

TROUBLESHOOTING PROFILE SOLVING CLASS STUDENTS VII SMPN 4 PALU IN TERMS OF LEARNING STYLE

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Abstract

The purpose of this research is to describe the student's problem-solving profile on the reviewed fragmentary material of the learning style. The data collection techniques used are troubleshooting tests and interviews. The results of this study are: (1) the stage of understanding the visual subject's problem is able to understand the subject well and identify the subject by rotating the important thing on the subject. The auditory subject can capture the meaning of the subject so that it can determine the sufficient condition and the necessary condition of the matter by listening to his friend at the time of reading the subject, as well as the kinesthetic subject understands the issue by turning the pencil so that he can catch the significance of the issue and can tell back the information known and asked. (2) the stage making the plan of the visual subject is able to make a plan with the information already known by describing the steps of completion on another sheet, whereas the auditory subject pronounces the strategy well with a loud voice as well as with the kinesthetic subject can make plans with the already known information but make different completion steps. (3) the stage implementing the visual, auditory and kinesthetic subject plan can complete the completion in accordance with the known information and the planned strategy, even though there are errors in the steps on the kinesthetic subject but the subject is capable of determining completion according to the plan.

Keywords: problem solving, learning style, fragmentation

Abstrak

Tujuan penelitian ini untuk mendeskripsikan profil pemecahan masalah siswa pada materi pecahan ditinjau dari gaya belajar. Teknik pengumpulan data yang digunakan adalah tes pemecahan masalah dan wawancara. Hasil penelitian ini adalah; (1) tahap memahami masalah subjek visual mampu memahami soal dengan baik dan mengidentifikasi soal dengan menggaris bawahi hal penting pada soal. Subjek auditorial dapat menangkap makna dari soal sehingga dapat menentukan syarat cukup dan syarat perlu pada soal dengan mendengarkan temannya pada saat membaca soal, begitupun subjek kinestetik memahami soal dengan memutar-mutar pulpen sehingga dapat menangkap makna dari soal dan dapat menceritakan kembali informasi yang diketahui dan ditanyakan. (2) tahap membuat rencana subjek visual mampu membuat rencana dengan informasi yang telah diketahui dengan menggambarkan langkah-langkah penyelesaian pada lembar lain, sedangkan subjek auditorial mengutarakan strategi dengan baik dengan suara yang keras begitupun dengan subjek kinestetik dapat membuat rencana dengan informasi yang telah diketahui namun membuat langkah-langkah penyelesaian yang berbeda. (3) tahap melaksanakan rencana subjek visual, auditorial dan kinestetik dapat menyelesaikan penyelesaian sesuai dengan informasi yang telah diketahui dan strategi yang telah direncanakan, meskipun terdapat kesalahan langkah-langkah pada subjek kinestetik namun subjek mampu menentukan penyelesaian sesuai rencana. (4) tahap memeriksa kembali subjek visual tidak melakukan pemeriksaan kembali terhadap hasil pengerjaannya, berbeda halnya dengan siswa yang bergaya belajar auditorial dan kinestetik yang melakukan pemeriksaan kembali hasil pengerjaannya dengan membaca kembali dan menghitung kembali hasil pengerjaannya.

Kata kunci: pemecahan masalah, gaya belajar, pecahan

INTRODUCTION

Mathematics is one of the disciplines that has an important role in everyday life. It is in line with Tampubolon et al., (2019) which puts the Application of mathematics very closely

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related to daily life. Mathematics has many functions, including comparing pocket money, calculating the weight of objects and various other disputes, playing a role in solving human conflicts. In addition, mathematics is the basis for a variety of fields of study and professions. Through mathematics teaching students are expected to cultivate the ability to think critically, logically, systematically, carefully, effectively and effectively in solving problems.

In line with the objectives of the National Council of Teachers of Mathematics (NCTM), NCTM sets five standards of mathematical skills that students must have: problem solving, communication, connection, reasoning, and representation. (Allen et al., 2020).

PISA 2018 results indicate that in Indonesia, about 71% of students do not reach the minimum level of mathematical competence. (Kemendikbud,2019). Based on the goals of mathematics learning and the results of PISA 2018, it can be concluded that problem solving is very important and very fundamental in mathematical learning. It is supported by Rahmawati & Apsari (2019) Problem Solving as a student's first step in developing ideas in building new knowledge and developing mathematical skills. Mathematical problem solving can help students improve their analytical skills and can help them apply them to a variety of situations. (Ariandi, 2016).

Most mathematical educators state that a problem is a question or question to be answered or answered, but the fact is that not all automatic mathematics questions will be a problem. A problem in math is a problem or question that is challenging to solve or answer to which the answer or solution cannot be obtained directly. So, in solving such problems, strategies, measures, or procedures of more complex resolution are needed. (Siregar & Syafri, 2017).

The strategies that can be used are the strategies presented by Polya (1975) in his book "How to Solve It" there are four steps in mathematical problem solving namely (1) understanding the problem, (2) planning a solution, (3) carrying out the plan, (4) looking back. With these steps, students are expected to be more conceptual and more thorough in solving mathematics-based problem-solving questions. (Polya, 1975).

Effective mathematical learning in training and developing students' problem-solving skills is through storytelling. By presenting stories that describe everyday life situations, students are given hands-on experience to apply their mathematics knowledge in solving

problems as well as understanding the interrelationship between maths and the real world. (Rudtin., 2017).

One of the many mathematical materials is about stories that require a variety of methods of resolution so that it requires the ability to solve problems in its resolution is the fragmentary material. The fragmentation is a compulsory mathematics material that is studied in grade VII of high school level. However, the fact is that in schools are still found students who have difficulties in solving problems on given fragmentary materials.

Based on the results of research interviews with a mathematics teacher at SMPN 4 Palu grade VII, it was found that some students have demonstrated ability in solving problems on fragmentary material in mathematical learning. However, some students are still confused in applying the concepts necessary to solve a given problem, especially when dealing with stories involving fragmentation.

Student problem-solving skills relate to the student's learning style or style in absorbing, processing and organizing information obtained at the time of examination. According to Ilmiyah & Masriyah, (2013) a learning style is a different way that every individual has to process, understand and learn information easily. Students with their own learning styles understand and try to solve problems in relatively different ways, where the learning style also influences teaching. Based on sensory preferences or the brain's ability to absorb, manage and convey information, individual learning styles can be divided into three categories: visual, auditory, and kinesthetic, characterized by specific behavioral characteristics. (Khoeron et al., 2016).

Each student has a different learning style in one class, therefore it is important for a teacher to know and understand the mathematical problem-solving skills and learning styles of his pupils so that in the learning process the teacher can use the right ways so that each student can follow the lesson well and will easily understand what he is learning. The aspect that affects the acceptance or absorption of students to mathematics is their learning style. Knowledge of learning styles can be a special consideration for mathematical teachers in conditioning the use of learning strategies in the classroom. In the sense, the learning process can run effectively if the learning strategy applied in the classroom can accommodate the student's learning style. (Ariansyah, 2017).

Based on the description, the researchers intend to conduct a study entitled “Problem Solving Profile on Fragment Materials of VII Grade High School Students State 4 Palu Reviewed from Learning Style”

METHODS

The type of research used is descriptive with a qualitative approach. With the aim of acquiring mathematical problem-solving profiles students who have visual, auditory, and kinesthetic learning styles. The study was conducted in the 7th grade of State 4 Palu Central Sulawesi province. The research was conducted in the full semester of the 2023/2024 academic year.

The subjects selected for the study were three students in the 7th grade, one in visual learning, one auditorial learning, and one in kinesthetic learning.

The instruments used in this research are written tests and interviews. The written tests in this study are descriptive tests on questions related to fragmented material. These tests are used to obtain data from students who have problem-solving abilities that are then analyzed. While the interviews are used to get more information.

RESULTS AND DISCUSSION

The results obtained were a grouping of learning styles of 7th grade Cambodian SMPN 4 Palu students and data on the resolution of fractional problems reviewed from the learning style, i.e. data understand the problem of the student fraction with visual, auditorial, and kinesthetic learning style; data make a plan for the solution of the problems of the students fractions with the visual, auditory, and Kinesthetics learning style. Students' results can be seen in the following picture.

Jawaban : Dik : Sebelang tanah Pak Muslin
dibangun sebuah rumah : $\frac{5}{8}$

dibuat kolam renang : $\frac{1}{6}$

Luas bagian taman : 20 m^2

Dit : Luas tanah yang dibuat untuk kolam renang

Dij : Bagian taman : Sebelang tanah - bagian dibangun rumah -
bagian dibuat kolam

$$= 1 - \frac{5}{8} - \frac{1}{6}$$

$$= 1 - \frac{15}{24} - \frac{4}{24}$$

$$= \frac{24}{24} - \frac{15}{24} - \frac{4}{24}$$

$$= \frac{9}{24} - \frac{4}{24}$$

$$= \frac{5}{24}$$

Luas tanah Pak Muslin = Luas taman : bagian bagian taman

$$= \frac{20}{\frac{5}{24}}$$

$$= 20 \times \frac{24}{5}$$

$$= \frac{2.400}{5} = 480$$

Figure 1. Visual Subject Answer

Based on the image obtained that (1) on the indicator understand problem fraction, the subject SV has a good ability to identify the information contained in the problem i.e. what is known and asked by way of grinding down the important sentences when reading the question, and then write it carefully and completely on the answer sheet. (2) on indicator making a problem solving plan fraction subject SV can make a solution plan using the information available and his knowledge in the material fraction. (3) on an indicator implementing a plan to solve the problem, SV can link the information that has been acquired with the strategy that had been planned previously (4) on the indicator re-checking the answer the subject does not re-checks the answer, because already confident with the answer.

At the time of the SV interview, answer some questions briefly, make a problem-solving plan well and carefully. Then in doing the SV problem-solving test, write the rehearsal carefully. It is in line with the characteristics of a visual learning style according to De Porter & Hernacki (2001) that often answers questions with short answers, is a good long-term planner and regulator, and is also neat and orderly.

Jawaban :

$$\text{di jadikan taman} = 1 - \frac{5}{8} - \frac{1}{6}$$

$$= \frac{24}{24} - \frac{15}{24} - \frac{4}{24}$$

Luas tanah P. Nurdin = $50 \text{ m}^2 : \frac{5}{24}$

$$= 50 \times \frac{24}{5}$$

$$= 240$$

Luas kolam Renang = $\frac{1}{6} \times 240$

$$= 40$$

Jadi, Luas kolam Renang adalah 40 m^2

Figure 2. Auditory Subject Answer

In the image obtained (1) In the problem understanding indicator, the subject has a good ability to identify the information contained in the problem that is known and asked by reading the question in a loud voice, but not writing it on the answer sheet. (2) In the indicator making a problem solving plan, the subjects can make a solution plan well using the information and knowledge in the fragmented material. (3) In the implementation indicator of the problem resolution plan, SA can link the information that has been acquired with the planned strategy and get the answer correctly. (4) In the re-checking indicator the SA can conclude its answer and perform a re-examination on its response sheet so that it finds errors in its calculations.

In a problem-solving test, the SA works in a voice like speaking to the joint self. At the time of the interview, SA can mention information well but not write it on the answer sheet. It is in line with the characteristics of the auditory learning style according to De Porter & Hernacki (2001) which is speaking to yourself at work, feeling difficult in writing, but great in storytelling.

Jawaban sebidan Tanah
 Dik : 5/8 bagian di bangun Rumah
 : 1/6 di buat kolam renang
 50m² luas tanah yang digunakan untuk
~~kolam renang~~ di jadikan Taman
 Dit : Tentukan luas tanah yang digunakan
 untuk kolam renang
 Jawab : $1 - \frac{5}{8} - \frac{1}{6} = 1 - \frac{15}{24} - \frac{4}{24}$
 $= \frac{24}{24} - \frac{15}{24} - \frac{4}{24}$
 $= \frac{5}{24}$

Luas Taman = $\frac{5}{24}$
 Luas Tanah = $\frac{5}{24}$
 $10m^2 = \frac{5}{24}$
 $luas\ tanah = 10 \times 24 = 240$

L tanah x bagian kolam renang = $240 \times \frac{1}{6}$
 $= 40 \times 1 = 40m^2$
 jadi luas tanah kolam renang adalah 40

Figure 3. Kinesthetic Subject Answer

Here are the results obtained from the picture (1) On the indicator of understanding the problem, the subject has a good ability to identify the information that is present in the problem that is known and asked by turning the pencil in his hand. (2) In the indicator making a problem-solving plan, the subject of SK can make a solution plan well using the information and knowledge in the fragment material. (3) In an indicator implementing a plan to solve a problem, SK can link the information that has been obtained with a well-planned strategy, even if getting the correct answers there are errors in the solution steps. (4) On the re-check answer indicator, the subject concludes the answer from the given question and is convinced by the answer obtained after reviewing the answer by counting it back.

In a problem-solving test, SK worked with poor writing because of the large number of scratches on the answer sheet, then during the interview, SK spoke slowly like thinking while turning the pencil on him. This is in line with some of the characteristics of kinesthetic learning style according to De Porter & Hernacki (2001) which is speaking slowly, always physically oriented and much moving and the probability of writing is ugly.

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