

Analysis of Students' Maths Learning Difficulties Using the Discovery Learning Model Assisted by Power Point

Prestanti Hayuningtyas, Riyadi, Idam Ragil Widiyanto Atmojo

Sebelas Maret University Surakarta
prestantihayuningtyas@gmail.com

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Abstract

The problem of difficulties in learning mathematics is a common problem that can occur in learning activities which if left unchecked will have bad consequences for students. This study aims to identify mathematics learning difficulties in elementary schools, to describe the role of the discovery learning model in mathematics learning difficulties, and to describe the role of power point media. This research uses a qualitative approach with a descriptive qualitative type of research method intended to describe students' difficulties in learning mathematics. This research is qualitative because it focuses on one concern, namely student difficulties in learning using the discovery learning model assisted by power point media. The results of this study are difficulties in themselves, difficulties during apperception, difficulties in understanding concepts, difficulties in discussion, difficulties in calculation skills, skills in solving problems. Data obtained based on the results of observations, tests, and interviews students have difficulty understanding concepts, skill difficulties, and problem solving difficulties. Students' mathematics learning difficulties include learning difficulties in themselves, difficulties during apperception, difficulties in understanding concepts, difficulties in discussions, difficulties in calculation skills and difficulties in solving problems.

Keywords: *difficulties, mathematics, discovery learning*

Abstrak

Masalah kesulitan dalam belajar matematika merupakan masalah umum yang dapat terjadi di dalam kegiatan pembelajaran dimana jika dibiarkan begitu saja akan berakibat buruk bagi peserta didik. Penelitian ini bertujuan untuk mengidentifikasi kesulitan belajar matematika di sekolah dasar, mendiskripsikan peran model pembelajaran *discovery learning* ada kesulitan belajar matematika, dan mendiskripsikan peran media power point. Penelitian ini menggunakan pendekatan kualitatif dengan jenis metode penelitian deskriptif kualitatif yang dimaksudkan untuk mendeskripsikan kesulitan siswa dalam belajar matematika. Penelitian ini berjenis kualitatif karena fokus pada satu perhatian yaitu kesulitan siswa dalam pembelajaran menggunakan model pembelajaran *discovery learning* berbantuan media power point. Hasil dari penelitian ini adalah kesulitan pada diri sendiri, kesulitan pada saat apersepsi, kesulitan dalam pemahaman konsep, kesulitan dalam diskusi, kesulitan dalam keterampilan menghitung, keterampilan dalam memecahkan masalah. Didapatkan data berdasarkan hasil observasi, tes, dan wawancara siswa mengalami kesulitan pemahaman konsep, kesulitan keterampilan, dan kesulitan pemecahan masalah. Kesulitan belajar matematika peserta didik meliputi kesulitan belajar pada diri peseta didik, kesulitan pada saat apersepsi, kesulitan dalam memahami konsep, kesulitan dalam diskusi, kesulitan dalam keterampilan menghitung dan kesulitan dalam memecahkan masalah.

Kata kunci: *kesulitan, matematika, discovery learning*



INTRODUCTION

Education is an activity that plays an important role as well as one of the determinants and assessors of whether a person succeeds or fails in his life. Education is not an activity that is only carried out at school, but the family is where education begins and is carried out. Muhardi (Toyib et al., 2019) in his research stated that to support the improvement of the quality of a country it is necessary to improve the quality of its human resources through improving the quality of education. Therefore, an effort that can be made to produce good, quality and reliable human resources through education is through the learning process, one of which is learning mathematics (Destiniar et al., 2019).

Maths is one of the most important subjects to learn. This is because it can make students think logically, critically and logically. Permendikbud Number 59 of 2014 states that mathematics is a universal science that is useful for human life and also underlies the development of modern technology, as well as having an important role in various disciplines and advancing human thinking. Mathematics as a subject has its own level of learning difficulty for students. Especially for material that requires problem solving solutions and critical thinking skills. Some of the learning difficulties felt by students require teachers to explain and present the material well so that it is easy for students to understand and understand.

Learning difficulties or obstacles experienced by students are caused by several internal and external factors. Internal factors are factors that come from within the student, such as health, interest talent, motivation, intelligence and so on. While external factors are factors that come from outside the student, for example from the school environment, family environment and community environment. Students' difficulties in learning mathematics are concept difficulties, there are 3 things that cause students to experience difficulties in learning mathematics including perception (metamatics calculation), intervention and extrafolation, the implementation of the teaching and learning process will greatly determine the extent of success that must be achieved by a mathematics subje In learning mathematics, you must have perseverance and tenacity, so that mathematics is not considered by some students as a boring and complicated subject so that some students do not like it. On the other hand, the learning difficulties experienced by students in learning mathematics are caused by the conventional way of teaching teachers. The learning activities of mathematics learners only hear the subject matter delivered by the teacher, learners will have difficulty in understanding and interpreting the mathematical ideas they have. Therefore, a learning model is needed that can guide students to actively find and investigate so that students are able to construct mathematical concepts, express ideas or ideas, classify objects, use, utilise and select procedures and apply concepts in solving problems. ct.

The *Discovery Learning* model was developed by Bruner based on a constructivism approach that emphasises the importance of understanding structures or important ideas through student involvement in the learning process (Hakim et al., 2018). The *Discovery Learning* model takes the role of a facilitator, providing opportunities for students to learn actively by providing space for students to organise lessons themselves and direct learning activities in accordance with the objectives to be achieved.

Learning objectives can be achieved if supported by learning media. Learning media is a tool or form of stimulus (human interaction, reality, moving images or not, writing and recorded sound) that serves to convey learning messages (Rusman, 2015). Learning media in the form of computers which are sophisticated technology that is now equipped with software programmes can help learners become more responsible for their learning. *Power point* is an application program to make exposure through interactive presentation slides so that the material presented becomes more efficient

and interesting (Zahra et al., 2021). This study aims to identify mathematics learning difficulties in elementary schools, discuss the role of the *discovery learning* model in mathematics learning difficulties, and describe the role of power point media. The use of *Powerpoint* aims to make learning more directed, support students in digesting concepts or material, and to provoke students' curiosity during the initial stage of the discovery learning model, namely during the stimulation stage. This research was conducted at elementary school, which is a research that aims to describe in depth, systematically, factually and accurately about the ability to understand students' mathematics concepts in the application of the discovery learning model assisted by power point.

Therefore, this study aims to analyse the difficulties faced by students in learning mathematics using the Discovery Learning model assisted by Power Point. By understanding the difficulties that arise, it is hoped that more effective solutions can be found in optimising the application of this model, so that learning mathematics can be more effective and enjoyable for students. Based on the description of the problems in the background, the researcher conducted a study, namely 'Analysis of Students' Mathematics Learning Difficulties Using the Discovery Learning Learning Model Assisted by Power Point.

METHOD

This type of research is descriptive qualitative. This research is qualitative because it focuses on one concern, namely student difficulties in learning using discovery learning. The descriptive method is used because this research aims to make a systematic, factual and accurate description of the facts, or samples studied (Sugiyono, 2012).

This research was conducted from September to October 2024 at SDN Kertosari 01, Geger District, Madiun Regency. The research subjects were grade VI students of SDN Kertosari 01 Geger District, Madiun Regency. In this study, the research instruments were observation sheets, questionnaires, interview sheets, and documentation. The observation sheet was made for the teacher and also for the students with the answers 'Yes' or 'No'. The teacher observation sheet was made to measure the effectiveness of mathematics learning using the *discovery learning* model assisted by *power point* implemented by the teacher. While the observation of students was made to measure the level of activeness of students in learning mathematics presented by using the *discovery learning* model assisted by *power point*. Both observation sheets are also supported by field notes that write every event that occurs in learning and also documentation in the form of photos when learning activities are taking place. The second instrument is a questionnaire. The questionnaire was made to see the form of mathematics learning difficulties based on the scope of mathematics studies proposed by Jemaris (in Tyas: 2016) that mathematics should include three elements, namely concepts, skills, and problem solving. These three types of student difficulties in

Data Collection Technique Table

No	Data Captured	Data Source	Source	Appendices
1	Maths learning difficulties	Observasi	Students	Observation guidelines
		Interview	Students	Observation guidelines
2	Factors causing maths learning difficulties	Observasi	Teacher & Student	Observation guidelines

		Interview	Teacher & Student	Observation guidelines
		Documentation	Teacher & Student	Photographs

RESULT AND DISCUSSION

This research was conducted to describe the difficulties experienced by students during the learning process using the discovery learning model assisted by power point.

1. Learning Difficulties in Maths

a. Difficulties in the student

In the two lessons that have taken place, before starting the lesson, the teacher checks the students' attendance. In the two scheduled meetings, 4 out of 13 students were absent due to illness. The absence of these students has an impact on the delay of the lesson material. Seeing this, the health factor needs to be a concern considering that in using the discovery learning model assisted by power point, students are not only added to their knowledge but also instil social values through discussion or practice communicating ideas through presentations.

In addition, a positive attitude towards a subject is a good start for the learning process. Conversely, a negative attitude towards the subject will potentially lead to learning difficulties, resulting in less than optimal learning outcomes. Based on the interview results, all students interviewed liked learning mathematics. However, 2 students were found who liked learning mathematics with conditions. From the statement of student S-1 in the interview results, students do not like mathematics lessons when the teacher does not use a projector. Meanwhile, student S-8 will like learning mathematics more when using projector problems. Students' attitude towards learning mathematics is influenced by the teacher's strategy of teaching by using the projector.

b. Difficulties during apperception

Based on the observation, the apperception activity did not run effectively. The ineffectiveness occurred because students did not answer the teacher's questions because they had forgotten the previous learning material. The interview results showed that the learning motivation of student S-2, student S-4, student S-7 and student S-10 was low. It was characterised by students S-2, students S-4, students S-7 and students S-10 who did not restudy the material that had been taught at school when at home. Students S-2, students S-4, students S-7 and students S-10 only study when there is an assignment from the teacher, while students are only busy playing social media. The low motivation of students also results in students not being enthusiastic about learning mathematics, causing difficulties in learning mathematics. Based on the scores in the questionnaire, student S-2, student S-4, student S-7 and student S-10 are the students who experience the most learning difficulties. The *discovery learning* learning model assisted by power point, knowledge is made from the construction of students' learning experiences. Thus, learning is student-centred. Therefore, motivation is needed in students so that learning difficulties in learning can be avoided.

c. Difficulty in understanding the concept

In this study, difficulties in understanding concepts experienced by students include difficulties in understanding the problems or facts that are questioned. Based on the recapitulation results, students who have difficulty understanding

concept problems in learning mathematics are 10 out of 13 students. In order to assist students in improving their understanding of mathematics *learning* concepts, teachers need to be familiar with the various common mistakes made by students in completing tasks so that learning is interesting and concepts are easily understood by students.

d. Student difficulties in discussion

In learning, teachers have used the *discovery* learning model assisted by *power point* in learning mathematics. This learning model in learning mathematics. In addition, the teacher used the co-operative method through discussion activities. The use of the chosen method has also been adjusted to the material to be taught. In the discussion method used, student S-12 experienced difficulties because there were students who were selfish during the discussion. The student did not give space to group members to give opinions. This is in accordance with Juniati's opinion (2017: 3) which suggests one of the weaknesses of discussion, namely that discussions tend to be often dominated by a member of the discussion group. In addition to student S-12, student S-8 also shared his difficulties in leading the discussion group. This is in line with Juniati's (2017) opinion that another weakness of discussion is that it requires discussion skills from the participants in order to actively participate in the discussion. If members are not active due to personal problems, then the discussion activities will not run smoothly. In the learning that has taken place, the teacher applies 3-4 students in groups. What the teacher needs to do is to make the discussion activity more effective by organising the ideal number of students in the discussion and so on.

e. Difficulty in calculation skills

A skill refers to something that a person does. A type of maths skill is the process of using operations in addition, subtraction, multiplication and division. Difficulties in arithmetic operations can occur because students make mistakes in operating numbers incorrectly. It was found that 9 students were less careful in doing maths problems out of a total of 23 students. Errors in operating numbers were found by the researcher when students worked on problems on the material of building volume. This error is a form of inaccuracy in calculating. Jemaris (Tyas, 2016) argues that one of the difficulties experienced by students who have difficulty learning mathematics is weakness in counting due to misreading symbols and operating numbers incorrectly. To minimise errors due to inaccuracy, it can be done by increasing practice. In addition, teachers need to optimise the numeracy skills of each student so that the learning process and solving mathematical problems that are generally related to calculations can be carried out because it will be easier to solve if they have high numerical abilities (Gunur, Ramda, & Makur, 2018).

In the discovery learning model assisted by power point, the knowledge that students have either obtained from formal or non-formal institutions becomes the basis for students in constructing knowledge.

f. Difficulty in solving problems

The results of the questionnaire on problem-solving difficulties and the results of students' work on calculating the volume of spatial shapes show that students are not used to determining the steps of problem solving appropriately even though some of their work is correct. As many as 5 students did not write the information asked and as many as 8 students did not write the known information. It was also found that there were 13 students who did not re-examine the correctness of the answers obtained on the material of the volume of the space. Problem solving is the application of concepts and skills. The development of indicators of problem solving is shown by students not continuing

the work in solving the problem, including skipping several steps of completion in student work.

This research analyses mathematics learning difficulties in using principles with test and interview instruments. This type of research is descriptive qualitative because the results of the analysis will be described. In accordance with the purpose of descriptive research, namely to make a systematic, factual, and accurate description of the facts and properties of a particular population or area, (Suryabrata, 2013).

CONCLUSION

Students' mathematics learning difficulties include learning difficulties in themselves, difficulties during apperception, difficulties in understanding concepts, difficulties in discussions, difficulties in calculation skills and difficulties in solving problems.

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