

Needs Analysis of Student's Worksheets to Improve Numerical Literacy Skills for Students of SMP Negeri 4 Yogyakarta, Indonesia

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ABSTRACT

Numerical literacy ability is an important 21st century ability possessed by students. Teaching materials that have not integrated these abilities need to be developed. For this reason, the purpose of this study is to examine the needs of LKPD to improve students' numerical literacy ability. The type of research used is descriptive qualitative. The population used in this study was class VIII SMP Negeri 4 Yogyakarta, while the sample was class VIII.C SMP Negeri 4 Yogyakarta. Data collection techniques in this study used interview techniques, questionnaires, and students' numerical literacy test results. The results of the study showed that: (1) as many as 87% of students were interested if mathematics lessons were packaged in the form of LKPD; (2) based on the numeracy literacy test as many as 69% of students in the medium category and 14% in the low category; (3) as many as 37% of students are embarrassed to ask the teacher about subject matter that is not understood and affects the activity of students in the classroom. In addition, students want the LKPD to be blue and contain material, practice questions, and assignments. This study concludes that teaching materials using LKPD need to be applied to improve students' numerical literacy ability.

Keyword: LKPD; numerical literacy; learning activity

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1. INTRODUCTION

Mathematics is a very important science, especially in the current era of globalization (Huzaimah & Amelia, 2021). Mathematics also has many benefits in life, such as teaching and introducing people to events that occur in the surrounding environment so that humans can learn from the events they experience (Ariawan & Nufus, 2017). Because in mathematics lessons, students can develop critical, logical, effective and efficient thinking skills in solving mathematical problems (Sumiati & Agustini, 2020). Learning mathematics in the classroom also has the goal of equipping students to be able to face the changing times that are always evolving (Manullang, 2014).

As a teacher, he must actively involve students in the learning process (Wandari et al., 2018). In the learning process, teachers should let students build their own knowledge (Nareswari et al., 2021). However, a teacher's effort is also needed in controlling and creating a pleasant classroom atmosphere (Pamela et al., 2019). The use of learning media is one of the interesting teaching materials so that it can help students understand each concept presented and one of the teaching materials needed in helping the smooth teaching and learning process is LKPD (Wandari et al., 2018). The Student Worksheet (LKPD) can be interpreted as a complementary tool to support the learning process so that it can provide opportunities for students to be more active in the learning process in the classroom (Apertha et al., 2018). LKPD is a collection of sheets consisting of material, work steps, explanation descriptions, and also exercises that must be done by students (Wandari et al., 2018).

The numeracy literacy of Indonesian students based on the 2015 PISA assessment was ranked 65 out of 70 countries with a number of 386 (OECD, 2016). Meanwhile, in 2018, the numeracy literacy of Indonesian students was ranked 73rd out of 79 countries with a figure of 379 (OECD, 2019). Based on this assessment, it is known that the numeracy literacy of Indonesian students has decreased from 386 to 379 (Yustinaningrum, 2021). The low numeracy literacy of these students is because they are not used to solving problems that are directly related to everyday life or existing phenomena so that their reasoning and creativity abilities are not honed (Simalango et al., 2018). Because numeracy literacy is included in a person's ability to use reasoning in solving mathematical problems (Ekowati et al., 2019).

The Ministry of Education and Culture has planned a literacy culture by launching the National Literacy Movement (GLN) and implementing education through schools called the School Literacy Movement (GSL) (Ekowati et al., 2019). The School Literacy Movement aims to develop a literacy culture in schools, increase the capacity of school residents to be literate, and make schools a fun learning house (Kemdikbud, 2016). Literacy can be interpreted as an ability to understand, interpret, create, communicate, calculate, by utilizing study sources (Syaifudin, 2022). Numeration is an ability to understand numbers, mathematical concepts, and arithmetic operations skills that are applied in everyday life (Mahmud & Pratiwi, 2019). So in numeracy skills, it requires knowledge and understanding of mathematics learned in the school curriculum (Pangesti, 2018).

Numerical literacy is the ability to use various numbers and symbols related to mathematics so that they can solve problems related to everyday life, explore various forms of information such as graphs, tables, and charts, as well as analyze information results and make decisions (GLN, 2017). Numerical literacy is expected to be an ability that must be possessed by students because it is not only part of mathematics but is also an ability that can help students solve mathematical problems related to everyday life (Pangesti, 2018). There are three basic principles of numeracy literacy, including contextual, which is in accordance with social and cultural conditions, in line with the scope of mathematics in the 2013 curriculum, and interdependence and enriching other literacy elements (GLN, 2017). Numerical literacy skills are not only useful when learning but also have an important role in aspects of life such as planning tourist attractions, shopping, constructing buildings, and digging up information presented in graphic and numerical form (Mahmud & Pratiwi, 2019).

In the process of learning mathematics, there are cognitive and psychomotor aspects, one of which is psychomotor, namely learning activity (Rahayu et al., 2019). Activeness can be interpreted as a dynamic activity and working hard in achieving a goal, marked by the presence of ideas that emerge and are analyzed systematically (Asriyah, 2013). Physical activities in the classroom include active students with limbs, creating something, playing, and not only passively by sitting, watching, and listening (Maulida et al., 2018). For this reason, the activeness of students in the classroom can develop the abilities and potential of students by using learning resources in the surrounding environment so that students can solve problems by thinking systematically, critically, and responsively in analyzing the information received (Uliah & Sari, 2007). (2018).

Based on the results of observations in class VIII.C of SMP Negeri 4 Yogyakarta, in the learning process the teacher still dominates learning using only textbooks. Mathematics learning tends to be teacher-centered so that there is a lack of activeness in students. Teachers are more confident if they teach students by delivering information from a mathematical object, so that students receive mathematics lessons passively and only memorize formulas without understanding the meaning and benefits in everyday life.

Furthermore, the results of interviews with mathematics teachers in class VIII.C of SMP Negeri 4 Yogyakarta showed that students' numeracy literacy skills were still low. This is supported by data based on the numeracy literacy test of 69% of students in the medium category and 14% in the low category. Furthermore, as many as 37% of students are embarrassed to ask the teacher about subject matter that is not understood and affects the activity of students in the classroom. Based on this description, this study aims to examine the needs of LKPD to improve students' numeracy literacy skills.

2. RESEARCH METHOD/MATERIAL AND METHOD/LETERATURE REVIEW (10 PT)

This type of research is descriptive qualitative. This research will focus on selecting information as a data source, collecting data, assessing data quality and making conclusions. This research was conducted on July 28, 2022 at SMP Negeri 4 Yogyakarta, Danurejan District, Sleman Regency, D.I Yogyakarta. The population and sample in this study were students of class VIII.C of SMP Negeri 4 Yogyakarta, Danurejan Regency, D.I Yogyakarta in the academic year 2022/2023. This research is still at the stage of needs analysis, so the population and sample used are the same. In addition, the selection of class VIII is because further research to be carried out is on the material for the Two Variable Linear Equation System (SPLDV) in which the material is material for class VIII. Data collection techniques were carried out by interviewing and distributing preliminary study questionnaires. Interviews were conducted with mathematics teachers in class

VIII to obtain information about the characteristics of students, learning models and the needs of the learning media used. While the distribution of preliminary study questionnaires to determine the interest of students in mathematics and LKPD, the need for learning media, information about the category of numeracy literacy abilities and student activity.

3. RESULTS AND DISCUSSION (10 PT)

In this section, it is explained the results of research and at the same time is given the comprehensive discussion. Results can be presented in figures, graphs, tables and others that make the reader understand easily. The discussion can be made in several sub-chapters. The results in the research explanation of the analytical activities that have been carried out by researchers include needs analysis, curriculum analysis, material analysis and student analysis. The following is an explanation of each of these analyzes:

1. Needs Analysis

Needs analysis was conducted to analyze learning media as a supporter of the learning process in the classroom. In this stage, it is determined that the learning media will be used for the learning needs of students. The results of the distribution of the questionnaires that have been carried out, it is concluded that students are interested in using LKPD learning media in learning mathematics.

2. Curriculum Analysis

Curriculum analysis is carried out to pay attention to the characteristics of the curriculum that is being used by the school so that it is in accordance with the applicable curriculum. From the results of interviews with mathematics teachers that have been carried out, information is obtained that SMP Negeri 4 Yogyakarta uses the 2013 curriculum for class VIII. In practice, teachers make lesson plans by adjusting Core Competencies, Basic Competencies and Competency Achievement Indicators in accordance with the applicable curriculum.

3. Material Analysis

Material analysis is carried out by determining and compiling teaching materials systematically with relevant sources for learning activities. The selection of teaching materials is carried out by considering the Basic Competencies and Core Competencies, then designing and compiling students' teaching materials systematically.

4. Student Analysis

The analysis of the students was carried out to determine the numeracy literacy ability and the activeness of the students. Based on the questionnaire distribution of the preliminary study that has been carried out, there are 7% of students who do not like mathematics and 90% who have moderate numeracy literacy skills.

In addition to the results of the analysis above, the initial data obtained from the results of the students' numeracy literacy test results were taken from the results of the daily math test results for class VIII SMP Negeri 4 Yogyakarta. The type of question used in the daily test is in the form of a description question which consists of 10 questions. The number of class VIII.C students who took the daily test on August 5, 2022 was 29 students. The results presented in this discussion are the results that have been obtained by researchers during interviews with mathematics teachers for class VIII SMP Negeri 4 Yogyakarta and the results of preliminary study questionnaires. The results of the analysis of students' daily test scores are presented in Table 1.

Table 1. Results of the Analysis of Daily Mathematics Scores

No	Class Interval	F	Percentage
1	1-20	3	10%
2	21-40	6	21%
3	41-60	12	41%
4	61-80	4	14%
5	81-100	4	14%
Total		29	100%

Based on Table 1, it is known that 28% of students are above the KKM, 72% of students are below the KKM. This is because the Minimum Completeness Criteria (KKM) set by schools for mathematics lessons are 87. In addition, researchers also categorize students' mathematical numeracy literacy test results empirically which are presented in Table 2.

Table 2. Description of Students' Mathematical Numeration Literacy Test Results

Category	Score Interval	Frequency	Percentage
Low	$x \leq 29$	4	14%
Medium	$29 < x \leq 71$	20	69%
High	$x > 72$	5	17%

Based on Table 2, it is known that the average result of the mathematical numeracy literacy test of students is 50.17 with the lowest score being 7 and the highest score being 87. The average is in the medium category. However, because the school's Minimum Completeness Criteria (KKM) is 78, students' interpretations are categorized as moderate and students assume that mathematics is not easy to understand.

These results have been confirmed by researchers through the distribution of questionnaires to 29 students of class VIII.C which shows that there are 20% of students who think that mathematics is not easy to understand and only 7% of students who like mathematics. Another thing that was found based on the results of interviews with teachers showed that the most frequently used media in learning so far is books that make learning less interesting. So that students need a variety of other teaching materials. For this reason, in the preliminary study questionnaire, the researcher offers the use of other teaching materials in the form of LKPD. The results of the questionnaire showed that as many as 87% of students were interested if the mathematics material was packaged in the form of LKPD for classroom learning.

Another thing that makes LKPD a learning material because it has many advantages. Among them are (1) LKPD can open facilities for students to be active and creative during the learning process (Apertha et al., 2018). (2) In the LKPD it does not only contain questions but a collection of several activities that will be carried out by students in the classroom (Khatimah et al., 2015). (3) LKPD can help and direct students in finding their own mathematical concepts being studied (Putra et al., 2018). (4) The use of LKPD can help students find solutions and problems given because in LKPD, students can change story questions into the form of mathematical concepts (Saputri & Zulkardi, 2019).

4. CONCLUSION

Based on the description of the research results that have been presented, there are several research results that have been obtained. (1) as many as 87% of students are interested if mathematics lessons are packaged in the form of LKPD; (2) based on the numeracy literacy test as many as 69% of students in the medium category and 14% in the low category; (3) as many as 37% of students are embarrassed to ask the teacher about subject matter that is not understood and affects the activity of students in the classroom. In addition, students want the LKPD to be blue and contain material, practice questions, and assignments. This study concludes that teaching materials using LKPD need to be applied to improve students' numeracy literacy skills.

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