

DECISION-MAKING IN SOLVING MATH PROBLEMS ON ELEMENTARY SCHOOL STUDENTS

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Abstract

Mathematics is one of the subjects given to the basic and high education level with a view to achieving the national education goals. Learning mathematics are given to students not only focused to develop cognitive and psychomotor aspect, but there are also aspects of affective in it. As for the affective aspects of learning mathematics that is reflected, namely to train the student's independence stance and attitude to appreciate the usefulness of mathematics. Learning math is perceived by some students is the abstract subjects, whereas mathematics is related to daily activities. This impact to students being not serious in answering and resolving a given math teacher. Not looking back the question after answering became one of the reasons students are wrong in making decisions when completing a math problem. Level of the primary school became the primary focus in the writing of this article.

Keywords: *Decision Making, Math, Elementary School*

1. Introduction

Ability of problem solving is one of the very important students since elementary school, as with problem solving abilities students possess, can train students to be ready to face the issues that later they find in everyday life. This is supported by the demands of the Standard curriculum in Mathematics Learning Graduate Competence in elementary school (Permendiknas, 2006) that the ability of solving problems (problem solving) is one of the aspects that should be owned by every student as a result of the process of learning math. So also with the demands of new curriculum Curriculum 2013, troubleshooting remains the ultimate goal of the learning process through the use of several methods that became an option, among others, Saintific, Discovery Learning and other (Permendiknas, 2013).

But the reality on the ground is different, with evidenced from some results of the research in increasing the ability of mathematical problem solving of students who have a lot to do and we meet, but the results still have not been fullest. One

study conducted Report (2013:109) his chosen approach aims to improve the ability of the mathematical problem solving of students, research results are obtained, namely there is an increase compared to conventional learning. But an increase that occurred is still low in the category that is less than 50%. This shows that still the low ability students against mathematics problem solving.

2. Theoretical Background

Math problem solving abilities also did not escape from the role of teacher. However, teachers are not yet in a position comfortable in training the ability of problem solving in students. This is supported by the opinion of Prabawanto (2011: 12) that teachers often provide a strong reason to not include the activity of problem solving in learning math in school.

Problem-solving ability in mathematical learning in primary schools will be achieved the goal, if we as educators customize process analytical study with the level of its development. As the opinion of Piaget (Kusmiyati, 2007) that the age of elementary school children is the level of the beginning of rational thinking. The child has a logical operations applied on concrete issues. In the mind and its perception of students has more logical decisions rather than perceptual. Primary school age children not yet able to deal with the material asbtrak, according to Adjie and Maulana (2006: 37) the subject matter of Mathematics including abstract material, therefore the only people who can think abstraks can learn Mathematics. For elementary school students have trouble learning math, if his teacher does not correspond with the students thinking ability.

To get a good solution in solving problems such as problem solving, can use the settlement consists of four stages of the problem-solving process expressed Polya (1973: xvi) that understand the issues, planning problem solving, problem resolution plan and carry out the examination again.

From the statement of the Polya, students develop from how they were able to solve the problem in every Stride and his chosen problem-solving strategies. Suherman (2003:94) a problem can be seen as "a problem" for a student, but for other students it is probably just a mere routine. Therefore need to be careful in

making problem-solving for students. To overcome this, Suherman provide solutions, one of which is to know the level of difficulty experienced by students.

The Polya step 4 also has a role in achieved or whether a problem solving. Conduct a review, can avoid confusion even errors in completing a math problem, sependat with Suryadi, et al. (2003:91) that by way of doing pengecekan for what has been done, then the various errors that do not need to be corrected again, so that the students can arrive at the correct answer in accordance with a given problem.

3. Method

The type of research that has been carried out using a qualitative approach to research. Moleong (2009:6) stated that the research is qualitative research to understand the phenomenon of what is experienced by the subject, behaviours, perceptions, motivations, actions, and others, in a holistic (whole) and a description of the way in the form of words and language, in a special natural context and by utilizing a variety of natural methods. Qualitative research design used i.e. case study is descriptive, with the design of inductive research, where the withdrawal of the conclusions are General (general) of the cases are special. According to Denzin and Lincoln (2009:595) inductive design would be very useful, especially for a case study in a location that is still foreign and really complicated, and more descriptive eksploratis.

The subject has been chosen, namely grade V in one elementary school in Bandung. The subject which will be analysed the results of the answer in solving problem-solving is selected by purposif. The technique of data collection by observation, question form, test, wawancara and triangulation of the data. Data analysis technique that is use a descriptive qualitative data analysis techniques with the stages consisting of data reduction (reduction), the presentation of the data processing is continued with a set of information that has been retrieved and arranged neatly in order to give the possibility of withdrawal of conclusions and taking action. And the last stage, namely draw conclusions and verification

Miles and Huberman (Denzin and Lincoln, 2009:592) describes the process of data analysis with interactive model as follows:

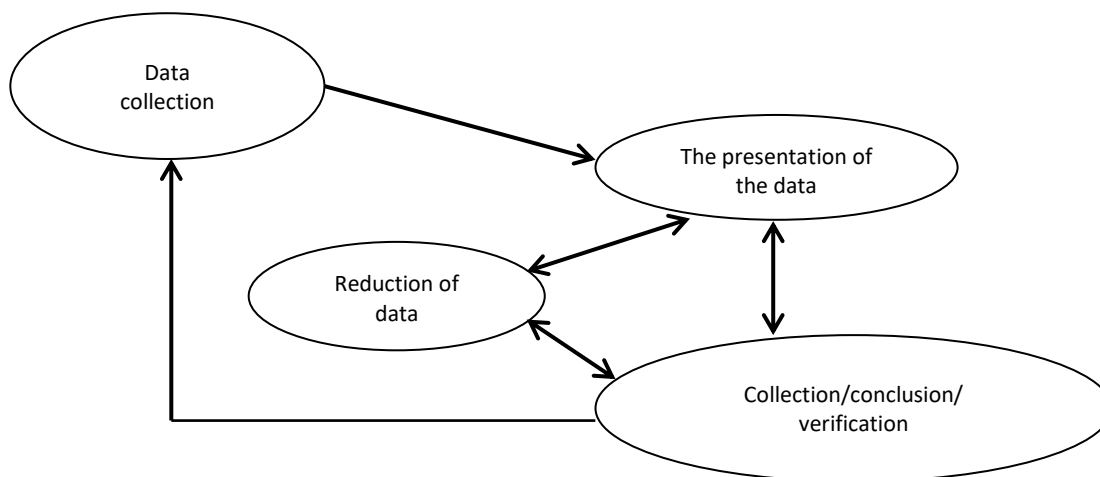


Figure 1. Component Data analysis

From the description, data obtained from the results of the observation, the now attitude, test, interview in the form of recordings and documentation collected and then simplified with sorting out which data can answer questions or research can support what is wanted is in this phase, researchers called the reduction of data. Of this reduction process, then the data is already sorted are defined and examined in the process of presentation of the data. Denzin, Norman k. and Lincoln declared that a researcher needs to examine the data reduction process as the basis for the definition of. From the presentation of this data allows the retrieval of a conclusion that is an overview of what difficulties experienced by students in problem solving and solve the causes of the emergence of such difficulties.

4. Result and Discussion

The research results obtained by beginning with the granting of a math problem to the students to know the ability of early mathematical (KAM). Then the students were divided into three groups, namely the results of students with low level of KAM, medium and high. The Division of this group also with additional

confirmation of teachers of mathematics majors in the class as well as of the observations of the researchers during the process of learning mathematics took place. The following table levels KAM students.

Table 1. Grouping Students of class V based on KAM

Category of KAM	Percentage (%)
High	15
Middle	74
Low	12

Then the analysis of the difficulty in resolving the problem student problem-solving will be discussed from each indicator. In this case one of the indicators of the ability of problem solving will be discussed that is understanding the problem. The following discussion of the analysis of the difficulty students who discovered from a matter that has been given.

Soal 1

Di suatu kelas banyak siswa laki-laki adalah $\frac{3}{5}$ dari banyak siswa perempuan. Diketahui bahwa banyak siswa perempuan adalah 75, maka tentukanlah:

- Perbandingan banyak siswa laki-laki dan siswa perempuan di kelas tersebut? Nyatakanlah jawabanmu dalam bentuk gambar!
- Selisih antara banyak siswa laki-laki dan perempuan di kelas tersebut?

As for the results answer the students in each group (high, medium and low) towards the question above, so that it describes the difficulties experienced by students will be discussed as follows.

Table 2. Percentage (%) The Difficulties Students

Type of trouble	Category of KAM		
	High	Middle	Low
Understand the problem in terms of language or math sentences.	60	68	75

Table 2 above shows that on a matter of this number-two students allegedly had difficulty in understanding the problem of reading skills and math sentence word comparison and difference. These results indicate that students answer these difficulties.

Student Answer:

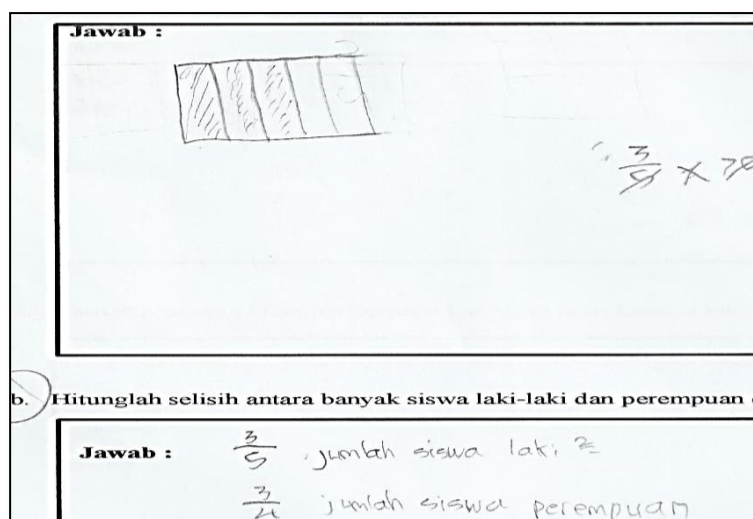



Figure 2. Student answer

Students answer the result image above shows that the answer of the students does not correspond to the question asked on the matter. This is allegedly due to students experiencing barriers in reading. Reading is the action that is triggered by the thought process and expressed by the appearance, this process requires: General motor skills, visual mempersepsi, mempersepsi sound, the speed of the language, concepts and keterpadan formations between the remote. The resistance reading could be caused by disturbances on the intellectual aspects of

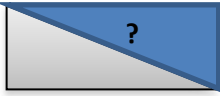
Physiology, social and emotion (Kuswana: 77). Agreed with Kuswana (2011:118-119) that the language is closely associated with the development of thinking individuals. The development of the mind of the individual in the development of the language, namely the ability to form understanding, build an opinion, and draw conclusions.

The question or issue the two indicators, including characteristics of the structured language regularly. Brown et al. (Sternberg, 2008:290-291) stated that there are six things that characterize the language, one of which is regularly structured language i.e. language have a structure; only the order of the terpola in particular of symbols that have meaning, because different arrangement will produce a different meaning. From the statement, reading skills greatly affect students' ability in resolving the matter of solving the problem, because the ability to read is related to thought processes of each individual.

Soal (Materi Bangun Datar dan Bangun Ruang) Perhatikan gambar persegi panjang dibawah ini.



4 cm
(a)



(b)

Apabila persegipanjang (a) dibagi menjadi 2 bagian sama besar seperti gambar (b). Berapakah luas daerah yang berwarna biru pada gambar (b)?

Table 3

The percentage (%) of the difficulties students

Type of Trable	Category of KAM		
	High	Middle	Low
Understand the difficulties	20	24	25

Table 3 above illustrates that only a handful of students who are having difficulty in understanding the issue at question number 4 flat-wake up and wake up material space. The following answers students detect trouble in understanding the problem

Student Answer:

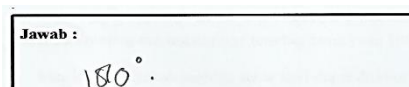


Figure 3. Student answer

The above answer is the answer from the students mathematical ability is low. The reason why students answer though, the newly acquired after interviews with the students. The results of the interview are still not finding the reason, however, researchers obtain answers from other students as well as students answer mathematical ability is low. The reason why they get answered so, because they assume the problem is the same with the material learned previously that is about determining the big corner of wake up. If researchers remember back, the problem-solving ability is given on April 8, 2014, and indeed earlier students discuss about the large number of angles and determine the wake.

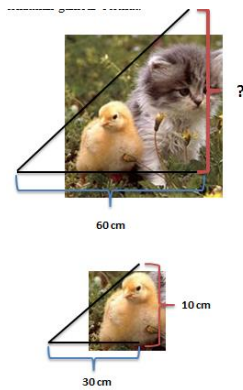
Muhibbin (2010:171) someone misbehaving students will be retroactive if the subject matter newly brought conflict and disruption to callbacks the subject matter that was first stored in the student's permanent sense of substance. In this case, the subject matter of the old will be very hard to remember or produced again.

It also showed that students and other students who answered the same as the students are accustomed to low mathematical ability to troubleshoot routine or a matter of routine. Suherman (2003:94) stated that the matter of routine typically includes application of a mathematical procedure that same or similar things recently learned. Efforts to ensure returns are students already understand the problem with R is true or not is not made, so wrong in referring to the issue. The difficulty students question b is namely understood the problem.

Soal (Materi Bangun Datar dan Bangun Ruang).

Perhatikan gambar berikut.

Perhatikan gambar berikut.



Seekor anak ayam berdiri di samping seekor kucing. Jika panjang bayangan anak ayam 30 cm dan tinggi anak ayam 10 cm. Berapakah tinggi kucing tersebut, jika panjang bayangan kucing 60 cm?

Table 4

The percentage (%) of the difficulties students

Type of Trable	Category of KAM		
	High	Middle	Low
Understand the difficulties	0	12	25

Student Answer:

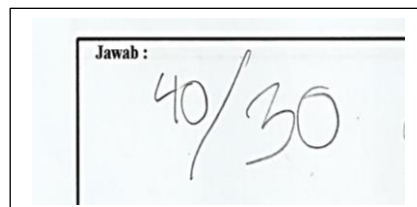


Figure 4. Student Answer

The results of the student's answer above wrong, students R doesn't resolve the problem correctly. The difficulties the students detected when researchers

conduct interviews with the students. The results of the interview illustrates that the students allegedly had difficulty in understanding the problem. This is because the student shows he unfamiliar get questions not directly provide information about the use of what material can get the right solution.

Suherman (2003:93) States that if a problem is given to a child and the child instantly know how to finish it properly, then the problem could not be said to be a problem. A transcript of the interview above also shows that new students can understand the problem when the researchers gave the sign or code regarding material that is related to the problem.

Kuswana (2011:85) stated that the encoding is one of the structures and processes of the theory of working memory. Kuswana also stated that working memory support "human cognitive processes" by providing an "interface" between perception, short-term memory, long-term memory, and action. Working memory is indispensable for decision-making and awareness and aims as well as behave openly.

5. Conclusion and Remark

Based on the results of the analysis and discussion of the data of the research, then the conclusion that decision erred in students solve the math problem solving caused found difficulties in the process of taking its decision. Difficulty understanding the problem, in terms of the ability of reading and math expressions into one of the difficulties found. This is presumably due to which students had to interpret an ambiguous form of visualization student support issues , obstacles reading is also one of the causes of this difficulty occurs in low mathematical ability students.

Other causes of the difficulties the students do not perform the review or make sure again whether his understanding of a given problem is just right or not. This is the case in students mathematical ability is high. Where, some students who do not apply high-capable looking back, dikarena felt it was satisfied with the answers he got without checked it out again if the answer is just right or not.

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