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The Analysis of Students' Representation Ability in Finishing Recital Question Assemblage Material in VII Grade Students of YPI Dharma Budi Junior High School

[1]Siti Nur Istiawati, [2]Edi Syahputra, [3]Edy Surya, [4]Sahat Saragih

State University of Medan (UNIMED) North Sumatera, Indonesia

Abstract: **This analysis aims ti know the students' comprehension ability in finishing Mathematic question in recital form. This analysis uses qualitative approach and two instruments named test and interview. The subject of this study is the students of VII-C Grade YPI DHARMA BUDI Junior High School Sidamanik, Simalungun containts of 30 students. The choice of the study is based on the students who have the difficulty in finishing the recital question. The result of analysis stated that indicator achevement persentation, I,II, and III indicators is 10 % from a whole 30 students. From the data based on the students' answer analysis and interview, the researcher conclude that students' mathematic representation ability that was done by VII-C Grade of YPI Dharma Budi Junior High School Sidamanik, Simalungun in finishing the recital question of mathematic is still low.**

Keywords: **Mathematic Representation Ability, Recital Question**.

I. INTRODUCTION

The progress of Education world is not detached from important rule of Mathematic in its progress until this time. Looking of each formal education grade from the lowest up to the highest, Mathematic must be learned. The importance of studying Mathematic also can be seen from the presence of Mathematic in every tested subject for the certain education grade or to continue the education to the collage. Therefore, Mathematic is important to be given to every students started the elemantary school to supply the students to think logical, analytical, systematical, critical, creative, and cooperative ability. The competency is needed so that the students can get the ability of acqire, manage, and exploit the information to survive in this changeable condition, and competative (Permendiknas, 2006) [9]. Mathematical ability is needed to have by the students' who learn Mathematic. The mathematical ability is also must be balanced with the good competancy in learning Mathematic in finding the finishing in each problem maker. Based on five process standart that describes Mathematic achievement and Mathemathic competancy that shold the students know and can be done, one of them is the mathematical representation ability. Based on NCTM (2000) [8] there are five Standart Process that needs to have and mastered by the students in Mathematic, namely: (1) problem solving; (2) reasoning and proof; (3) communication; (4) connections; dan (5) representation.

The importance of mathematical representation ability can be seen from the standart representation that is assigned by NCTM. NCTM (2000) [8] assigns that the learning program from pra-kinder garden up to XII Grade must be probable the students to : (1) to create and use the representation to organize, record, and communicate the mathematical ideas; (2) to choose, apply, and translate the mathematical representation to solve the problem;(3)to use representation to make and interprete physical phenomena, social, and mathematical phenomena. Therefore, the mathematical representation ability is

needed by the students to find and make a tool or mind set in communicating mathematical ideas from the abstract to concrete, so it's easy to understand.

The result of Mathematic is one of a students' learning success indicator, school, or education world. The low of Mathematic learning result is influenced by many factors. The low of students' mathematical representation ability in finishing the Mathematic question is one of the factor. In fact, the Mathematic problem in recital question form is often appear in the test or National Examination. Therefore, the mathematical representation ability is needed to be identyfied due to get the information about the error type and finally can be used to overcome the students' difficulty in studying Mathematic so the students will get the satisfy Mathematic learning result. Polya (1973) [10] assigned four step that can be done in order that the students are more diretional in finishing Mathematic problem, namely: (1) understanding the problem, 2) devising a plan, 3) carrying out the plan, 4) looking back. Therefore, students' mathematical representation ability in finishing the test in recital question form contains of some finishing step namely the ability to understand the question, making the mathematic model, and counting.

Because of the importance of mathematical representation ability, the writer is motivated to do a research to analyse the students' mathematical representation abiluty in finishing Mathematic essay test in recital form. This research is important to do in order to know how big the students' mathematical representation ability having by the students in finishing recital question in assemblage material. Generally, this research aims to know the students' mathematical representation ability in finishing essay test in recital question form. Especially, this research aims to know: (1) mathematical representation ability having by the students in answering the recital question process in assemlage material, and (2) to know the factor caused the students having the representation ability difficulty in finishing Mathematic essay test in recital question form.

II. REPRESENTATION ABILITY

Representation ability is the way how the students communicate the finishing in Mathematic in words, picture, or gaphic. In step point of view of Li Zhe (2012) [14] "The structure of language in mathematical activities includes external communication such as written and oral representation of symbol, word, graphics, and images". Representation is the knowladge dicipline that must be apllied in studying Mathematic. According to dalam Ihedioha (2014: 90) [3] "Mathematics its inherently representational in its intentions and methods". While, according to Goldin dan Kaput (2004) [1] stated that the utterance of Mathematic ideas by using many ways like : spoken, written, symbol, picture, diagram, model, graphic or using physical is said as representation idea. Therefore, the mathematical representation aniluty is a knowlage that must be had by bthe students basically in learning Mathematic by using symbol, words, picture and grapic.

Representation that is appeared by the students is the utterance of the ideas, or Mathematic ideas that is showed by the students in their effort to find the solution of the problem they faced (NCTM, 2000: 67) [8]. Through the representation, the difficult problem in the beginning can be seen easier and simple, so the problem given can be solved easily. In his book "Mengapa harus Belajar Matematika?" Hasratuddin , (2015: 123) [2] said that representation is the utterance looking of the mathematical ideas in model or subtitution of a problem condition that is used to certain the solution of the problem they faced as the result of their mind.

The utterance of those mathematical ideas itself is a picture, table, and concrete thing or Mathematic symbol.

According to Jones (2000) [5] some important reasons based of it are:

1. The smoothness in doing the translasion between of many different representation form, is the basic ability that needs to have by the students to wake the concept up amd think mathematically.

2. The teacher's way to present the Mathematic ideas through some representation will give a big influence to the students; understanding in learning Mathematic.

3. The students need a practice in buiding their own representation so they have ability and strong and flexible understanding concepts and can be done to solve the problem.

The proper and adequate representation will have a great donation to form the uderstanding (understanding or meaning) concept. Proper in the meaning of suitable to represent its concepts, and adequate in the maning of enaugh of quantity to anable the students finding the relevance, in a whole representation or in a kind of representation. Using the representation

can describe the students' exploration in learning model or the context of real life. Students are better to find a concept by theirselves when they are learning Mathematic, so in the forming of understanding to the concept with the metacognitive activity so it can fix their mind set.

Representation also help to re-ask the action and their mind set. In development of representation ability there are some indicators that must be understood. According to Sumarmo (Laelasari, 2015: 87) [7] there are some indicators in Mathematic representation, namely:

1. Searching the relation of many representation concept and procedure.
2. Understanding the relation between Mathematic topic.
3. Applying Mathematic in other side or in the daily life.
4. Understanding the equivalen representation of a concept.
5. Searhing the relation of a procedure to other procedure in the daily life.
6. Applying the relation of each Mathematic concept.

According to Istiawati and Surya in Mudzakkir (2015)) [4] shows the indicators that must be achieved in the part of mathematical representation ability, namely:

TABLE: I. Indicators of Mathematical Representation Ability

Representasi	Bentuk-Bentuk Indikator
Visual Representation; diagram, table or graphic, and picture	• Reshow the data or information of a representation to the dagram, graphic or table representation. • Using the visual representation to finish the problem • Making the geometri form picture. • Making the geometrical building picture to define the problem and solve it.
Equation or Mathematical Expression	• Making an equation or mathematical expression of another representation given • Making conjecture from a pattern of number • Problem finishing from a mathematical expression
Words or essay test	• Making the problem condition based on the data or the representation given • Writing the interpretation of a representation • Arranging the story suits with a showed representation. • Writing the problem finishing steps by words or essay test. • Making and answering the question by making the words or essay test.

Indicator of mathematical representation ability that will be used in this research are:

1. Making picture to define the problem and facilitate the finishing.
2. Finishing the problem bu conluding the mathematicalm expression
3. Answering the question by using words or essay test.

III. METHODS

The kind of this research is qualitative descriptive. The qualitative research according ti Sugiyono (2015:15) is a research method that is used to analyzed the natural object condition, the inductive data analysis and qualtative research result more emphasize the meaning than generalization. The qualitative method is used to get the deeper data contains of a meaning. The descriptive approach itself means this research strive to define or describe a problem, events , occures in this time. The collective data is in written, spoken, and picture form. This research is done in YPI DHARMA BUDI

Junior High School Sidamanik, Simalungun. The subject of this bresearch is the VII-C Grade contains of 30 students. The collective technique used in this research is essay test and interview. The research is given by giving essay test as:

In the area of RT 05 there are citzen who own livestock. The livestocks are horse, cow, goat, chicken, duck, rabbit, and bird. Mr. Harno and Mr. Ahmad are the citizen of RT 05. Mr. Harno has chicken, bird, and rabbit. Mr. Ahmad has duck, goat, and bird. Please specify:

1. Please make a Venn Diagram of that notes
2. Please specify the livstock in RT 05 that is not Mr. Harno's.
3. Please specify the livestock in RT 05 that is not Mr. Ahmad's.

Next is the interview to get the information from the subject about the low of representation ability that experience in finishing the recital question in assemblaged material. The interview in this research is done for the students who have low representation ability to make sure the fase of unachieve indicator of mathematical representation ability that is done by the students and knowing the cause of the weakness experienceby the students in finishing Mthematic recital question in assemblage material.

The interview in this research is an unconditional interview because the interview is done after the data is gitten. The subject of the data is the students who have divverent indicator achievement that represents the low of mathematical representation ability of other students. The analysis technique that is udes to identify students' mathematical representation ability indicator in finishing the Mathematic question in essay form in asseblage material is sastistic description. The achievements analysis of mathematical representataion ability can follow the guidance of score, as:

TABLE: II. The Guidance of Evaluation Mathematical Representation Ability

Representation Aspects	Students' Response to the Problem	Score
Visual Representation; diagram, table, graphic or picture	Do not answer	0
	Reshow the data or information from a representation to other diagram, grapgic, table representation and still appear.	1
	Reshow the data or information from a representation to other diargam, grapchic, or table representation correctly but do not give the reason	2
	Reshow the data or information from a representation to other diagram, graphic, table representation correctly but it is no complete	3
	Reshow the data or information from a representation to other diagram, graphic, or table correctly.	4
Equation or Mathematical Expression	Do not answer	0
	Making equation or mathematical expression from the other representation that's given and the problem solving from a mathematical expression but it's wrong	1
	Making equation pr mathematical expression from other representation that's given and the problem solving from a mathematical expression but it's unclear.	2
	Making equation or mathematical expression from other representation that's given and the problem solving from a mathematical expression but it's not complete.	3
	Making equation or mathematical expression of other representation that's given ant the problem solving from a mathematical expression correctly.	4
Words or essay test	Do not answer	0
	Can not write the teps of problem solving by words or written test.	1
	Write the steps of problem solving by words or written test but unclear.	2
	Write the steps of problem solving by words or written test correctly but do not make the reason or do a counting	3
	Write the steps of problem solving by words or written test correctly and do the counting.	4

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IV. RESULT AND DISCUSSION

The data gotten is the written answer sheet whis is a result of students' answer of the question given. The students' result is analyzed by the writer to know the students' mathematical respresentation abilityin doing Mthematic question in recital question form in assemblage material. The writer classify the students' answer result based on the achievements indicator of eah students. Students' mathematical representatiopn ability presentation in each indicator and each question item is showed in this table:

TABLE: III. Persentase kemampuan representasi matematis siswa

Indicator of Representation Ability	Ammount of Students	Achievements of Answering Question 1
(1) (2) (3)	$\sum$ B	3
	$\sum$ S	-
	$\left(\sum B+\sum S\right)$ %	10
(1) (2)	$\sum$ B	6
	$\sum$ S	1
	$\left(\sum B+\sum S\right)$ %	23,33
(1) (3)	$\sum$ B	4
	$\sum$ S	2
	$\left(\sum B+\sum S\right)$ %	20
(2) (3)	$\sum$ B	6
	$\sum$ S	3
	$\left(\sum B+\sum S\right)$ %	30
Do not write the finishing	$\sum$ B	5
	%	16,67

Keterangan:

$\sum$ B is the students' who answer correctly

Indikator (1) Visual representation; diagram, table, or graphic

Indikator (2) Equation or Mathematical Expression

Indikator (3) Words or Essay Test

From the table above explaines that the students' who are able to fullfil the representation ability indicator in answering the recital question in assemblage material is only achieved bu 3 students or 10 % from all students. Meanwhile, there are students who did not write the finishing of the recital question in assemblage material. There are 5 studentd who did not write the finishing of the question given. The students do not have good mathematical representation ability. In the achievements of indicator (1) and (2) there are 6 students who were able to answer the question correctly and 1 student ndid not able to answer the question correctly. Therefore, the presentation of mathematical representation ability in answering the recital question is 23, 33 %. In the achievement of indicator (1) and (3), 4 students answered correctly and 2 students werw not able to answer the question correctly yet, therefore the achievements presentation of mathematical representation ability in answering the recital question is 20 %. Meanwhile, in the indicator (2) and (3), 6 students were able to answer

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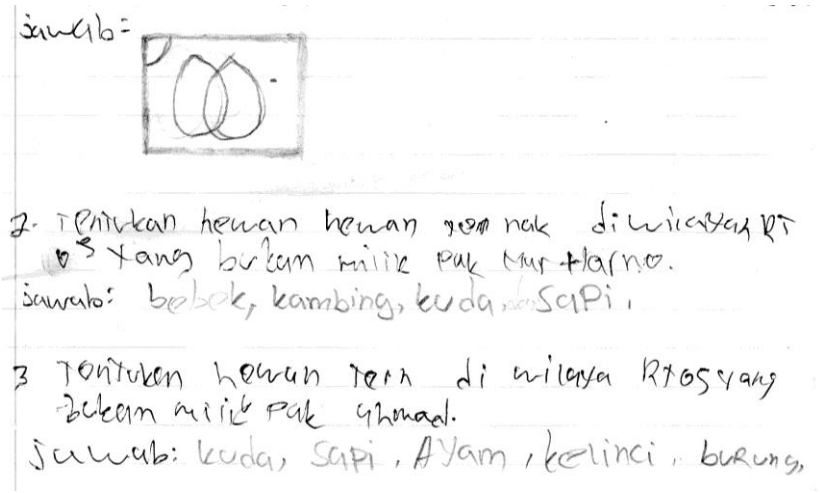
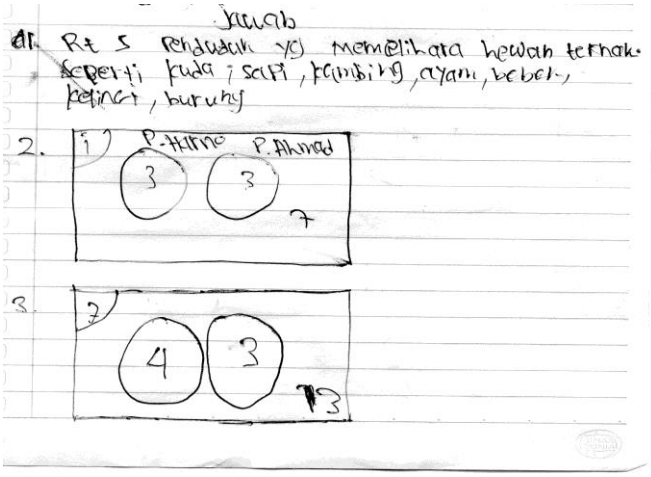
the question correctly and 3 students were not able to answer the question correctly, therefore the mathematical representation ability presentation in answering the recital question is 30 %. Here are the result of the students' who do not have good representation ability. Because the students' who have good representation ability are the students that have fullfilled the third indicators of mathematical representation ability (Istiawati dan Surya, 2015) [4]



Picture 1. Student's answer

One of the students' answer who had low representation ability in finishing the recital question in assemblage material, and only filled 2 indicators from 3 indicators, namely (2) and (3)



Picture 2. Student's answer

One of the student's answer representated the less understanding of mathematical representative ability to the question given and the less of meaning from the table given. The students were not able to use the words in the conclution result and did not uderstand yet about the Venn Diagram that is used in learning assemblage.

Based on the data table showed that there are many students that have low mathematic representation ability. From the representation indicator visually using diagram is still low, the abiliyty in using mathematic symbol and are not able to use an attractive word in making conclution. The representative ability in finishing students' Mathematic problem that is not develpe yet with maximal result is also showed in unconditional interview with a Mathematic Teacher of YPI Dharma Budi Junior High School. The result of thw interview showed that there is a difficulty for the students to finish the Mathematic question in Mathematic Reresentative Ability. The interview result showef that there is a difficulty for the students' to finish the Mathematic question in mathematical representation ability, especially if the question is given in recital question form. Many students are difficult to understand the problem, so the students are difficult to cartain the

question and informations that are needed to finish that problem. In step of what said by Sepeng dan Sigola (2013) [12] that students must struggle hard to uderstand and doing problem transformation that's given. Thye students' wrongness in finishing the Mathematic problem occures in different grade also (Trance, 2013) [13]. For the students', the recital question becomes difficult because the language in the question is different with the language they use in explaining the problem with their own experience (Kliman dan Richards, 1992) [6].

V. CONCLUSION

Based on the data analysis result and the discussion of researc result that is support by the study theory and heading to the goal of the research thus we can take the conclution that (1) students' mathematical representation ability in answering the recital question in assemblage material is only able to achieve by 3 students or 10 % from 30 students and there are students who didn't write any answer in their answer sheet. There are 5 students or 16,67 % who didn't give the finishing. (2) based on the interview result showed that there is difficulty for the students to finish the Mathematic question in mathematis representation ability, espesially if the Mathematic question is given in recital question form. Many students are difficult in understanding the problem so the students' are difficult to certain the question from the informations needed to finish that problem.

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