

ANALYSIS OF THE NUMERICAL ABILITY OF ELEMENTARY SCHOOL STUDENTS IN TERMS OF THE INTRODUCTION TO PLACE VALUES OF NUMBERS

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ABSTRACT

Recognizing place value is one of the basic skills in numeracy. Numerical ability can be seen through students' ability to recognize the place value of numbers. This study aims to analyze students' numeracy ability in terms of their ability to recognize place values in numbers. The research was conducted at one of the public elementary schools in the Central Lombok district. The type of research used is a descriptive survey. Data collection using tests. The instrument used is a place value test. The number of research samples was 110 elementary school students, with details of 53 low-grade students and 57 high-grade students. Data were analyzed using descriptive statistics. If viewed from the ability to recognize place values, students' numeracy abilities are included in the fairly good category. Overall of 110 students, 60% have recognized the place value of thousands. Most of the high-grade students already know the place value of the thousands, while the low-grade students are mostly still in the places value of units, tens, and hundreds. The number of students who know the value of the hundreds is 13%, the tens value is 16% and the unit value is 8%. The study also found fact that there were 3% of students were not familiar with numbers. Although overall students' students' ability are quite good, special attention needs to be given to high-grade students who are not able to recognize the place value of thousands and low-grade students who are not yet familiar with numbers.

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INTRODUCTION

Numeracy is one of the basic skills that are very useful in every area of life. Almost all areas of life require numeracy as a tool (Han et al., 2017). Therefore, it is not surprising that the government includes numeracy material as one of the abilities measured in the Minimum Competency Assessment (AKM) (Pusdikjar, 2020). Competence in the numeracy field is one aspect that must be mastered by students at the school level, especially at the elementary

school level (Setyaningsih & Ekayanti, 2019). One of the reasons is that the elementary school level is the right and crucial time in planting the concept of the field of science. Once the importance of numeracy, prospective teachers must be prepared carefully for their numeracy abilities (Ayuningtyas & Sukriyah, 2020). At least students must have basic skills, namely counting which consists of adding, subtracting, dividing, and multiplying, and be able to create and solve math problems.

Numeration as one part of mathematics lessons is the basis for students in developing numeracy ability. The basic science of mathematics is needed for the provision of further learning. In the field of technology, the role of mathematics cannot be ruled out. One of the basic materials in mathematics is the place value of numbers (Susilo, 2020). Place value is very important to learn because it is the basis for learning mathematics for the next stage, one of which is basic arithmetic operations (Selvianiresa, 2017). Place value is classified as a relatively easy material, however, many elementary school students have difficulty understanding place value (Efda, 2013). Not only the place value of elementary school students but many still have difficulty understanding basic mathematical concepts, writing number symbols, and arithmetic operations (Lestari, 2019). Based on a study that causes students to have difficulty understanding place values because students are not yet fluent in counting, do not understand mathematical symbols, and are not fluent in reading language mathematically (Matitaputy, 2018). Errors in writing number symbols and number names also affect students' ability to determine place values. The concept of place value does require an integrated understanding of the concept of grouping ten and procedural knowledge related to place value schemes, number writing, and number pronunciation (Munthe, 2008). In general, difficulties in mathematics are caused by the lack of students' ability to understand concepts correctly, do not understand the meaning of number symbols, do not understand the origin of principles, are not fluent in using operations and procedures and the knowledge received by students is not complete (Febrician & Damri, 2019). There are five indicators used to recognize place value at the elementary school level, including the ability to recognize numbers, the ability to recognize unit values, the ability to recognize the value of tens, the ability to recognize the value of hundreds, and the ability to recognize the value of thousands.

Place value can be used as an indicator to measure students' numeracy ability. By looking at the students' ability to recognize the place value of the basic numeric numbers, students can know. Measuring the ability of place value is important as a provision for teachers in providing mathematics learning at a later stage (Yusri & Sari, 2018). If students do not understand the place value, it can be ascertained that mathematics learning such as arithmetic operations cannot be continued. Based on this background, it is necessary to conduct research related to students' numeracy ability in terms of their ability to recognize place values, especially for elementary school students.

METHOD

This research was conducted at one of the public elementary schools in the Central Lombok district. Even though it is a public school, the location of this school is very far from the city center. The type of research used is descriptive survey research. Through this method, researchers try to explore phenomena that occur in a community (Hermawan, 2019). The subjects of this study were elementary school students with a total of 110 students, with details of 53 low-grade students and 57 high-grade students. Data collection using tests. The test instrument used is a place value test. In the following, the instruments used to determine students' ability to recognize place value can be presented.

Mengenal Nilai Tempat Bilangan

1 Digit

5	7
8	2
3	6

2 Digit

43	69
77	29
55	17

3 Digit

407	270
111	398
136	987

4 Digit

1058	2450
6734	5259
2525	6734

Figure 1. Test Instrument

The numeration test instrument in figure 1 was adopted from the all intelligent children program implemented by the Central Lombok district education office. The instrument is an instrument used to determine students' basic numeracy ability. Based on the above instrument, data related to the number of students who are not familiar with numbers will be obtained and how many students are not familiar with place values ranging from unit values to thousands. The procedure for using the instrument in figure 1 is as follows: Students are called one by one to read numbers from one digit to four digits. If the student is not able to read the number, it means that the student does not know the number. If students are only able to read one-digit numbers, it means that students only know unit values. If students can read two-digit numbers, it means that students have known the value of tens. If students can read three-digit numbers, it means that students have known the place value of hundreds. If students can read four-digit numbers, it means that students have known the place value of thousands. In addition to reading the numbers on the instruments provided, students are also asked how many place values are in these numbers. For example, what is the value of the number 4 in the number 407? After the data is collected then the data are grouped and analyzed using descriptive statistics.

RESULTS AND DISCUSSION

Description of low-grade students' numeracy ability

In the process of collecting data, the students were divided into two groups, namely the low-class group and the high-class group. After the test, data were obtained that reflected the numeracy abilities of students in each group. Students are said to have numeracy ability at their level if they can read numbers correctly according to their place values. The following shows the numeracy abilities of students in low grades when viewed from their ability to recognize place values.

Table 2. The results of the place value recognition test for low-grade students

Category of place value	Total	Percentage (%)
Don't know numbers	3	6%
Unit place value	9	17%
Tens place value	18	34%
Place value hundreds	10	19%
Place value thousands	13	25%
	53	100%

Based on table 2, it can be explained that the numeracy abilities of low-grade students are quite diverse. Some students are not familiar with numbers but some students know the place value of thousands. The number of students who do not know numbers is 3 students or 6% of the 53 students in the lower class. The number of students who know the unit value is 17%, the tens value is 34%, and the value of the hundreds is 34%. The number of students who have known the place value of thousands is 13 students or 25% of all students in the lower class.

Description of high-grade students' numeracy ability

The number of high-grade students who have taken the place value test is 57 students. In the following, a recapitulation of the numerical ability test results of students in high grades can be presented.

Table 3. The results of the place value recognition test for high-grade students

Category of place value	Total	Percentage (%)
Don't know numbers	0	0%
Unit place value	0	0%
Tens place value	0	0%
Place value hundreds	4	7%
Place value thousands	53	93%
	57	100%

Based on table 3 it can be understood that not all levels are filled. There are only two categories that show the level of students' numeracy ability, namely students who know the place value of hundreds and place value of thousands. Of the 57 students in the high grade only 4 students or 7% only know the place value of hundreds, the rest already know the place value of thousands. This shows that the numeracy ability of students in high grades can be categorized quite well.

Description of students' overall numeracy ability

Overall the number of students in the low class and high class is 110 students. If the numeracy abilities of students in the low class and high class are combined, it can be seen in the following diagram:

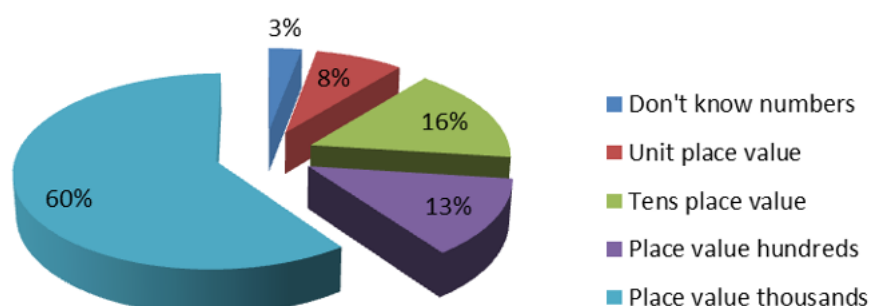


Figure 1. The test results recognize the place value in the low class and high class

Based on the results of the test to recognize the place value in Figure 1, it can be understood that most students already know the place value of thousands, the number is 60% or 66 of the

total students. Students who already know the value of hundreds are 13% or 14 students. Students who already know the tens value are 16% or 18 students. For students who only know the unit value as much as 8%, while students who do not know numbers are as much as 3%.

Based on the research findings that have been described in the results section, it can be understood that difficulties in understanding the average place value are experienced by lower grade students. This is by Selvianiresa's research, (2017) that there are many low-grade students, especially first graders who still have difficulty understanding place values. Similar research also reveals that there are still many students in elementary schools who experience misconceptions in understanding place value. Some forms of students' misconceptions in understanding place value include (1) Students do not understand the procedure for calculating and separating units and tens numbers, (2) students have alternative concepts about two-digit numbers and read these numbers as numbers that are independent of a place value. , (3) students have alternative concepts in understanding the addition of tens and one's numbers (Matitaputy, 2018). This finding needs to be followed up because place value is the basis for students to understand mathematics more broadly. Teachers must be creative in learning so that students can understand mathematical concepts easily, especially those related to place value (Novita & Putra, 2017). Similar treatment should also be given to lower-grade students. At least students are always taught how to recognize the place value and read the numbers correctly according to the place value. This is important because knowing place value is a basic ability that students must have to do basic arithmetic operations (Afriyansyah & Putri, 2014). Extra attention should be given to students who do not know numbers at all, moreover, some students have difficulty recognizing numbers are already in grade 2. Some of these students should be taught according to their abilities. Level-based learning is one alternative that teachers can choose to facilitate the diverse abilities of students.

CONCLUSION

Based on the description of the results and discussion, it can be concluded that the students' basic numeracy ability in terms of the ability to recognize the place value of numbers are in the fairly good category. Most of the high-grade students already know the place value of thousands, but the low-grade students are mostly only able to recognize the place value of units, tens, and hundreds. In low-grade students, there are still students who do not know numbers at all. Although overall students' numeracy ability are quite good, special attention needs to be given to high-grade students who are not able to recognize the place value of thousands and low-grade students who are not yet familiar with numbers.

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