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ANALYSIS OF THE THINKING PROCESS OF ELEMENTARY SCHOOL STUDENTS INPRES 1 KAWATUNA IN SOLVING AKM PROBLEMS BASED ON WALLAS THEORY IN TERMS OF LEARNING STYLES

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Abstract

This study aims to describe students' thinking process in solving Minimum Competency Assessment (AKM) questions based on learning styles. This research uses a descriptive qualitative approach with the method of analyzing the thinking process according to Wallas which includes four stages, namely: the preparation stage, the incubation stage, the illumination stage, and the verification stage. The research subjects consisted of three students, namely one student with a visual learning style, one student with an auditory learning style and one student with a kinesthetic learning style. The data collection technique was carried out through giving a learning style questionnaire, giving AKM test questions and unstructured interviews, after which it was analyzed using the data condensation model, data presentation, and conclusion drawing/verification. The results showed that in the preparation stage, subjects with visual, auditory and kinesthetic learning styles gathered information by reading the questions repeatedly. At the incubation stage, subjects with visual, auditory and kinesthetic learning styles understand the problem well then reflect on ideas to solve the problem. At the illumination stage, visual, auditory and kinesthetic subjects find ideas and express ideas to solve the problem, but at this stage auditory and kinesthetic subjects cannot find more than one idea while visual subjects can find more than one idea to solve the problem. At the verification stage, visual, auditory and kinesthetic subjects express their ideas verbally well, but at this stage auditory subjects do not re-examine the answers they have done while visual and kinesthetic subjects always re-examine the answers they have done.

Keywords: thinking process, AKM, wallas theory, learning styles

Abstrak

Penelitian ini bertujuan untuk mendeskripsikan proses berpikir siswa dalam menyelesaikan soal Asesmen Kompetensi Minimum (AKM) berdasarkan gaya belajar. Penelitian ini menggunakan pendekatan deskriptif kualitatif dengan metode analisis proses berpikir menurut Wallas yang meliputi empat tahapan yaitu: tahap persiapan, tahap inkubasi, tahap iluminasi, dan tahap verifikasi. Subjek penelitian terdiri dari tiga siswa yaitu satu siswa dengan gaya belajar visual, satu siswa dengan gaya belajar auditori dan satu siswa dengan gaya belajar kinestetik. Teknik pengumpulan data dilakukan melalui pemberian angket gaya belajar, pemberian tes soal AKM dan wawancara tidak terstruktur, setelah itu dianalisis menggunakan model kondensasi data, penyajian data, serta penarikan kesimpulan/verifikasi. Hasil penelitian menunjukkan bahwa pada tahap persiapan subjek dengan gaya belajar visual, auditori dan kinestetik mengumpulkan informasi dengan membaca soal berulang kali. Pada tahap inkubasi, subjek dengan gaya belajar visual, auditori dan kinestetik memahami soal dengan baik kemudian merenung memikirkan ide untuk menyelesaikan soal. Pada tahap iluminasi, subjek visual, auditori dan kinestetik menemukan ide dan mengungkapkan ide-ide untuk menyelesaikan soal, namun pada tahap ini subjek auditori dan kinestetik tidak dapat menemukan lebih dari satu ide sedangkan subjek visual dapat menemukan lebih dari satu ide untuk menyelesaikan soal. Pada tahap verifikasi, subjek visual, auditori dan kinestetik mengungkapkan idenya secara verbal dengan baik, namun pada tahap ini subjek auditori tidak melakukan pemeriksaan kembali terhadap jawaban yang telah dikerjakan sedangkan subjek visual dan kinestetik selalu memeriksa kembali jawaban yang telah dikerjakan.

Kata kunci: proses berpikir, AKM, teori wallas, gaya belajar

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INTRODUCTION

Mathematics is an essential discipline to learn, as it plays a major role in many aspects of life. Mathematics is not only about school lessons but also an essential foundation for understanding scientific concepts, logic skills, analyzing, and problem solving. Currently, mathematics learning does not only prioritize academic achievement, but is also oriented towards the abilities needed by students in their daily activities (Hastuti et al., 2021). Students' numeracy literacy skills are one of the skills that are needed today (Sidney et al., 2019).

Numeracy literacy is the ability to understand, use, evaluate, reflect on various types of written text and the ability to think using mathematical concepts, facts and tools to solve relevant everyday contextual problems is an important skill for everyone (Kemendikbud, 2020). Based on the results of the PISA survey in 2022 that the numeracy literacy skills of Indonesian students are still relatively low.

One form of assessment that can be used to determine the level of numeracy literacy possessed by students is the Minimum Competency Assessment (AKM) test (Novianti, 2021). The AKM is designed to measure students' literacy and numeracy skills by emphasizing concept understanding and the application of higher order thinking skills.

Students' ability to solve AKM problems is not only based on content knowledge but also on students' thinking processes in understanding, analyzing and solving problems. The thinking process is an activity to solve problems or problems in order to find an answer or solution to a problem carried out by every human being (Anggreini & Asmarani, 2022). Everyone has a different thinking process in solving a problem or an issue. According to Wallas, the thinking process consists of four stages, namely the first preparation stage, the second incubation stage, the third illumination stage and the fourth verification stage (Tandililing, 2019).

With the implementation of the AKM policy, it is expected that students can be tested with international standardized assessments so that students can develop their reasoning skills (Meriana & Murniati, 2021). However, based on data from the 2022 Public Education Report Card, it is known that the achievement of student learning outcomes across all primary schools for numeracy literacy skills is only less than half of the students who can meet the minimum competency limit.

At SD Inpres 1 Kawatuna, the phenomenon of low literacy and numeracy skills was also identified based on initial interviews with homeroom teachers, where there are still many students who are lazy to read so that students have difficulty understanding questions in the form of story problems, students also lack understanding of mathematical symbols, therefore the literacy and numeracy skills of students at SD Inpres 1 Kawatuna are low.

There are a number of factors that can affect the level of literacy and numeracy skills of students, one of which is personal factors. According to Amaliya & Fathurohman, (2022) One of the personal factors that influence numeracy literacy skills is students' learning style. Learning style is a combination of how students absorb, organize and manage the information they get (Setyowati et al., 2022). Students with different learning styles will have different ways of understanding, absorbing, mastering lessons, and problem-solving skills.

The analysis of students' thinking process in solving AKM problems is important to do because by analyzing the thinking process of different students we will be able to understand how students understand the problem, what strategies are used to solve the problem, find out where the difficulties experienced by students are. One effective approach in understanding the thinking process is the theory of thinking according to Graham Wallas which is divided into four stages, namely the preparation stage, the incubation stage, the illumination stage and the verification stage (Tandililing, 2019).

Based on the background above, the researcher is interested in conducting research with the title “Analysis of Students' Thinking Process in Solving AKM Problem Based on Learning Style”.

METHODS

This research is a type of descriptive research using a qualitative approach. This approach was chosen because the research aims to describe students' thinking process in solving AKM problems based on students' learning styles. Analysis of the thinking process used according to Wallas' theory which includes four stages, namely the preparation stage, incubation stage, illumination stage and verification stage. The research subjects consisted of three fifth grade students of SD Inpres 1 Kawatuna, namely one student with auditory learning style, one student with visual learning style and one student with kinesthetic learning style. Determination of the subject is based on the results of the student learning style questionnaire. The main instrument in this research is the researcher himself, who plays a

role in collecting, interpreting, and analyzing data. Supporting instruments used include student learning style questionnaires, written tests in the form of AKM questions that have been validated by experts, and unstructured interview guidelines. Written tests are given to identify students' thinking processes, while interviews are used to dig deeper into how students' thinking processes are based on student answers. The data collection techniques in this study were by giving learning style questionnaires, giving written tests and unstructured interviews. The learning style questionnaire was used to obtain information about students' preferred learning styles, written tests were used to obtain primary data about students' thinking processes in solving AKM problems and interviews were conducted to strengthen the results of test analysis and obtain additional information about students' thinking strategies in solving problems. The data that has been obtained is then analyzed using three stages according to the Miles and Huberman model, namely data condensation, data presentation and conclusion drawing and verification.

RESULTS AND DISCUSSION

Analysis of the Thinking Process of Students with Visual Learning Style

The results of data analysis of the thinking process of students with visual learning styles in solving AKM problems can be seen in the following figure:

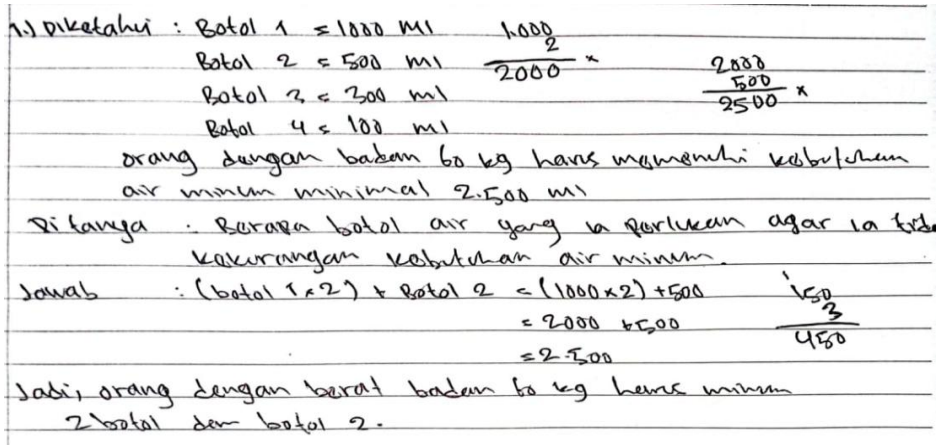

Figure 1. Answer Sheet of Subjec SV

In the preparation stage, SV collected information by looking at the picture and reading the problem repeatedly in order to understand the problem. Then SV identified existing information such as known things and things asked in the problem and wrote them neatly on the answer sheet.

At the incubation stage, SV saw pictures and tables and read the problem repeatedly in order to understand the problem well. In addition, SV showed attitudes such as contemplating and reading the problem many times and releasing himself like stopping for a moment doing his activities thinking about ideas to solve the problem.

At the illumination stage, SV found several solutions to solve the problem, then SV chose one solution that SV thought was the most appropriate to solve the given problem. After getting the solution that is considered the most appropriate SV then solves the given problem. At this stage SV can propose more than one solution to solve the given problem.

The verification stage is the last stage of the wallas thinking process. At this stage SV solves the problem with the solution that SV considers the most appropriate, SV then writes the solution systematically and correctly, SV also writes a conclusion on the answer. However, after completing the problem SV did not recheck his answer, because SV was sure of his answer.

Analysis of the Thinking Process of Students with Auditory Learning Style

The results of data analysis of the thinking process of students with auditory learning styles in solving AKM problems can be seen in the following figure:

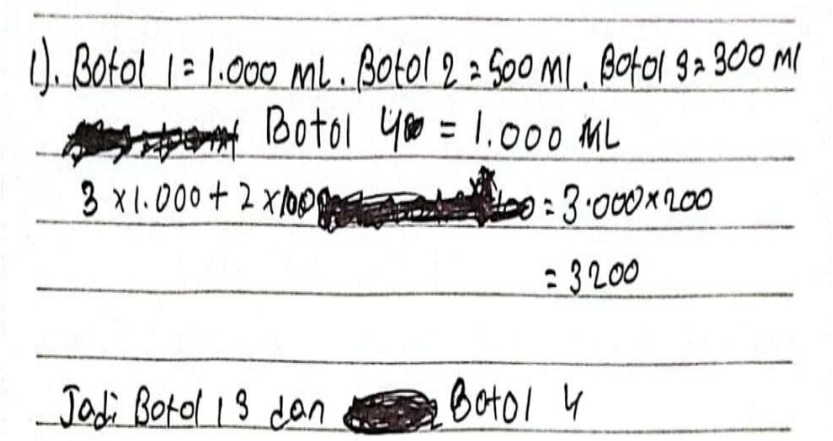

Figure 2. Answer Sheet of Subjec SA

In the preparation stage SA collects information by reading the problem repeatedly aloud in order to understand the problem well. Then SA identifies some important information such as what is known and what is asked in the problem then writes it on the answer sheet. However, SA cannot write the important information neatly and completely.

At the incubation stage, SA understands the problem given by reading the problem repeatedly aloud. After reading the problem repeatedly SA then paused for a moment to think about the solution that will be used to solve the problem given.

At the illumination stage, SA found ideas and solutions to solve the problem given, but at this stage SA can only find one solution to solve the problem.

At the verification stage SA solves the problem given with the solution that SA got in the previous stage, then SA writes the solution systematically and correctly. After completing the problem SA then concluded the answer and did a double check on his answer sheet by recalculating the results of his work. However, SA is less thorough and detailed in writing the answer but can explain it well during the interview.

Analysis of the Thinking Process of Students with Kinesthetic Learning Style

The results of data analysis of the thinking process of students with kinesthetic learning styles in solving AKM problems can be seen in the following figure:

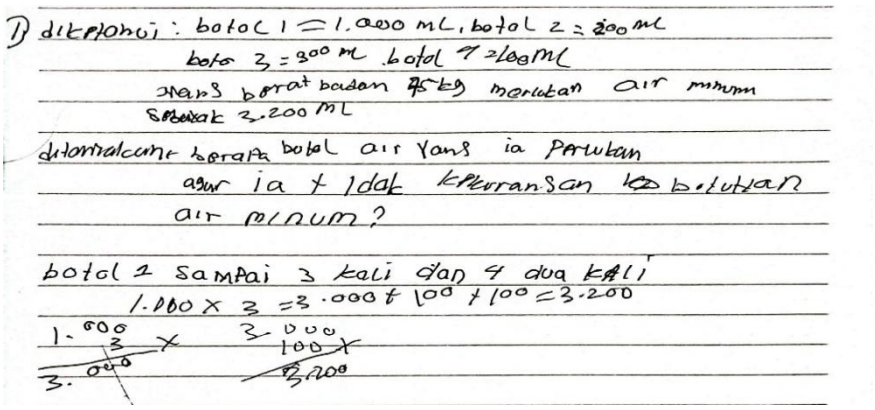

Figure 3. Answer Sheet of Subjec SK

In the preparation stage SK collected information by reading the problem repeatedly with a rather loud voice, then SK identified important information contained in the problem in the form of known things and things that were asked while twirling the pen in his hand. After identifying important information SK then wrote it completely even though it was not neat on his answer sheet.

At the incubation stage, subject SK understood the problem by reading the problem over and over again while scratching his head. At this stage SK paused to continue working by thinking about ideas and solutions that would be used by doing activities such as playing with pens and counting using fingers.

At the illumination stage, subject SK found ideas and solutions to solve the problem. However, at this stage subject SK could not find more than one idea to solve the problem because the subject misunderstood the meaning of the word minimal in the problem.

At the verification stage, subject SK wrote the solution according to the idea that subject SK got at the previous stage, subject SK also concluded the answer to the problem given and was sure of the answer obtained after rechecking the answer by recalculating the results obtained.

CONCLUSION

Based on the results of the research, it can be concluded that students' thought processes in solving AKM problems through the Wallas stages are different. Students' learning styles have an influence on students' thinking processes, students with visual learning styles tend to be more prominent in the preparation stage because visual students can understand information through the images provided while auditory and kinesthetic students at the preparation stage can only understand information by reading the problem. At the incubation stage, students with visual, auditory and kinesthetic learning styles understand the problem by reading repeatedly and thinking about solutions to solve the problem by pausing and contemplating. At the illumination stage, students with visual, auditory and kinesthetic learning styles find solutions to solve problems, but at this stage auditory and kinesthetic students can only find one solution while visual students can find more than one solution to solve the given problem. At the verification stage, students with visual, auditory and kinesthetic learning styles solve the problem according to the solution that has been found. At this stage, auditory and kinesthetic students always re-examine their answers while visual students do not re-examine their answers because visual students believe that the answers they have done are correct.

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