

THE EFFECTIVITY OF THE APPLICATION TECHNICAL PROBING PROMPTING ON STORY PROBLEMS IS REVIEWED FROM MATHEMATICAL CREATIVE THINKING SKILLS TO HIGH SCHOOL STUDENT

Dede Suhendar

IKIP Siliwangi Bandung
suhendar.dede42@gmail.com

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Abstract

This article present the results of research in the form of effectiveness using probing prompting techniques and experimental research methods with design pre experimental : one-shot case study design by purposive sampling conducted on class X students in the 2018/2019 academic year on mathematical questions in the form of story problems. While the objectives of this study include exposing the effectiveness of mathematical creative thinking abilities of students using probing prompting techniques, obtaining a number of descriptions of students problems in the process of creative thinking in mathematical questions form of story matter. Based on data analysis the results of the study showed that the percentage of students who have good mathematical creative thinking skills is less than 60%, so the probing prompting technique is not effective in terms of mathematical creative thinking abilities students.

Keywords : Mathematical creative thinking, *Probing prompting techniques*

Abstrak

Artikel ini menyajikan tentang hasil penelitian berupa ke efektifan menggunakan teknik pembelajaran probing prompting dan metode penelitian eksperimen dengan desain *pre experimental: one-shot case study design* menggunakan *purposive sampling*, yang dilakukan terhadap siswa kelas X tahun akademik 2018/2019 terhadap soal matematika berbentuk soal cerita. Sedangkan tujuan dari pada penelitian ini diantaranya untuk memaparkan keefektifan tentang kemampuan berpikir kreatif matematis siswa menggunakan teknik pembelajaran probing prompting, memperoleh sejumlah gambaran tentang permasalahan-permasalahan siswa dalam proses berpikir kreatif pada soal matematika berbentuk soal cerita. Berdasarkan analisis data diperoleh hasil penelitian yang menunjukkan bahwa persentase siswa yang memiliki kemampuan berpikir kreatif matematis siswa yang baik adalah kurang dari 60%. Dengan demikian pada soal cerita, Teknik pembelajaran probing prompting tidak efektif di tinjau dari kemampuan berpikir kreatif matematis siswa.

Kata Kunci: Kemampuan berpikir kreatif, Teknik *probing prompting*

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INTRODUCTION

Creative thinking ability is very important to be mastered by all students because with the mastery of the ability to think creatively will be very easy for students themselves to master a subject, especially in mathematics and the process of thinking creatively inside solve all mathematical problems because mathematics itself is a universal science that underlies the

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development of modern technology and has an important role in various disciplines and advances human knowledge

McGregor (siswono 2007: 169) state that creative thinking is one type of thinking that leads to new insights, new approaches, new perspectives, or new ways of understanding things. Usually, creative thinking will occur if students are given challenging questions or problem Creative thinking is a stage of thinking that raises new ideas or ideas based on a creativity that is poured in the problem solving process that is completed.

In the scope of the process of creative thinking cannot arise by itself because in raising new ideas or new ideas a stage of the model is needed in order to bring up the creative thinking process related to solving the problem being solved. Indicators of mathematical creative thinking that are measured in this study are: 1) Fluency (Fluency) is the ability to produce many ideas. 2) Flexibility (flexibility) is the ability to express various types, solutions or approaches to problems, 3) Authenticity (originality) is the ability to trigger ideas in ways that are original, not cliched and rarely given to most people, 4) Elaboration (Elaboration) is the ability to add situations or problems to become complete, and detail them in detail, which can be tables, graphs , pictures, models, and words

One form of the question that describes the mathematical creative thinking process of students is a matter of story. Where in this story problem the stages of students' creative thinking process can be seen in the process of processing questions in detail and clearly based on the right direction in presenting structured and combined answers based on the creativity of each student in answering the questions posed.

The results of the preliminary study of odd semester X students of class 1 of High School 1 Ciampel for the 2018/2019 school year stated that the percentage of daily test results that showed 45% met the standard on the list of teacher grades of ± 40 people, the average semester report cards only meeting the KKM standards, namely 72 and the subjects that are rated difficult and difficult to understand by almost all students are mostly in the form of story problems in mathematics learning in each material that will be given later afterwards other problems that make them think that mathematics is difficult to understand because it is basic from the bottom so that it is carried away in conditions when they are teenagers and makes them less confident if they learn mathematics because they already find it difficult in the shadow

So this is where it proves that students' creative thinking skills in solving problems in each math question are considered low, especially related to the story matter. Based on the results of research at High School 1 Ciampel, it was also explained that the low level of students in understanding the form of story questions is the inability of students to distinguish forms of material questions into questions, inability of students to present the right formulas in questions and forms of questions that are not understood because of the difficulty students understand symbols in math problems.

Based on the above problems, the researcher offers a solution through Probing techniques. Probing prompting techniques is learning by the way the teacher presents a series of questions that are guided and explored so that a thought process occurs that links each student's knowledge and experience with the new knowledge being studied (Suherman, 2008: 6). Based on the research conducted by Priatna (Sudarti, 2008) concluded that the probing process can activate students in learning that is full of challenges, requires concentration and activity so that mathematical communication activities are quite high. Furthermore, students' attention to learning that is being studied tends to be more awake

because students always prepare answers because they must be prepared if suddenly

appointed by the teacher. The same thing was expressed by Suherman (2001) that by using the question and answer method students became more active than teaching and learning with the expository method.

The implementation of mathematical questions in the form of story problems using probing prompting techniques in research that has been elaborated is the presentation of concepts described based on the problems in the questions then poured in a contextual application that relates to the material in the story questions so that students can expect mathematical creative thinking processes appears related to this prompting probing technique. Furthermore, students construct concepts and rules into new knowledge, thus new knowledge is not notified. Thus probing prompting techniques are considered effective for mathematics learning.

The advantage of the example of probing prompting learning technique itself is that each student is able to collaborate between subjects related to various assumptions of the example. That is a real or fictional example where both are formed based on the students' own thinking in various problem solving techniques through probing prompting techniques so that the creative thinking process in story problems can be constructed based on the concept of the problem. And through this prompting probing technique it is expected that students' mathematical creative thinking skills in the story matter can develop and reach the expected criteria

METHOD

This study uses a quantitative descriptive approach as an experimental method. The research design used in this study is a pre-experimental design with a type of one-shot case study. In this design the experimental model can be read as follows: there is a group given treatment / treatment, and then the results are observed (treatment is an independent variable, and the result is a dependent variable) (Sugiyono, 2011: 112)

Treatment (treatment) in this research is probing prompting technique as an independent variable in the study. While the results observed in this study were the students' mathematical creative thinking skills in the story questions which were the dependent variables in the study. The research paradigm is described as follows (Sugiyono, 2011: 112):

X O

Information:

X = probing-prompting techniques

O = Mathematical Creative Thinking Ability

RESULTS AND DISCUSSION

Description of mathematical creative thinking ability

Based on the results of the data analysis of mathematical creative thinking skills obtained from the test instrument in the form of a set of daily test questions in the form of story questions on two-variable linear equation system material using the z test for one sample, a calculated value $< Z$ table based on the test data analysis Creative thinking skills were obtained by 5 students who scored more than or equal to 72 of 34 students. Thus the percentage of students who have the ability to think creatively well is 6.94%, which means that H_0 is accepted, so the proportion of students who have good creative thinking skills is less than 60%.

Based on data analysis achievement indicators of students' creative thinking abilities, it is known that the average achievement of indicators of creative thinking abilities of students

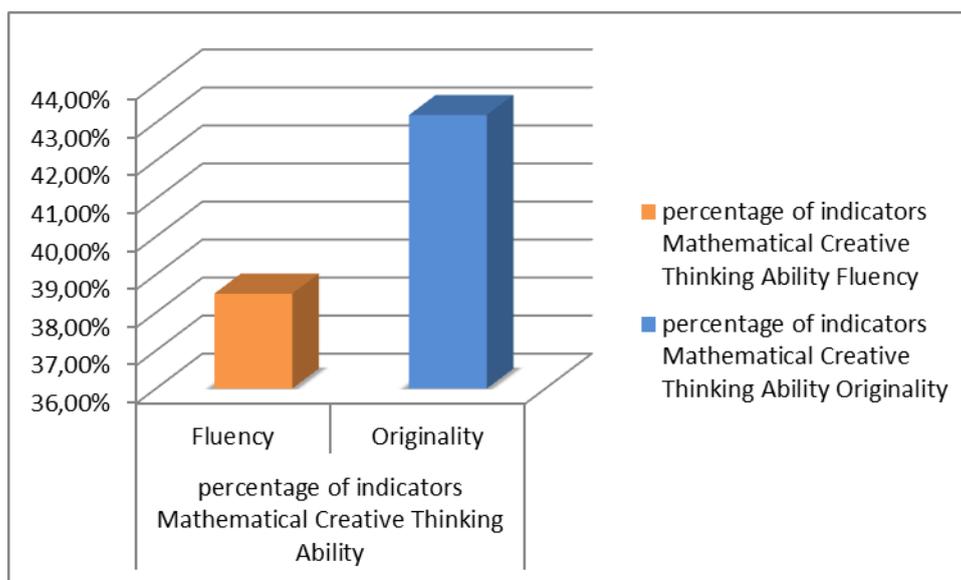
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who gain understanding of learning with probing prompting techniques on story questions based on system material of two variable linear equations above is 38,50%. The best indicator of creative thinking achieved by students is originality, which is equal to 43.20%. These two indicators have the largest percentage compared to the remaining two indicators which are on indicators of mathematical creative thinking

Based on the results of analysis and hypothesis testing of data on students' creative thinking abilities, it is known that probing prompting techniques are not effective in terms of students' creative mathematical thinking skills in the form of story questions because the percentage of students who have the ability to think creatively is not more than 60%.

So that it can be said that the students' creative thinking process in the story question by using probing prompting techniques is very ineffective when viewed from the percentage per indicator from the results of the above research, where in general students can be said to lack the concept of understanding the material. (fluency) which is mainly in the form of story questions based on the material of the Two Variable Linear Equation System which is used as the source material for the research above. But it can be said based on the results of the study also that students actually understand more about the learning process directly. If accompanied by an explanation that makes students understand the material concepts. Primarily with examples of work on story questions that are presented in a clear and targeted manner by the teacher concerned so as to grow the process of imagination of students. And not necessarily with certain techniques as in the research above which uses probing prompting techniques.

Because based on the results of interviews also with one of the students who caused the probing prompting technique is not effective to be applied to the example of the story problem through the process of creative thinking. Is the tension or reluctance of students to try ahead and the process of extracting answers by the teacher concerned even though the teacher in question has been so friendly in guiding students forward.



Problems that cause the ineffectiveness of the problem description

Based on the results of these research studies indicate that probing prompting is not effective for improving students' creative thinking skills in the main story problem. In the implementation of learning, students look tense with the questions posed by the teacher because they cannot answer. The teacher has obstacles to guide students to get the right

answers, because students do not master the prerequisite material, namely the system of two variable linear equations

Students also do not understand the material that has been studied before, such as algebra and quadrilateral. This can be seen from the inability of students to answer teacher questions regarding the addition of algebra and around a rectangle. These constraints also occur when working on Student Activity Sheets, so that classroom conditions are not conducive because students are busy asking questions and discussing with students from other groups.

Some students also seemed not to help their group friends work on student activity sheets, students were busy doing activities that were not related to learning. To overcome this, the teacher goes around the classroom to oversee the student discussion.

Other obstacles arise during the presentation stage, many students are reluctant to come to the front of the class to present the results of their group discussions for reasons not ready and do not understand the purpose of the story matter. This takes a lot of time, to overcome it the teacher asks each group to appoint representatives of each group from the beginning of the discussion, so students can prepare themselves to present the results of their group discussions. The last obstacle is limited time, causing a discussion of material that is not maximal.

As a result, students who have low ability cannot understand the material discussed so that it is difficult to take part in the material to be discussed at the next meeting. This happens because the problem presented in probing prompting techniques is a problem that requires high thinking skills in creativity, so that generally those who can follow this learning model well are students who are classified as high-level students.

CONCLUSION

Based on the research, it can be concluded that the probing prompting technique on story questions is not effective in terms of the creative thinking ability of class X students of High School 1 Ciampel 2018/2019 academic year. Because the percentage of students who have the ability to think creatively well is 6.94%, the proportion of students who have good creative thinking skills is less than 60%.

Based on data analysis achievement indicators of students' creative thinking abilities, it is known that the average achievement of indicators of creative thinking abilities of students who gain understanding of learning by probing prompting techniques on story questions based on the material system of two variable linear equations above is 38, 50%. The best indicator of creative thinking achieved by students is originality, which is equal to 43.20%. And these two indicators have the largest percentage compared to the remaining two indicators of mathematical creative thinking ability indicators.

Based on the above problems based on the results of interviews with one of the students who caused the probing prompting technique to be ineffective to be applied to the sample problem stories through the process of creative thinking. It is the tension or reluctance of students to try ahead and the process of extracting answers by the teacher concerned even though the teacher in question has been so friendly in guiding students in the future.

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