Analysis of Mathematic Literation Ability Through a Relaistic Approach In Class VII Junior High School Students Ms Thalia Home Schooling

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Abstract
This research is a case study which aims to determine the feasibility of learning mathematics with a realistic approach to knowing mathematical literacy skills and knowing the types of errors made by grade VII students of SMP MS. Thalia Home Schooling 2020/2021 school year. This type of research used by researchers in qualitative research methods is a type of case study research (Case Study). The subjects of this study were 4 junior high school students. The data collection instruments were observation sheets, test questions, teacher and student interview sheets. The results of this study indicate that learning mathematics at Ms. Thalia Home Schooling students of class VII of the 2020/2021 academic year have not met the characteristics of the relalistic approach. Most students' mathematical literacy abilities are at level 1 and level 6 with the percentage of student achievement of 100% and 75%. As well as student errors are more dominant because of errors in language interpretation with the percentage of students who make mistakes is 75%.
Keywords: Mathematical literacy, realistic approach

INTRODUCTION

In the process of discovering mathematical concepts, it is very important for students to use realistic problems as a starting point for learning mathematics. The realistic problem in question is a problem related to everyday life that can be imagined by students. The use of realistic problems at the beginning of learning mathematics aims to provide opportunities for students to find mathematical ideas or concepts and to see the ability to use mathematics that has been learned to solve problems in their own way. In addition, Berns and Ericson 2001 in (Joko Sulianto, 2018), which states that learning with a contextual approach is a learning concept that can help teachers connect subject matter with real situations, and motivate students to make connections between knowledge and its application in everyday life. day in their roles as family members, citizens and workers, thereby encouraging their motivation to work hard in applying their learning outcomes.

In addition to the use of realistic problems, in the process of finding mathematical concepts, students must know the basic concepts of mathematics and be able to connect these basic mathematical concepts to solve problems related to everyday life. Such abilities are called mathematical literacy abilities.

(Aulia, 2019) Mathematical literacy is defined as an individual's ability to formulate, apply, and interpret mathematics in various contexts. Mathematical literacy skills include mathematical reasoning and the ability to use mathematical concepts, procedures, facts and mathematical functions to describe, explain and predict a phenomenon. OECD (2018: 17) in (Sinica, 2019) states that mathematical literacy is the ability of individuals to formulate, apply, and interpret mathematics in various contexts. Therefore, learning mathematics in Indonesia at this time is expected to develop mathematical literacy skills through a contextual learning approach. The contextual mathematics learning approach that is meant here is learning that emphasizes the position of the teacher who no longer directly provides information to students, but must create activities that can be used by students to construct mathematical knowledge. (Santoso, 2017) that mathematical understanding obtained through learning using a contextual learning model can be further improved. Learning that emphasizes contextual matters is better known as realistic mathematics learning. Realistic mathematics learning becomes a means so that students are able to interpret mathematical concepts through daily activities, so that in the end students are able to build mathematical knowledge and make mathematics a part of their life.Integrated Islamic School has the basis of the word integrated itself. Integrated is the most important symbol used by the school. Integrated means that there is an integration between general science and religious knowledge. The Integrated Islamic School also considers that all these subjects cannot be separated from religious education, because religion has the ultimate goal of making every student to practice monotheism (Afrizal, 2011). The use of the word integrated is also an effort that arises from a concept used to build the image of the Integrated Islamic school itself, which is an image that, apart from studying and developing science and technology education, this school is also required to carry out learning and development of religious education as a whole. . The unified word becomes a basis or guideline in a school which is used as a symbol because of the integration between the development of science and technology with Islamic sciences. Education in the Integrated Islamic School has a general goal, namely, to provide guidance to students so that they can become pious people, who are not only in intelligence but also have noble character, and have skills that give benefit / avoid harm to mankind (Pertiwi & Marsigit, 2017).

Mathematical literacy is very important. This is because mathematical literacy emphasizes the ability of students to analyze, give reasons and communicate ideas effectively to the mathematical problem fractions they encounter (OECD, 2009, p. 19 in Masjaya & Wardono, 2018). PISA, is an OECD international program for evaluating reading, science and math skills which aims to determine the ability of 15 year olds to use the abilities and skills they have learned in school to live their daily lives in a challenging global era (Stacey, 2011). This is what connects the mathematics learned in the classroom with various kinds of real-world situations. According to the OECD (PISA 2012, p.37 in Tasyanti, 2018) mathematical literacy is the individual's ability to formulate, apply, and interpret mathematics in various contexts. This includes mathematical reasoning and using mathematical concepts, procedures, facts and mathematical tools to describe, explain and predict phenomena / events.The Integrated Islamic School (SIT) is essentially a school that implements the concept of Islamic education which is based on the Koran and As Sunnah and is based on the National Education System Law. The operational concept of SIT is an accumulation of the process of civilization, inheritance and development of Islamic teachings, culture and Islamic civilization from generation to generation. The term "integrated" in SIT is meant as reinforcement (taukid) of Islam itself. It means that Islam is complete, comprehensive, integral, not partial, syumuliah not juz'iyah. This has become the main spirit in the propagation movement in the field of education as a "resistance" to secular, dichotomous, and juz'iyah understanding (JSIT Indonesia, 2017).

Indonesian Realistic Mathematics Education (PMRI) is one of the steps that can be taken so that mathematics learning does not seem difficult. One of the characteristics of PMRI is the use of 'context' (contextual problems). As a comparison, the traditional learning approach called the "mechanistic" approach to mathematics education, almost all of its contents are "dry questions" without a realistic context. In a realistic mathematics approach, students learn mathematical contextual problems. In other words, students identify and solve math problems realistically. This is an effort to improve the quality of mathematics education.

The process of solving mathematical problems is different from the process of solving math problems. If a math problem can be found a way to solve it immediately, then the problem is classified as a routine problem and is not a problem. Because solving problems for students can mean a process to accept challenges, as said (Widjajanti, 2009)

(Dhoruri 2010 in Oftiana & Saefudin, 2017), solving math problems is the process of applying previously acquired mathematical knowledge into new, unknown situations. 21st century learning is required to be based on technology to balance the demands of the millennial era with the aim that later students will get used to 21st century life skills. In line with this opinion (Sugiyarti et al., 2018) states that students who live in the 21st century must master science and have skills. metacognitive, able to think critically and creatively, and be able to communicate or collaborate effectively, this situation illustrates the gap between expectations and reality.

Therefore, the government is designing 21st century learning through a student-based curriculum in 2013. Teachers as an extension of the government in schools implement 21st century learning. In formal schools, learning is required to apply 4C abilities (Critical Thinking, Communiaction, Collaboration, Creativity), this can be realized quickly, not only demands on teacher performance in changing methods teaching, but also the roles and responsibilities of non-formal educators in familiarizing children to apply 4C in their daily lives (Prihadi, 2017).

The current mathematics learning process tends to be too dry, theoretical, less contextual and artificial. Learning is less varied, so it affects students' interest in studying mathematics further and students often perceive mathematics as a difficult subject to understand. Mathematics teaching in schools is too formal, so the mathematics that children find in everyday life is very different from what they find in school. learning mathematics in schools is not only to make students as mathematicians who understand mathematics as a scientific discipline and provide provisions for further education, but also to provide them with sufficient provisions as members of the global community who are critical and smart (mathematical literacy), and preparation in work, therefore mathematics learning really needs to provide content / bridge between mathematics in the everyday world based on local culture and school mathematics.

METHOD

The research method used in this research is a qualitative method is a type of case study research (Case Study). This method aims to analyze the mathematical literacy skills of Ms. Thalia Home Schooling class VII. The subjects of this study were students of grade VII Ms. Thalia Home Schooling. The students consisted of 2 grade VII students of SMPN 21 North Jakarta, 1 grade VII student of SMPN 112 North Jakarta, 1 grade VII student of SMPN 32 West Jakarta so that the sample was 4 grade VII junior high school students. The data collection instruments were observation sheets, test questions, teacher and student interview sheets.

RESULTS AND DISCUSSION

This research was conducted on students of class VII SMP at Ms. Thalia Home Schooling at Lokbin Rawa Buaya Flat, West Jakarta. The data from the results of this study are in the form of student learning outcomes where data collection uses observation sheets, 10-point PISA test questions, teacher and student interview sheets. to find out the extent to which the PMRI approach is implemented in mathematics learning. From the results of trs 4 junior high school students class VII Ms. Thalia Home Schooling who took the PISA test which consisted of 10 questions. S1 answers correctly level 1 as much as 1 item then level 2 is 1 question then level 4 is 1 question and level 6 is 1 question, S2 is only correct level 1 is 2 items then level 2 is 1 then level 3 is 1 question and level 6 for 1 question. S3 is only correct in level 1 with 2 items and level 6 with 1 question, S4 is only correct in teaching level 1 PISA questions with 2 items.

Based on the results of data analysis tests and interviews related to mathematical literacy skills, it was concluded that the mathematical literacy skills of Class VIII A students of SMP Ms. Thalia Home School and were in the level 1 and level 6 categories with the percentage of achievement being 100% and 75%. Students' mathematical literacy skills at level 1 indicate that students have the ability to interpret and recognize situations in contexts that require direct drawing conclusions, the ability to sort relevant information from one source using a single representation method, able to use formulas, carry out simple procedures to solve problems that involve all the numbers, and are able to give reasons directly from the written results.

Whereas students' abilities at level 6 indicate students that students can work effectively with models in concrete but complex situations that may involve constraints or making assumptions. They can select and integrate different representations, including symbolic and relate them to real world situations. Students at this level can put their skills to good use and come up with reasons and views that are flexible in context. They can provide explanations and communicate with arguments based on their interpretations and actions.

The mathematical literacy abilities of students who are mostly at level one and six can be presumed because of mathematics learning in class VII SMP Ms. Thalia Home School has not met the characteristics of PMRI as described in the discussion section on PMRI implementation. Mistakes Made by Grade VII Junior High School Students in Solving Questions Adapted from PISA.

Based on the results of the analysis of student tests and interviews, it can be concluded that the seventh grade students made more mistakes in terms of language interpretation, namely 3 people with the percentage of students who made mistakes in interpreting language was 75%. Teacher interviews were part of an effort to explore information related to the extent of the PMRI approach. implemented in mathematics learning in the classroom. The results of interviews with mathematics teachers and students. Student interviews were conducted by researchers to confirm students' answers to test results that were not understood by researchers and to find out the mistakes made by students in solving questions. Therefore, not all students are interviewed, those who are interviewed are students who are able to answer well but are not accompanied by reasons or whose explanations have not been understood by the researcher.

Mathematics learning in grade VII SMP has not yet fulfilled the characteristics of a realistic approach. Unfulfilled realistic approaches, among others, are related to the use of context, interactivity and linkages. In the context of using context, the teacher gives more practice to students to do math calculations rather than giving students the opportunity to solve contextual problems. In the interactivity section, students tend to be directed to solve problems independently rather than discussing, while in the relationship section, students are rarely given the opportunity to convey the relevance of the material being studied with daily problems.

CONCLUSIONS AND SUGGESTION

The students' mathematical literacy abilities of class VII A SMP Ms. Thalia Home School are mostly at level 1 and 6 PISA with the percentage of student achievement of 100% and 75%. Students' mathematical literacy skills are still at level 1 and 6, it can be assumed because learning mathematics in Class VII SMP 2020/2021 has not fulfilled the characteristics of PMRI. This study also obtained information related to the mistakes made by students in solving questions adapted from PISA. From the results of the study it can be concluded that students are more dominant in making mistakes in terms of language interpretation. Of the 4 students who took the test, 75% of them experienced errors in language interpretation. The interpretation of language referred to here is concerned with modeling everyday problems into mathematical forms

Based on the results of the research and discussion that has been carried out, the researcher suggests that teachers are expected to apply the PMRI learning approach, so that students' mathematical literacy skills will increase, Teachers are expected to update learning methods so that students do not make the same mistakes in solving questions. Further research is expected to develop the results of this study to determine the causes of errors made by students in solving questions adapted from PISA.

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