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ANALYSIS OF MATHEMATIC REPRESENTATION ABILITY IN CLASS V PRIMARY SCHOOL KPK MATERIAL

[*1]Novianti, [2] Noval Andriani
[*1,2]Program Studi Pendidikan Guru Sekolah Dasar, Universitas Almuslim, Bireuen-Aceh
Email: *[1,2]noviyanti@umuslim.ac.id

Abstract

Representation in mathematics is the expression of ideas through models for solving problems in mathematics. These models can consist of words, pictures, diagrams, and shape representations that others can use to finish problems in mathematics. However, it's very unfortunate that representation mathematics is very little understood by most student-based schools. In the KPK material, in the form question story, students involve various form representation mathematics in the finish question. The purpose of this study is to analyze the ability representation mathematics possessed by students in class V/D UPTD SD Negeri 3 Percontohan Peusangan of KPK material. The method used is qualitative with a shorthand description. Instruments used form a question, essay, or test. The study's findings indicate that students are underrepresented. This will be marked by a completion search for KPK in the tree factors and still not enough ability in verbal representation.

Keywords: Analysis, ability, representation, mathematics, KPK

Abstrak

Representasi matematis adalah ungkapan ide-ide melalui model-model untuk menyelesaikan masalah matematika. Model-model tersebut bisa terdiri dari kata, gambar, diagram, dan bentuk representasi lainnya yang bisa digunakan untuk menyelesaikan masalah matematika. Namun, sangat disayangkan kemampuan repesentasi matematis sangat minim dipahami oleh kebanyakan siswa sekolah dasar. Pada materi KPK dalam bentuk soal cerita siswa melibatkan berbagai bentuk representasi matematika dalam menyelasaikan soal. Tujuan dari penelitian ini adalah untuk menganalisis kemampuan representasi matematika yang dimiliki oleh siswa kelas V/D UPTD SD Negeri 3 Percontohan Peusangan pada materi KPK. Metode yang digunakan adalah kualitatif dengan pendektan deskriptif. Instrumen yang digunakan berupa soal tes essay. Berdasarkan hasil penelitian menunjukkan bahwa terdapat siswa kurangnya representasi simbolik siswa ini ditandai dengan penyelesain pencarian KPK yang terdapat di pohon faktor dan masih kurang kemampuan siswa dalam representasi verbal.

***Kata kunci**: Analisis, kemampuan, representasi, matematis, KPK*

INTRODUCTION

Representation in mathematics is the expression of ideas through models for solving problems in mathematics. Representation is a form interpretation that comes from thinking about the problem that arises as a tool help finish the problem (Cahya et al., 2022; Sabirin, 2014). It means representation mathematically becomes a solution for students to simplify a problem that was originally very difficult to understand and resolve. This is reinforced by Azzahra et al. (2024): representation helps students understand draft mathematics and its relationships, communicate mathematical ideas, understand connections between concepts, and apply them in their daily lives through modeling.

Kholiqowati et al. (2016) explain how representation plays a central role in learning mathematics. It's involving a method where students disclose their understanding of draft mathematics through various forms of interpretation, like:

A. Forms of Representation: Students can use various forms of mathematical representation, including:
    1. Drawing: Illustrate mathematical concepts by drawing diagrams, graphs, or illustrations.
    2. Writing: Composing written explanations of math solutions or understanding concepts.
    3. Mathematical Symbols: Use mathematical notation such as symbols, formulas, or equations.
    4. Graphs: Create graphs or diagrams to visualize data or mathematical relationships.

B. Importance of Representation: Mathematical representation has several important benefits:
    1. Understanding Concepts: By depicting concepts visually or in writing, students can better understand mathematical ideas.
    2. Sharing Understanding: Representations allow students to communicate with teachers and classmates about solving mathematical problems.
    3. Modeling Situations: Students can use representations to model real-world situations into mathematical form.

C. Representation Learning: Teachers need to pay attention to developing students' mathematical representation abilities. Some strategies that can be used are:
    1. Using Various Forms of Representation: Teachers should introduce students to various forms of mathematical representation.
    2. Asking Questions: Teachers can ask questions that encourage students to illustrate mathematical concepts visually or in writing.
    3. Using Contextual Materials: Relating mathematical concepts to real-world situations helps students understand and use representations.

Therefore, with the ability to represent good mathematics, students can more effectively understand, communicate, and model draft mathematics in various situations. In the eyes lesson, mathematics is a very necessary ability representation because representation is closely related to the solution problem (Nadia et al., 2017). Ability representation plays a

big role in developing and optimizing ability understanding in mathematics students (Sabirin, 2014). This matter was strengthened with exposure to the to the National Council of Teachers of Mathematics (NCTM) in Study mathematics abilities like understanding, representation, communication, connection, and resolution problem mathematics are highly demanded and owned by students (HHandayani, 2019; Ramanisa et al., 2020). This matter supports research conducted by researchers to see the required abilities owned by participants educated in mathematics, which is ability representation. According to (Khairunnisa et al., 2018), in order to solve a problem in mathematics, it is necessary to have the ability to represent mathematics. This will make it easier to solve a problem. Students who have good representation will be more capable of solving draft mathematics as well as finishing questions in mathematics (Lutfi & Khusna, 2021; Rahmita & Budiarto, 2021).

In developing representation, this is of course not easy. As a result of research in class V/D at UPTD Percontohan State Elementary School Peusangan, there are lots of students who can't finish the questions given. Whereas the question was given already, they learned. This matter has become proof of how Still not enough ability to represent mathematical. Teacher as power educator already should grow ability representation in self-students. Teachers don't only transfer knowledge to their students. However, you have to get feedback from various students so that the knowledge imparted can reach an objective end. To grow representation among students, the teacher should present activity-study-appropriate teaching with the needy students. Teachers can't be stuck in one learning model or only use a watching strategy. Observing the use of strategies, methods, techniques, and learning models can lower the ability of students who have disabilities to solve problems.

But in reality, until the moment This student only repeats and returns what is explained and written by the teacher in the activity. This matter was caused because teachers only emphasize memorization and delivery material as well as counting. To finish the question given without giving a chance to the student for their own ability to solve possible problems, grow their ability to think with method, combine knowledge previously gained with new knowledge found (Meilani & Maspupah, 2019). Therefore, according to Sari et al.'s (2020) impact, students tend to finish questions in an easy and short way without paying attention to the process of solving the problem. Whereas with a chance for students to construct ideas that have an impact on mastery concepts, then use the correct concept in the finish problem, students can use.

In completing problems, students need to interpret problems found in mathematical models. When students interpret existing problems, they require more from one-ability representation, also called multiple representation (Umaroh & Pujiastuti, 2020). Application representation can help students finish the problem. At first, it may appear difficult, but at the end, it can be completed easily (Hyun & Syawaly, 2020). From the description that has been given and discussed above, how does the writer formulate the problem you want to research more? ability representation mathematics owned by students in class V/D UPTD SDN 3 Percontohan on KPK material. As for goals study,

this is to analyze ability representation mathematical students fifth grade school based on KPK material.

METHOD

According to Murdiyanto (2020), qualitative research methods focus on understanding the depth, interpretation, and disclosure meaning of the data collected. Types of research This is a literature study. As for the location study, it is located at UPTD SD Negeri 3 Percontohan Peusangan, Pante Gajah Village, District Peusangan, Regency Bireuen, Aceh Province. Study This held especially for student class V with amount students 25 students. Instruments used in the study This form test ability representation mathematically in story essay form. Following form, the question given to student class V/D:

"Ani has 3 light bulb toys . Light bulb color red on for 3 minutes very . Light bulb color blue on for 5 minutes once and the light bulb color yellow on for 6 minutes very . When is the light bulb the will light up in a way simultaneously after the first blink ?"

Data analysis in research This done during and after data collection . As for who became part qualitative used For analyze ability representation mathematics possessed by students in finish question story KPK material .

RESULTS AND DISCUSSION

Study This is done regarding the ability to represent mathematics possessed by students in V/D UPTD SDN 3 Percontohan. Corruption of KPK material. Analyzed aspects consist of representations that are symbolic, visual, and verbal. 14 of the 25 students studied were incapable of presenting mathematical representations in the final problem. Following the displayed results analysis error answer students on each aspect representation mathematical student class V/D UPTD SDN 3 Percontohan Peusangan.

a. Analysis 1. Student Answer Errors in Visual Representation Aspects

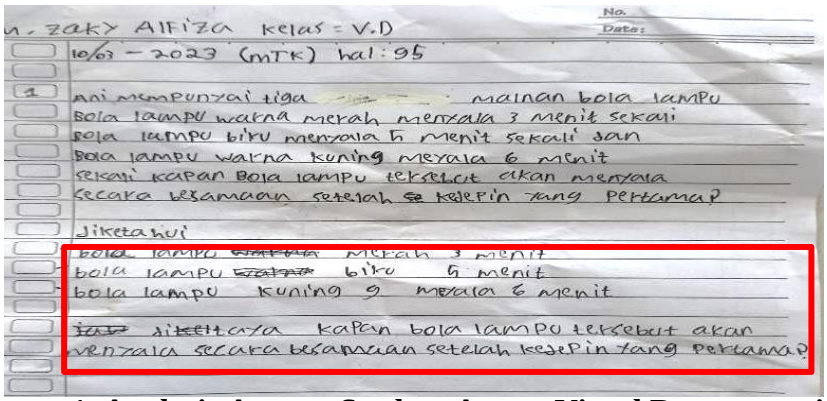

Figure 1. Analysis Answer Student Aspect Visual Representation

Based on the analysis, students are already capable of understanding the meaning of the question. The student is already capable of identifying which part is known in the question and which part is a question. Answer student on besides Already capable identify there's been a problem too capable interpret it. However, at this stage, furthermore, namely in designing a solution problem, the student is not yet capable of representing it. Student Still Confused How complete is the KPK with the use of the tree factor? It means that the

student is not yet capable of presenting a deep visual representation and finishing the question.

b. Analysis 2. Student Answer Errors in the Symbolic Representation Aspect

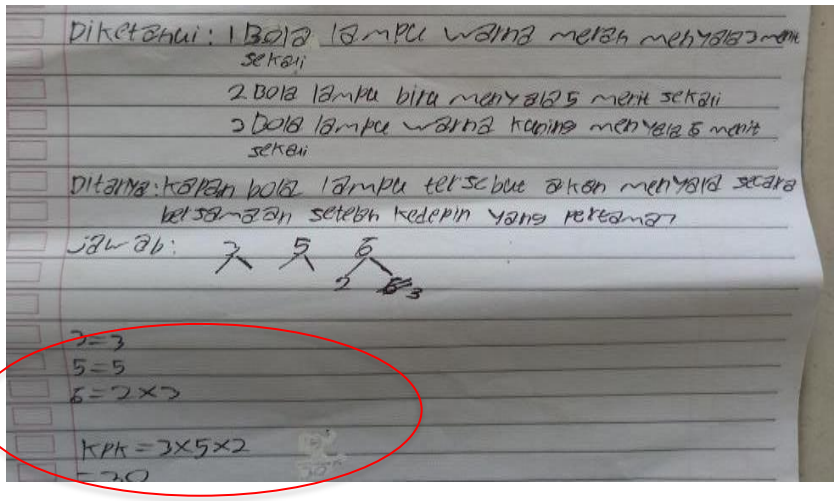

Figure 2. Analysis Answer Student Aspect Representation Symbolic

Based on analysis from answer students, students are already capable of analyzing the problem in question as well as planning a resolution strategy that is the How method looking for KPK with a tree factor. However, at the moment, the solution problem student is still not sufficiently committed to symbolic representation. Lack of representation: symbolic student This will be marked with a completion search for KPK in the tree factor. On a tree, factor numbers 3 and 5 students do not include dividing prime numbers. So that No is known, how do steps determine prime factorization of numbers 3 and 5?

c. Analysis of Student Answer Errors in Verbal Representation Aspects

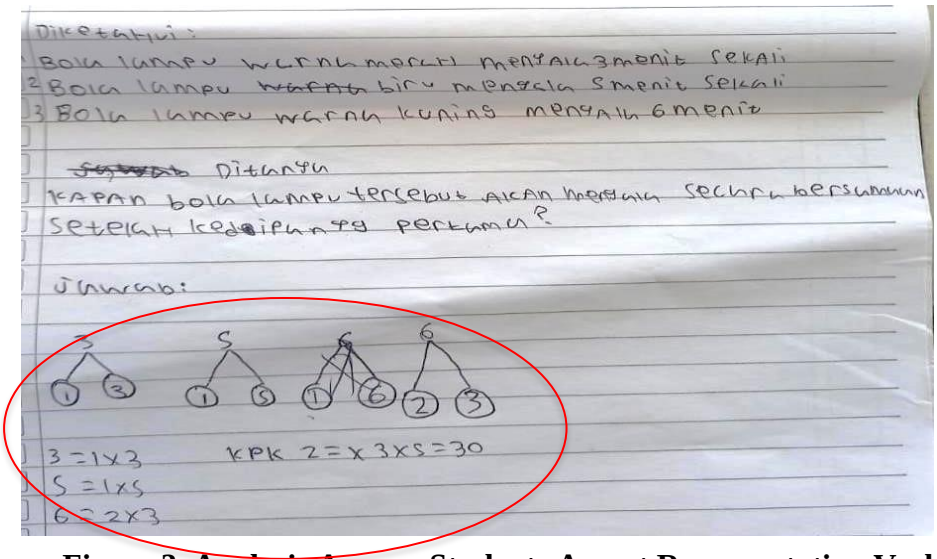

Figure 3. Analysis Answer Students Aspect Representation Verbal

Based on the analysis answer provided by the students, they have demonstrated their ability to identify, interpret, and formulate a resolution strategy for the given questions. From the answer, students are already capable of identifying which part is known and which part is becoming a question. Apart from that, students also have the capability to present models as well as steps of mathematics in solving problems. It means students

already have the ability to represent symbolic and visual. However, there is still a lack of answers, as mentioned by the student in the section that concludes the results of the question. This issue arises due to a lack of proficiency in verbal representation. At the end of the answer, the student listed the conclusion results, which end with the sentence, “So *there are three light bulbs that will light up simultaneously another 30 minutes after the first blink."" It* is deeply regretted by part-student class V/D UPTD SDN 3 Percontohan Peusangan. Not yet possessing the ability This. Whereas with addition sentences, the student is capable of understanding as well as finishing problems from the questions given. The consequences of existing ability representation—symbolic, visual, and verbal—make the student's answer perfect, help them understand the draft, and facilitate the resolution process for both sequential and systematic problems. This matter, in accordance with the study (Rohmani et al., 2024), explains that ability representation gives visual means for illustrating concepts in mathematics, which can help students understand and remember information more.

CONCLUSION

In learning mathematics, it is very necessary to understand the draft. Understanding draft This will have an have an impact on the settlement process. Completion of a of a good problem Students are capable of delivering required mathematics representations based on questions. Even in solving a problem, students need a number of representations *(multiple representations).* If the student has the ability, a qualified representative will help the student finish the problem in a correct and systematic way.

Based on the results of the study, student class V/D UPTD SDN 3 Percontohan Peusangan Still, many don't have the ability to represent good mathematics. Lack of ability is caused by a low-given question in the form of a story. Because of that, teachers need to hone the ability to represent mathematical students with a question in the form of a story and get them used to it. Students then construct their ideas. Alone without being stuck with memorization just.

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