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Research Article

Analysis of difficulties of junior high school students in solving AKM numeration problems

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ABSTRACT

Exploration of the difficulties faced by students in facing AKM exams is a challenge for teachers and practitioners of mathematics education. The main objective of this study is to map information about the difficulties students experience in carrying out AKM exams so that they can be used as evaluation material to prepare for better mathematics learning in the future. The selection of subjects was carried out randomly by considering good communication so that the data obtained could represent the population. Semi-structured interviews are used in collecting research data in order to create a more humane and conducive atmosphere. Data analysis used codes that had been reduced from the interview transcripts. The results of the research show that there are various challenges that need to get the attention of both teachers, students and parents of students. The loss of students' motivation in learning mathematics needs to get very serious attention for teachers and parents.

Keywords: AKM examination; numeracy; problems; students' difficulties

1. INTRODUCTION

Mathematics learning is currently not only focused on learning outcomes but is also starting to be oriented towards the abilities students really need in their daily lives (Hastuti et al., 2021; Ikram et al., 2021; Nabila Ramadhani Maryanto and Rizki Dwi Siswanto, 2021). One of the skills that is urgently needed at this time is numeracy and literacy skills (Herliani & Wardono, 2019; Sidney et al., 2019). Numerical abilities play a very important role for students in the process of learning mathematics. Students who have good numeracy skills will certainly find it easier to understand math problems compared to others (Geiger et al., 2018). Likewise with the literacy skills needed by students in learning. Students' literacy skills are needed to understand math problems in the form of long or short stories (Herliani & Wardono, 2019; Janah et al., 2019; le Roux & Nagel, 2018). With good literacy skills, students can choose which information is needed and which is not needed in solving a problem.

In measuring the level of literacy and numeracy possessed by students, the evaluation that can be used is the AKM test (Novianti, 2021; Purwanto, 2021). The AKM instrument contains several elements that are evaluated including, numeracy skills, literacy, and learning effectiveness that support the improvement of students' literacy and numeracy skills. For students, AKM has become something stressful because the material being tested evaluates students' understanding not only of calculations but also of students' ability to understand a problem. Students who do not have good literacy and numeracy skills will have difficulty facing the AKM exam. Therefore, learning mathematics needs to be encouraged to improve students' literacy and numeracy skills.

The AKM test is conducted on randomly selected students in one school, either public or private. The use of this random sample has the goal that the participating sample data represents the results of the entire population in that one school. This is also a challenge in itself because teachers may not prepare certain students to take the exam. In other words, teachers need to prepare all their students to be ready for the AKM exam (Nurmaya et al., 2022; Peltier & Peltier, 2020). The quality of mathematics learning that is carried out must be the same from one class to another class even though the teacher also faces a variety of different student characteristics in different classes.

Various challenges faced by students in carrying out AKM exams need special attention from teachers and researchers. The fact that some students have difficulty in doing the exam is a matter that requires attention. In the context of evaluation, it is necessary to conduct research that explains qualitative evaluation so that teachers and practitioners of mathematics education also understand the constraints faced by students. This is a form of attention that is needed in

order to improve the process of learning mathematics in class.

2. RESEARCH METHOD

In obtaining the main objectives of this research activity, this research uses qualitative research which emphasizes the coding process so that it makes it easier for researchers to make thematics mapping (Cropp, 2017). The use of thematics mapping is needed to understand the context of the problems faced by students.

The research data was taken using semi-structured interviews with the reason that the researcher could provide flexibility in exploring the extent of the difficulties faced by students in facing the AKM exam. Interviews were conducted in relaxed conditions where researchers tried to position themselves to be more flexible. This is done with the aim that all the data needed can be communicated by students without any doubts. The results of the interview data that have been obtained are then reduced by looking for the essence of the information obtained by students.

Analysis of research data using codes from the resulting data. The code is formed based on the data formed from the results of student interviews. When the codes have the same characteristics, the codes are used as information that can be analyzed further. Before analyzing, the researcher also compared the same codes to validate the existing data. Codes that do not have the same characteristics will be deleted while codes that have the same characteristics will be retained for further use for analysis.

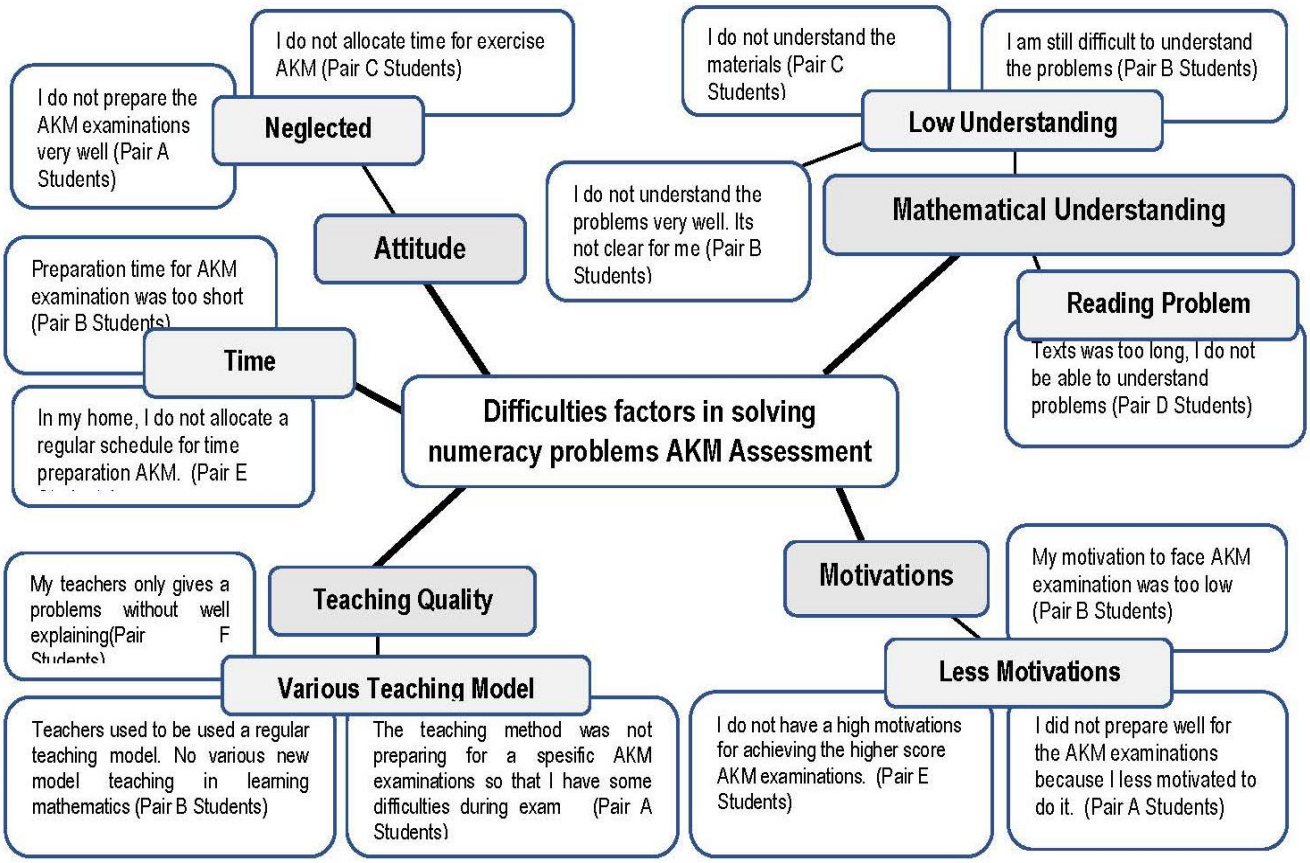

Figure 1. Research Framework

3. RESULTS AND DISCUSSION

3.1 Results

How is students' understanding of mathematics?

Understanding of students who do not fully understand the material is a challenge in itself. The material and mathematical concepts that will be tested have actually been learned by students in class. The teacher has made every effort to provide explanations (Sorvo et al., 2017; Umam et al., 2017). However, the recognition of students who have difficulty understanding the problems of the AKM exam is the main factor for students not being able to do it (Purwanto,

2021). The inability of students to process the information contained in the problem to be simplified in a form that is easy to understand also shows the low literacy of students. The low understanding of students towards mathematics learning material adds to the list of difficulties that must be resolved by students. difficult to do the AKM exam.

The quality of the mathematics learning process carried out in the classroom?

The quality of learning mathematics is also evaluated indirectly in learning. The learning model used by the teacher in teaching practice in the classroom did not experience much change. The teacher explains more about the material being studied by students so that learning is still teacher-oriented. The concentration of learning on the teacher reduces the intensity of learning between students (Bunyamin et al., 2020; Ike & Suhendri, 2021; Saida et al., 2021). Discussions between students did not go well. This is not without reason because of the large amount of material that needs to be conveyed by the teachers. Providing space and opportunities for students to discuss is indeed very good in the teaching and learning process (Ashcraft, 2017; Umam et al., 2019). However, student discussions can take a very long time. What's more, the majority of students do not arrange discussion schedules outside of class so practically discussions are only carried out in class.

Student motivation in carrying out AKM exams?

In facing exams, the main capital that is needed by students is motivation. Motivation encourages students to be more active and enthusiastic in facing exams. Students who have high motivation will be more disciplined in managing their schedules. High motivation also encourages students to learn more independently (Purwanto, 2021; Susilawati, 2021). When students do not understand certain mathematical material, students can ask the teacher or their peers. In fact, some students, with the support of their parents, spend additional time studying at tutoring sites. in students who are lacking has become a concern in various teacher discussions in learning.

The time that students have in learning mathematics?

The need for independent learning becomes an undeniable thing in the learning process. Students need to arrange their schedule independently to study. With a well-scheduled routine, students not only give themselves the opportunity to learn but can also discipline themselves to organize their health to be more productive. Students who do not have good numeracy skills.

4. CONCLUSION

Mathematics learning that is oriented towards numeration and literacy skills is really needed by students. In preparing students to face the AKM test, awareness of the importance of the meaning of learning is needed in students. The fact that the low motivation and negative behavior of students in facing exams is caused by the motivation of students who tend to be less enthusiastic. The enthusiasm and motivation of the majority of students to provide additional time to study more than other activities occurs in the facts of student school life today. Even though students really need high motivation in achieving maximum learning outcomes. This is a major factor in the difficulties that occur in dealing with AKM exams conducted by students. This research is still very limited to one school so there may be elements that are lacking in the data and in the presentation. Research with schools from student backgrounds that have different motivations, experiences, and characters can also provide different results. Future research can evaluate more and more comprehensive data so that quality education policies become a reality.

AUTHOR'S CONTRIBUTIONS

The authors discussed the results and contributed to from the start to final manuscript.

CONFLICT OF INTEREST

There are no conflicts of interest declared by the authors.

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