

ANALYSIS OF STUDENT ERRORS IN WORKING MATHEMATICAL PROBLEMS IN CALCULATED OPERATION MATERIALS FRACTIONS BASED ON NEWMAN STAGES FROM ADVERSITY QUOTIENT (CASE STUDY IN SMP NEGERI 2 SEKAMPUNG)

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Abstract. This study aims to find out the errors made by students and to find out the causes of student errors in doing arithmetic operations on fractions based on Newman's procedure in terms of Adversity Quotient. In this study, respondents were selected using purposive sampling. The research approach used is a descriptive qualitative approach, the method used is a case study. sampling The research subjects consisted of 3 students selected using a purposive technique. Data collection techniques used are documents, interviews, adversity quotient questionnaires, data analysis techniques used are data reduction, data presentation, and drawing conclusions. The results showed that errors occurred in every indicator of Newman's analysis. The types of errors that students make are reading questions, understanding problems, transforming, processing skills, and writing answers. The causes of these errors include limited students' reading comprehension abilities, students have not been able to identify relevant information in story problems, students are not used to working on story problems, poor time management, and students have not mastered mathematics, needed to solve operational problems properly.

Keywords: guideline; template; author; abstract; manuscript.

INTRODUCTION

Mathematics should be taught at all levels of education. Starting from elementary, middle, high school, even college. In learning mathematics, various important components play a role in creating an effective learning atmosphere. One of these important components is the teacher. In the implementation of formal education, in each school, the types of knowledge and fields of knowledge taught are different ([Abdulloh](#), 2016). One of the fields of science that is taught in schools is arithmetic or measurement which is called Mathematics. With many sciences whose discovery and development depend heavily on mathematics, students must have various skills related to mathematics ([Magfirah, Maidiyah, & Suryawati](#), 2019).

Learning mathematics in schools is always related to the material at that level. The scope of this mathematics material shows the scope of mathematics material for learning at certain levels of education. The Mathematics Material Limit for SMP VII includes the material on numbers, sets, comparisons and lines, angles and numbers. The field is one of the many components that make up a comparison. Each of these materials has unique characteristics that can cause some problems for students to learn ([Dewi](#), 2018).

These difficulties are usually a problem for students because they can hinder the achievement of mathematics learning objectives. One of the difficulties that often arise in learning mathematics is the number in the fractional counting operations section, both in terms of concepts and in arithmetic operations procedures. Many

students also find it difficult to function if there are questions about mixed fractions, which must be done by first converting mixed fractions into ordinary fractions and then working on them. Although it seems simple, the arithmetic operations on fractions are not always mastered well by students, even many students do not know this step ([Ramlah, Bennu, & Paloloang](#), 2016).

A preliminary study conducted at SMP Negeri 2 Sekampung in grade VII shows the fact in the field that students make many mistakes in doing fractional arithmetic operations due to lack of mastery, both in understanding, operating, and writing final answers ([Sudiono](#), 2017). It is not easy to bring students to be able to understand the concept and meaning of fractions so that a change in the teacher's teaching method is needed ([Suciati & Wahyuni](#), 2018). Teachers should continue to try to arrange and apply various ways of variation so that students are interested and enthusiastic in participating in mathematics lessons ([Anzar & Mardhatillah](#), 2018). If there are students who do not understand, it means that they have difficulties which result in errors in solving math problems ([Nasriadi](#), 2016)

Error analysis is important because both teachers and students can determine efforts that can prevent the same mistakes from happening again. This is in line with Efrilia who explained that when analyzing errors, we can find out the possible causes, which allows us to focus on those reasons and to avoid similar mistakes in the future ([Efrilia](#), 2016).

Students' ability to solve problems is very diverse, depending on the individual and the particular time. Various factors

influence students in solving problems, one of which is the student's fighting power. The fighting power of each student in solving problems is different. The difference in fighting power is determined by the level of adversity quotient (AQ).

Suffering is a measure of the ability to overcome adversity. Therefore, the role of risk is important in determining students' ability to solve mathematical problems. Stoltz is included in 3 (three) AQ categories, namely; Interrupts (Low AQ), Camps (Medium AQ), and Oops (High AQ). People who try to avoid problems prefer to look back when they see problems, and people who don't dare to face problems fall into the category of quitting. A person who is not willing to take great risks and is satisfied with the circumstances or circumstances in which he finds himself is classified as a camp category. To better understand this situation, the researcher felt it was important to consider the level of difficulty by examining how students responded to solving low, medium, and high level problems.

So to find out more about the errors made by students in solving problems, the researchers are interested in conducting a study entitled "Analysis of Errors for Class VII Students in Working on Math Problems in Operational Materials to Count Fractions Based on Newman's Stage in terms of adversity intelligence.

METHODS

Two instruments were used. in this study, the main instrument, and supporting instruments. The main tool in this study is

the researcher himself. While the supporting materials are the University Response Profile (ARP) questionnaire, interview instructions, and questionnaires. Research time is from January 2022 to completion. Subject selection begins by distributing the Adversity Response Profile (ARP) questionnaire. The results of each student's ARP questionnaire are added and based on the student's ARP scores are divided into 3 (three) categories of students: citation, camp, and outreach. Then one student is selected from each AQ category, each each stop, rest, and leave. Peng Data collection in this study was carried out on each topic. The research subjects consisted of 3 informants, who were selected based on a purposive sampling technique from 32 students.

This data analysis will be subject to sanctions in the context of text concepts and concepts that (Rijali, 2019) are used to describe the following: reducing data, presenting data, and concluding/verifying.

RESULTS AND DISCUSSION

SUBJECT CAMPER

Subjects read the questions and then write down what is known and asked using verbal language without explaining orally. This can be seen from the camper character who shows a little enthusiasm, a little effort, and does not use all his abilities ([Klaukien, Shepherd, & Patzelt, 2013](#)). In his research obtained the same thing that their camper students synthesized ideas based on easy concepts ([Irfan, 2018](#)). The subject stated that he obtained the plan after reading the questions and had two plans to solve the

problem. In other words, the campers understand the problem well.

On In the transformation process, the camper subject uses addition and subtraction calculations correctly as the initial formula. the ability to process addition and subtraction operations by equating the equation first correctly and precisely. However, in writing the answer is less precise and in simplifying the final answer ([Huang et al.](#), 2021). states that they are campers, who are satisfied with their independence. This is in accordance with ([Loe](#), 2010) which explains that because they are bored they end their work, do not take risks, take the safe path, prefer to maintain comfort, and do not utilize their potential to the fullest. Meanwhile, ([Irfan](#), 2018) found the same thing in his research, namely that the camper was satisfied with the answer.

Subject Quitters

Subjects read questions by writing down what they know and are asked orally. In the quitters subject, the first error was seen from the start, namely the process of not understanding the meaning of the problem and the transformation using the initial formula for the addition operation. It should be appropriate to use the process of adding and subtracting fractions. Quitter subjects choose to give up on the next process, namely process skills and writing answers. This is not supported by the theory which says that people who quit smoking will give up and quit without being accompanied by effort in solving math problems ([Weintrop et al.](#), 2016).

CONCLUSIONS

Based on the results of the study, it is known that in general there are differences in quality between the problem solving profiles of mountain students, campers, and dropouts. It can be said that mountaineering students have better problem-solving qualities than camping students and dropouts, this can be seen in every problem-solving step taken by mountaineering students. Therefore, the researcher suggests that educators and students understand that every student has AQ potential that needs to be improved at any time and if possible an educator pays more attention to students with low AQ and does not ignore students with high AQ.

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