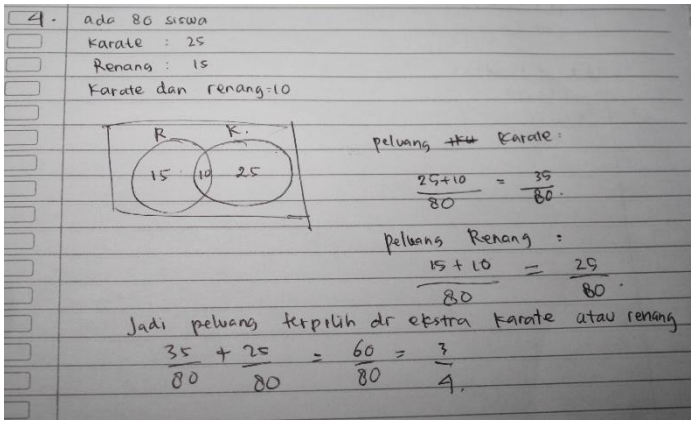
1. Students are not careful in reading questions
   The following is an example of an error made by students in question number 8, in the first cycle of learning outcomes test



Picture 1. Examples of student errors in learning outcomes test cycle I

In the student's answer above, it can be seen that students wrote that the factors of 12 were only 1, 2, 3, and 4, which actually asked for a factor of 12 and not a prime number.This error can be caused by the lack of thoroughness of the students.

2. The types of test questions in the first cycle are in the form of multiple choice and descriptions. This could be a factor that causes students to be fooled by the multiple choice answer choices provided. As a result, when students' answers match one of the choices provided, students feel confident, even though they are not actually the right answers, so students do not correct them again.
3. Students did not understand the concept of probability of multiple events, as an example of student answers to question number 4 test in cycle II as below. Question number 4 reads "From several extracurricular activities organized by the school, there are 80 students who take part in these activities. It is known that 25 students participate in karate extracurricular, 15 students participate in swimming extracurricular, and 10 students participate in karate and swimming extracurricular. The rest took part in other extracurricular activities. If a student is randomly selected from the students who take part in the extracurricular activity, what is the probability that the selected student will take karate extracurricular or the selected student will participate in swimming extracurricular?



Picture 2. Examples of student errors in learning outcomes test cycle II

In the question, it was stated that 25 students took karate extracurriculars, 15 students took swimming extracurriculars, and 10 students took karate and swimming extracurriculars. The Venn diagram made by the student does not match the problem, so the results obtained are wrong.

4. Some students who did not answer the questions provided, for example in questions number 4 and 5 on THB 2, there were some students who did not answer. This can be because students are lazy to do the story questions, because the questions are long.

From the analysis of student learning outcomes, the researchers found that the majority of students had understood the concept of opportunity but some were still lacking. This can be seen from the completion of the story questions that have been given and classical completeness has been achieved in cycle II.

5. CONCLUSION

Based on the analysis of the research results, it can be concluded that student learning outcomes after applying learning with the Probing Prompting technique on opportunity material in class IX-A MTS

Nurul Yaqin Badung Village, 55.6% of students who completed the first cycle and classical completeness had not been achieved. However, in cycle II, classical completeness was achieved, which was 80.6%. The results showed that the mastery of student learning outcomes increased after the implementation of learning with the probing prompting technique. Therefore, the probing prompting technique can be used as an alternative to learning to improve students' understanding of the material related to story questions.

6. REFERENCES

Elvandari, Helivia & Supardi, K. P.(2016). "Penerapan Model Pembelajaran Probing-Prompting Berbasis Active Learning Untuk Meningkatkan Ketercapaian Kompetensi Siswa". Jurnal Inovasi Pendidikan Kimia, 10, I, hlm. 1651-1660

Jayanti, Rahmawati. (2018). "Pembelajaran Menggunakan Teknik Probing Prompting Berbantuan Edmodo Blended Learning Pada Materi Persamaan Diferensial Matematis Mahasiswa Di Universitas Pgri Palembang". Prosiding Seminar Nasional 21 Universitas PGRI Palembang, 5 Mei 2018

Syamsuddin, Nurhidaya. Tahmir, S. & Dassa, Awi . (2018). "The Effectiveness Of Problem-Based Learning With Probing Prompting Method In Mathematics Learning For Grade Vii Students At Smpn 1 Mattirosompe In Pinrang District In 2018". Mathematics Education Postgraduate Program Universitas Negeri Makassar, Indonesia

Lasmo, S.R. (2017). "Pengaruh Model Pembelajaran Inkuiri Terbimbing dengan Teknik Probing Prompting Terhadap Aktivitas dan Hasil Belajar Fisika di SMA". Jurnal Pembelajaran Fisika, 6, 1. Hlm. 43-54

Muthmainnah. Hapizah. Somakim2. (2019). "Penerapan Strategi Probing Prompting Dalam Pembelajaran Matematika Materi Relasi Dan Fungsi Di SMP". Lentera Sriwijaya, Jurnal Ilmiah Pendidikan Matematika 1, I, hlm. 27-38

Sari, Aulia D & Suhendar, U. (2019) . "Penerapan Model Pembelajaran Probing Prompting Untuk Meningkatkan Motivasi Belajar Matematika Peserta Didik Kelas VIII F SMP Negeri 1 Babadan". jurnal ilmiah mahasiswa universitas muhammadiyah ponorogo 3, II, hlm. 56-70

Siregar, L.H & 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 Teknik Gambar Bangunan SMK Negeri 1 Stabat". Jurnal Education Buuilding. 2 , I. hlm 64 -76

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

Suharsimi Arikunto, Suhardjono, dan Supardi. (2006). "Peneilitian Tindakan Kelas". Jakarta: Bina Aksara.

Suherman, E. (2008). "Belajar dan Pembelajaran Matematika". Bandung : Tidak Diterbitkan

Susanti, Sukasno dan Refianti. (2016). "Penerapan Model Probing-Prompting Pada Pembelajaran Matematika Siswa Kelas VIII SMP Negeri 1 Muara Kelinci Tahun Pelajaran 2016/2017. STKIP –PGRI Lubuklinggau" . Jurnal Pendidikan, 1,1. hlm. 1-19