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Elementary School Students Numeration Ability

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ABSTRACT

Numerical ability is one of the important skills that must be mastered by students as a provision in solving everyday problems. It is also undeniable that the numeracy skills of elementary school students are still far from expectations. Various problems arise in learning mathematics such as the gap in the numeracy abilities of different students. The purpose of this study is to describe the numeracy skills of upper-class students in elementary schools. This type of research is descriptive research with the research subjects are 4th to 6th grade students at SDN Talabiu, Bima, West Nusa Tenggara. The instrument used is in the form of multiple choice test questions, totaling 10 numbers which have been validated by experts by asking for input from colleagues from the evaluation field and the field of mathematics. In addition, this instrument is also a modified finished instrument that has been approved by the developer. The data were analyzed using the percentage formula to determine the category of students' abilities. Based on the results of research and data analysis, information was obtained that the numeracy skills of upper-class students at SD Negeri Talabiu can be grouped into 4 categories, namely the High category with a percentage of 16%, the Moderate Category with a percentage of 62%, the less category with a percentage of 14% and the very low category. with a percentage of 8%. The contribution of the results of this study is as a reference for teachers and schools in relation to the state of students' numeracy abilities so that they can apply innovative and creative learning

Keywords: Elementary School Student, Numerical Ability, Upper Grade

ABSTRAK

Kemampuan berhitung merupakan salah satu keterampilan penting yang harus dikuasai siswa sebagai bekal dalam memecahkan masalah sehari-hari. Tidak dapat dipungkiri juga bahwa kemampuan berhitung siswa sekolah dasar masih jauh dari harapan. Berbagai permasalahan muncul dalam pembelajaran matematika seperti kesenjangan kemampuan berhitung siswa yang berbeda-beda. Tujuan dari penelitian ini adalah untuk mendeskripsikan keterampilan berhitung siswa kelas atas di sekolah dasar. Jenis penelitian ini adalah penelitian deskriptif dengan subjek penelitian adalah siswa kelas 4 sampai dengan kelas 6 di SDN Talabiu, Bima, Nusa Tenggara Barat. Instrumen yang digunakan berupa soal tes pilihan ganda berjumlah 10 soal yang telah divalidasi oleh ahli dengan meminta masukan dari rekan-rekan dari bidang evaluasi dan bidang matematika. Selain itu, instrumen ini juga merupakan instrumen jadi yang dimodifikasi yang telah disetujui oleh pengembang. Data dianalisis menggunakan rumus persentase untuk menentukan kategori kemampuan siswa. Berdasarkan hasil penelitian dan analisis data, diperoleh informasi bahwa keterampilan berhitung siswa kelas atas di SD Negeri Talabiu dapat dikelompokkan menjadi 4 kategori, yaitu kategori Tinggi dengan persentase 16%, Kategori Sedang dengan persentase sebesar 62%, kategori kurang dengan persentase 14% dan kategori sangat rendah. dengan persentase 8%. Kontribusi hasil penelitian ini sebagai acuan bagi guru dan sekolah dalam kaitannya dengan keadaan kemampuan berhitung siswa agar dapat menerapkan pembelajaran yang inovatif dan kreatif.

Kata Kunci: Siswa Sekolah Dasar, Kemampuan Berhitung, Kelas Atas

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Introduction

Schools as educational institutions are a place that plays an important role in developing students' abilities, starting from the formation of knowledge, skills to character building. Along with the development of the era marked by the development of information technology. Demanding schools as educational institutions, in order to prepare students who can master various basic knowledge and skills (reading and arithmetic) as capital in facing the

demands of the times. Where, numeracy skills are the ability to understand and use mathematics in various contexts to solve problems, as well as being able to explain to others how to use mathematics (Maulidina, 2019). Numeration is the knowledge and skill to: a) use a variety of numbers and symbols related to basic mathematics to solve practical problems in various contexts of everyday life; b) analyze information presented in various forms (graphs, tables, charts, and so on); c) use these interpretations to predict and make decisions (Ayuningtyas & Sukriyah, 2020). Numerical skills are needed in all aspects of life, both at home and in society, in everyday life and in society, for example when shopping, planning a vacation, starting a business, building a house, information about health, all of which require numeracy. This information is usually expressed in numerical or graphic form. To make the right decision, students must understand numeration (Mahmud et al. , 2019) . States that numeracy skills are important abilities that must be possessed by students because this ability or skill is related to the use of numbers to practically solve various daily problems, numeracy skills are also the ability to use various kinds of numbers and symbols related to basic mathematics to solve everyday life problems, the ability to analyze information presented in various forms (graphs, tables, charts, etc.) (Ayuningtyas & Sukriyah, 2020).

It can be concluded that the numeracy ability of elementary school students is the ability of students to include understanding in the use of mathematical symbols, using various kinds of numbers and being able to operate them, and can use mathematical forms such as graphs, tables, charts in problem solving and students can recognize geometry. Reality shows that students' numeracy skills are not maximized. Based on the results of the Program for International Student Assessment (PISA) for Indonesia, mathematics scores are below average. The average PISA scores of The Organization for Economic Co-operation and Development (EOCD) members have continued to decline over the past three years.

The state of Indonesia, based on data, shows that elementary school (SD) students still have low reading (literacy) and numeracy (Amenia et all, 2020) skills . Whereas these two abilities are the most basic abilities to enter other fields of science (Ekowati et al., 2019). The data also shows that students' numeracy skills are still low, this is based on the results of research conducted by (Hartatik, 2020) In addition to the problem of the low numeracy ability of elementary school students, it was also found that there were gaps in the numeracy abilities of students at the elementary school level, such as the numeracy skills of students attending public and private schools, numeracy skills of students studying in rural areas and urban schools as well as numeracy skills between female students and male students. -man. The results of the study (Mariamah et al., 2021) found that there were still many students who did not like Mathematics and ended up having poor numeracy skills.

Given the problems above, there have been studies that have been carried out in order to overcome these various problems such as research conducted by (Aminah & Kurniawati, 2018) about the analysis of students' difficulties in solving story problems about fractional material. In addition, there are other studies that apply various learning models to overcome the problem of students' lack of mathematical ability (Sugiarti, 2018). From the various studies that have been carried out, there is no research that focuses on describing the numeracy ability category of students in elementary school. So that later the results of this research can be used as a reference for teachers and schools in relation to the state of students' numeracy abilities so that they can find solutions related to innovative and creative learning as to what will be applied according to the condition of students' numeracy abilities. Based on the description above and the global problems that occur in Indonesia related to numeracy

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skills, the researcher is interested in conducting research on the description of the numeracy ability categories of upper-class students at SD Negeri Talabiu. SD Negeri Talabiu is one of the elementary schools in Talabiu Village, Bima Regency and is one of the model schools. The results of this research will be used as initial data to conduct further research in order to develop numeracy skills of elementary school students in Bima district.

Research Methods

This type of research is a descriptive research that aims to describe the actual state of the object without changing the existing situation. In this study, the numeracy skills of SD Negeri Talabiu students will be described based on the results of the tests given. The subjects of this study were upper grade students consisting of grades 4,5 and 6, totaling 37 students.

The instrument used to measure students' numeracy skills used multiple-choice test consisting of 10 questions. The questions have been validated by experts by asking for input from colleagues from the evaluation and mathematics fields. In addition, this instrument is also a modified instrument that has been approved by the developer. The following is the formulation of the numeracy ability indicators of elementary school students,as shown in Table 1.

Table 1. Indicators of Student Numerical Ability

No	Indicator	Ability Description	About
1	Use of simple symbols	Students can distinguish the signs: $+, -, x, :, <, >, =$	1.2
2	Simple algebraic operations (+,-,x,:)/Arithmetic	Students can operate counts/numbers	3,4,5,6
3	Number ordering	Students can sort numbers	7
4	Introduction to Geometry	Students will be able to distinguish flat shapes from other shapes and images	8,9,10

The data collection technique to answer the problem formulation is to divide the validated test questions to 37 class students by giving 60 minutes to work on the questions independently. After that, the answer sheets were collected again and examination and scoring were carried out.

To analyze data related to students' numeracy skills using descriptive statistics. Descriptive statistics are only to see the average score obtained by students and the ability category. The formula as follow, as shown in equation (1):

$$Me = [(\sum xi) / n]$$

$$\boxed{Me = \frac{\sum X_i}{n}} \quad (1)$$

Description :
Me = Mean
x_i = total score
n = number of students
From the search results for the average value, the next step is to adjust the categories at the Table 2:

Table 2. Calculation Ability Category

Hose	Category
81- 100	Very high
61- 80	High
41 - 60	Moderate
21 - 40	Less
1 - 20	Very low

Results and Discussion

Based on the results of the study, data related to the numeracy skills of upper class SD Negeri Talabiu students were obtained as follows:

Table 3. Average Counting Ability

	Counting Ability Indicator			
	Simple Use of Symbols	Algebraic Operations	Number Ordering	Introduction to Geometry
Average	23.5	16	10	25

Table 3 shows that students' numeracy skills based on the average value of each indicator are still very low. Indicator The use of simple symbols with a total of students who answered correctly for question number 1 only 14 students out of a total of 37 people and 33 students answered correctly for question number 2. For the second indicator, students who answered correctly were the lowest on question number 6 with five students who answered correctly out of 37 students. The third indicator is only 10 students who answered correctly from 37 students and for the last indicator for question number 8 only 6 students answered correctly from 37 students. The following is the percentage data for each category of students' numeracy abilities:

Table 4. Category of Numerical Ability

No	Category	Amount	Percentage
1	Very high	0	0%
2	High	6	16%
3	Moderate	23	62%
4	Less	5	14%
5	Very low	3	8%
	Total	37	100%

Based on the results of research and data analysis, information was obtained that the numeracy skills of upper-class students at SD Negeri Talabiu can be grouped into 4 categories, namely the High category with a percentage of 16%, the Moderate Category with

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a percentage of 62%, the less category with a percentage of 14% and the very low category. with a percentage of 8% (as shown in Table 4). From these results it is known that none of the upper class students has a very high category. This basic numeracy ability has actually been learned by students starting in the lower class (grade 1). However, the reality is that the numeracy skills of upper-class students are not as expected. Of the four indicators of numeracy ability, the data on the average value of each indicator is obtained. The first indicator is about the use of mathematical symbols with an average value of 23.5, the second indicator is about using various numbers and being able to operate them with an average value of 16, the third indicator is about students being able to use mathematical forms such as graphs, tables, charts in problem solving with an average value of 10 and the fourth indicator about students being able to recognize geometry with an average value of 25.

The results of the analysis also obtained data on two abilities that were least related to the numeracy abilities of elementary school students, namely the students' ability to sort numbers and the ability to simple algebraic operations such as addition, subtraction, multiplication and division operations on simple integers. The algebraic operations of addition, subtraction, multiplication and division in the questions given are in the form of operating two tens numbers and very easy questions. This material has actually been taught to students starting to sit in grade 1 and upper grade students should have mastered it very well and be able to answer questions correctly. Another problem is about adding two positive integers with negative integers and adding two fractions, these materials have been taught in the second grade. The following is a sample of student answers:

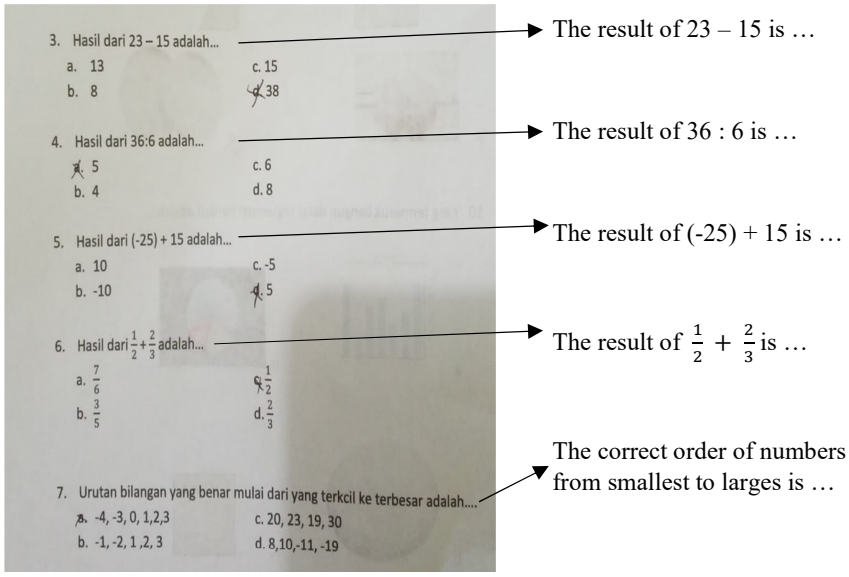

Figure 1. Example of Student Answer Sheet

From the students' answers related to questions measuring the indicators of algebraic operations of addition, subtraction, multiplication and division, the correction results were declared wrong (as shown in Figure 1). There are still many students who have not been able to perform simple algebraic operations. Problem number three deals with the subtraction of two integers. This problem is actually very simple because the addition of two numbers consisting of two digits is 23-15. Students answer with 38. This answer is predicted that students assume 23 + 15 so that the selected result is 38.

According to (Clarkson et al., 1969) that there are still many students who have difficulty learning algebraic material. So that students need to be equipped in advance at the elementary school level related to arithmetic. Arithmetic is concerned with numbers and arithmetic operations, while algebra is also concerned with numbers and arithmetic operations. (Sugiarti, 2018) in the results of his research it was found that there were still students who had difficulty learning mathematics in simple algebraic material. The difficulties experienced will affect the mastery of the next material. According to (Utari et al., 2019) that students who have learning difficulties will experience errors in learning to count and mistakes in solving problems and are often done. Of the 37 students' answers, only 5 students answered correctly regarding the addition of two fractions ($\frac{1}{2}+\frac{2}{3}$). Students' understanding in relation to this material is still low. According to (I Made, 2018)in the results of his research, it was found that it was true that students had difficulty in spelling questions about the addition of two fractions. Even though this fraction material has been taught in class III. The results of other studies show that students in completing fractional addition operations with various kinds of errors are made such as adding the numerator with the numerator and the denominator with the denominator (Khismawati & Hidayati, 2020). In relation to this ability, many studies have been carried out, such as the research conducted by (Aminah & Ayu Kurniawati, 2018; Tanjung & Nababan, 2016)

In addition to the two indicators with the lowest average value, it is also known that the students' numeracy skills from the two indicators with an average value are sufficient as an indicator of the use of mathematical symbols with an average value of 23.5.

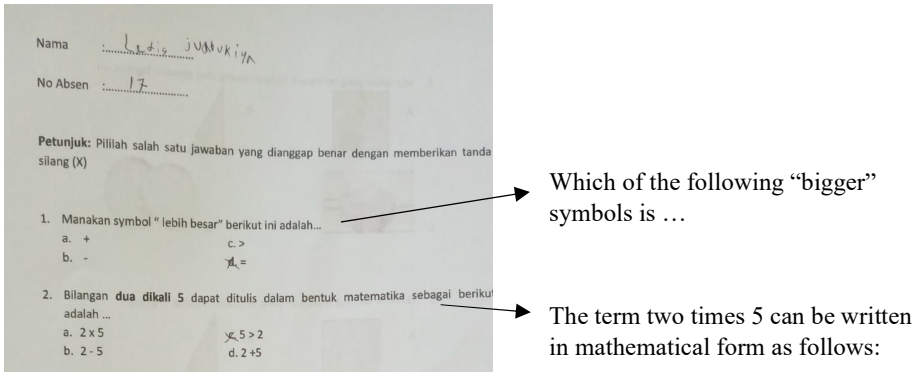

Figure 2. Student Answers

From the questions given, it is known that students are not too familiar with the connection with mathematical symbols commonly used in learning mathematics in elementary schools such as symbols $+, -, x, :, <, >, =$ (as shown in Figure 2). This can be seen from the answers done by students. These symbols are mathematical language that has meaning in its use. Usually this mathematical language is expressed or communicated both orally and in writing. Various research results also show that students' mathematical communication skills are still low, such as the results of research conducted by (Heryan, 2018; Putri et al., 2019; Wulandari, 2016; Wulandari, 2016; Mariamah, 2014; Fitriani, 2015; Kaselin & Sukestiyarno, 2013; Muslimahayati, 2019)

On questions that measure abilities related to geometry. Students still have difficulty in distinguishing which is flat and which is space. According to (Muhassanah et al., 2014) that in

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studying geometry, students need mature concepts in order to be able to recognize various shapes and shapes and be able to recognize the differences and similarities (as in Figure 3). For students' ability to recognize flat shapes is very good. This can be seen from the number of students who answered correctly (Figure 4).

The results of data analysis related to the numeracy skills of upper class students, showed that the results were not maximal, students had difficulties so that they answered the questions incorrectly. According to Lana Sugiarti, the numerical ability of upper class students has a large influence due to the ability of students at the previous level, namely when students were at the lower grade level (when sitting in grades 1,2 and 3). According to (Ardila & Hartanto, 2017) that one of the factors that affect the low numerical ability of students is caused by understanding students' concepts at the previous level. According to research results (Kudsiyah et al., 2017) that one of the factors that affect students' numeracy skills is the relationship with students' understanding of the material or previous learning

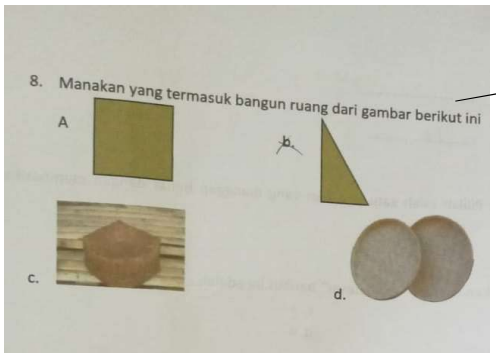

Figure 3. Student Work Results

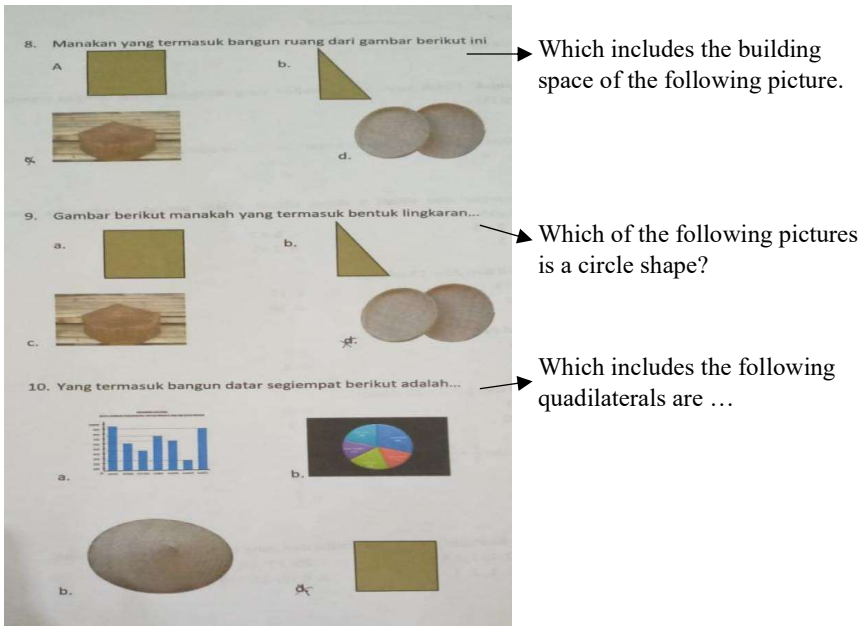

Figure 4. Example of Student Answer Sheet

With the differences in students' numeracy abilities, which are categorized into four levels, namely high, sufficient, less and very poor categories. This happens because students' numerical abilities are different . This is also relevant to the results of research conducted by (Rahimah & Asy'ari, 2017) that each subject has different abilities, some have high, medium and low abilities

Conclusion

Based on the results of data analysis, information was obtained that the numeracy skills of upper-class students at SD Negeri Talabiu can be grouped into 4 categories, namely the High category with a percentage of 16%, the Moderate category with a percentage of 62%, the less category with a percentage of 14% and the very low category with a percentage 8%. From these results it is known that none of the upper class students has a very high category. The results of this study can be used as important information for elementary schools at SDN Talabiu and other elementary schools to carry out learning that is tailored to the level of students' numeracy skills.

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