

# How Is The Student's Numeracy Ability During Learning In The Pandemic Era

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Numeracy is an important skill that must be mastered by students. Almost all human activities are related to numbers. The existence of numbers cannot be separated from everyday life. Numbers are so important since elementary school students are always taught numbers. The problem is during the pandemic with the threat of learning loss, does it affect students' numeracy skills? This study aims to determine the profile of school students' abilities in the field of basic numeracy during the Covid-19 pandemic. The research used a survey method. Collecting data using a numerical test. The research location is at SDN Lingkok Lima. The research subjects are 110 students. Data were analyzed using descriptive statistics. The data is presented in the form of tables and diagrams. The findings from the results of the study are that students' numeracy skills are low. Many students are found who are not able to read four-digit numbers, determine place values and perform basic arithmetic operations..

Keywords: basic numeracy, pandemic era, learning loss

## 1. Introduction

Numeration is one of the basic skills that students must have. Numeration can be defined as the ability to think by using concepts, procedures and mathematics to solve problems in various contexts [1]. Ability in numeracy affects students' ability to solve mathematical problems. This ability is often referred to as number sense, namely sensitivity or mastery of numbers and basic arithmetic operations. Number sense ability is very influential on students' thinking skills, especially in solving high-level problems [2]. When students have higher order thinking skills, they usually have the ability to solve problems with various alternatives through creative and flexible analysis and reasoning. Students are not only fixated on formulas that have been standardized. Low number sense ability can have a negative impact on students' numeracy skills. One of the reasons is that when students do not understand the basics of numeracy, they tend not to be enthusiastic in learning, have low motivation, and are not happy with learning related to numbers. Students with high numeracy skills can see problems become simpler and are able to find problems better [3]. Not only in learning mathematics but also in solving problems of everyday life. Moreover, in the era of digitalization which is dense with information, everyone is required to have numeracy skills to understand information quickly.

Numeration is also one of the provisions of students in facing AKM (minimum competency assessment). This assessment is used to measure the achievement of student learning outcomes in the cognitive domain, one of which is the numeracy aspect. AKM is designed to obtain information related to the level of student competence. One of the goals is as a basis for teachers in developing appropriate learning strategies to improve student learning outcomes. Numeration is one of the indicators that is assessed to see the achievement of students' minimum abilities. The assessed aspects of this numeration relate to geometric and measurement numbers, algebra, data and uncertainty [4]. The numbers tested in the AKM require high-level thinking skills, reading comprehension and being able to solve complex



problems into simpler ones. The demands that must be met in participating in AKM are not easy. Students are required to have high numeracy skills. The problem is that in the midst of a prolonged pandemic, can numeracy learning be maximized? Starting from this, it is necessary to conduct a survey related to students' basic numeracy skills. This research is very useful to see the readiness of students in facing AKM and develop appropriate strategies in improving students' basic numeracy skills.

## 2. Literatur Review

### 2.1 Basic numeration

Numeration is one of the six basic literacies agreed upon by the World Economic Forum in 2015, which includes literacy, numeracy, scientific literacy, digital literacy, financial literacy, cultural literacy and civic literacy [5]. Through the national literacy movement, the government seeks to foster a culture of public literacy, one of which is numeracy. Numeration itself is the knowledge and skills that a person has related to numbers and basic mathematical symbols used to solve everyday problems. Numeration is also related to a person's ability to analyze data presented in the form of tables, graphs and charts. In addition, numeracy is also a person's ability to interpret, predict and make decisions. Numeration and mathematics are interrelated and cannot be separated in everyday life [6]. The numeracy aspect consists of numeration relations, counting and arithmetic. Numerical relations are related to a person's ability to distinguish the quantity of an object. Arithmetic is the ability to perform basic mathematical operations in the form of addition and subtraction. Counting relates to the ability to identify the number of objects and count verbally. In addition to these three aspects, there are other opinions that mention four aspects of literacy, namely numbers, measurement and geometry, algebra and uncertainty. The development of numeracy knowledge can be passed through several stages. Especially in elementary school, especially in the early grades, numeracy skills develop towards abstract numeracy knowledge. Students learn mathematical symbols and language and continue to progress to the very end. The teacher has a very important role in instilling the concept of numeracy, so that students can understand numeration and can relate it to everyday life.

### 2.2 Learning problems in the pandemic era

Learning in the pandemic era is synonymous with distance learning and learning from home. This learning model has many obstacles. Even based on a study of learning situations during the pandemic it has caused learning loss [7]. Similar research also discusses the many problems faced during distance learning in the pandemic era [8]. Various problems found in learning in the pandemic era have threatened to decrease the quality of learning. The failure of the learning process in the pandemic era can threaten the decline in students' basic literacy and numeracy mastery [9].

## 3. Method

This research is a quantitative research with a descriptive approach [10]. The research subjects were 110 students. The research location is at SDN Lingkok Lima. This research was conducted to determine the level of students' basic numeracy skills. The main data collection uses surveys, while supporting data is obtained through interviews. In collecting data, researchers were assisted by teachers and field assistants. Before collecting data, the researcher arranged the instruments to be used in the study. The instrument used is a test. There are two kinds of tests used to measure students' numeracy skills. The first test is to read the numbers. In reading numbers, students can be said to have passed if they are able to name the number and its place value (units, tens, thousands, etc.). The second test is the basic arithmetic ability test. In this test, students are presented with various forms of basic operations from the single-digit level to the four-digit level. The basic arithmetic operations tested are addition, subtraction, multiplication and division. Data were analyzed using descriptive statistics. Students' ability levels are divided into five categories, namely beginner level if they are not familiar with numbers at all, level one if



their maximum ability is only able to mention one-digit numbers, level two if their maximum ability is only able to mention two-digit numbers, level three if their maximum ability is only able to mention numbers. three-digit numbers, and level four if the maximum ability is only able to mention four-digit numbers. After the number reading test was carried out, it was then tested with basic arithmetic skills. After the data is collected, students are grouped according to their level of ability. The following is a rubric for grouping students' numeracy abilities based on ability levels:

**Table 1. Data Collection Rubric**

No	Name	Gender	Level							
			<i>(Write down the Assessment Date)</i>							
			Beginner	1	2	3	4			

#### 4. Results and Discussion

##### 4.1 Student's numeracy ability level data

The level of students' numeracy skills is obtained through a number reading test and place value determination. In reading numbers there are several rules that are set. First, the number reading test can be started from any level. Second, if a student gets four points or more wrong, then he is lowered in level, then tested again until it is found where the level of maximum ability he has. If the student can read the numbers correctly then he is raised to a level, then tested again until the maximum limit of his ability is found. The highest achievable level is a four-digit level with a place value of thousands. Students can be categorized as reaching the level of basic numeracy skills if they are at level four and are able to work on basic arithmetic operations. The following shows the level of students' numeracy skills based on the number reading test that has been carried out.

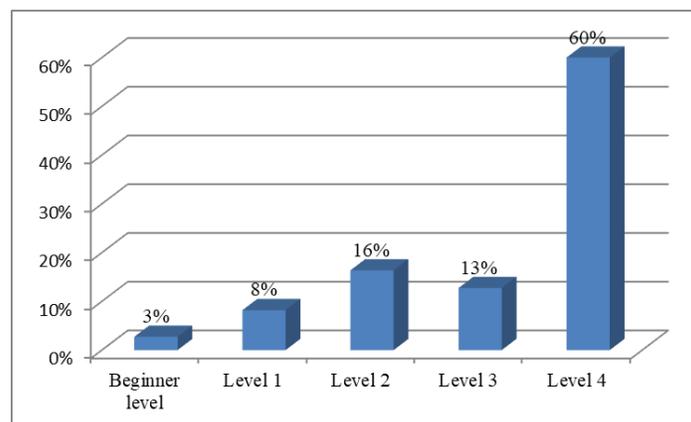


Figure 1. Students' basic numeracy level

The results of the number reading test can be seen in Figure 1. Based on the figure, it can be seen that most of the students are at level 4, which is 60% or as many as 66 of 110 students. Students who are

at level 3 as many as 13% or 14 students. Students who enter level 2 are 16% or 18 students. For students who enter level 1 as much as 8% and 3% beginner level. Even though 60% of students have been at level 4, it does not mean that it is quite encouraging, because there are still 40% of students who have not entered level 4 or have not met the minimum level of basic numeracy skills. This shows that there are still many students who have not completed basic numeracy.

There is a surprising finding, namely that there are 6th grade students who are still at level 3 with a total of 2 students. Ideally, class VI students are at level 4. Better results are achieved by class V students, where all students are already at level 4. For class III and class IV who are still at level 3 as many as 5 students. Students who enter the beginner group are only found in class II with a total of 2 students, in fact students in class I are already at level 1 or can recognize single-digit numbers. It was also found that the first grade students who were at level 2 were 12 students, while the second grade students who were at this level were 6 students. It was even found that the second grade students were still at the 1-digit level. For early grade students, if they are still at the beginner level, it is understandable because they are still at the stage of recognizing numbers, but if they are already in class II but do not know numbers, they should be wary. Especially if his abilities lag far behind his classmates.

#### 4.2. Data on students' basic arithmetic operations ability

Basic arithmetic operations ability data was obtained through a basic arithmetic ability test which included addition, subtraction, multiplication and division. Students are presented with four kinds of basic arithmetic tests according to their level of ability. Students can do arithmetic operations from the most difficult (division) to the easiest (addition). If students have been able to work on division problems, there is no need for multiplication, subtraction and addition tests. The assumption is that if students are able to work on multiplication problems, they have been able to work on arithmetic operations at the lower level. In the following, the results of the students' basic arithmetic operations test can be presented.

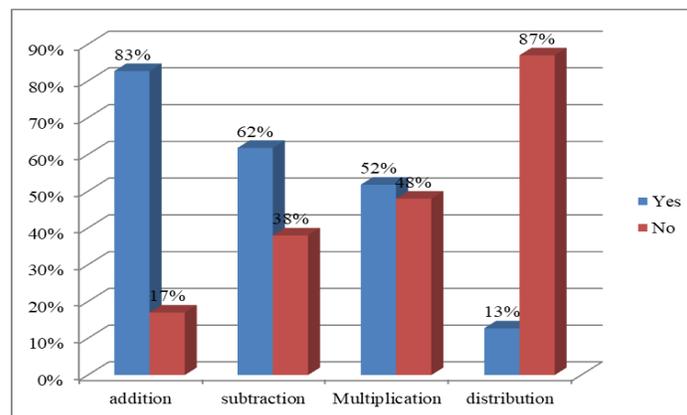


Figure 2. Ability of basic arithmetic operations

The results of the basic arithmetic ability test can be seen in Figure 2. The blue bar chart shows the number of students who are able to perform basic arithmetic at their level, while the red color shows students who are unable to perform basic arithmetic operations. Based on the figure, it can be seen that the number of students who are able to perform basic arithmetic operations is 83% or as many as 91 out of 110 students. The number of students who are able to do basic arithmetic operations is 62% or as many as 68 of 110 students. The number of students who are able to do basic multiplication operations is 52% or 57 of 110 students. The number of students who are able to do basic multiplication operations based on these data is only 13% or only 14 of the 110 students tested. The data that has been submitted shows that

only very few students are able to perform basic arithmetic operations. One of the teachers explained that students could not do the basic arithmetic of division on the grounds that they had not been taught, because the basic numeracy test was conducted at the beginning of the school year.

The data above is really ironic, moreover, there are many sixth grade students who are not able to do arithmetic and division operations. The number of students in class VI is 19 students. Of these, only 2 students were able to work on the basic arithmetic operations of division. This is inversely proportional to class V, with a total of 14 students, all of whom have been able to do the basic arithmetic operations of division. This data is quite surprising considering that grade VI is the highest grade in elementary school, it should get better results than grades below it. Multiplication counting operations also become a serious problem for students. Most of the fourth grade students have not been able to do basic multiplication arithmetic operations. Students in this class are only able to perform arithmetic operations of addition and subtraction. The maximum ability that can be achieved by class III students is to add arithmetic operations, while most of class I and II have not been able to perform basic arithmetic operations. There are only two students in class II who are able to perform addition arithmetic operations, the rest are new to numbers.

The numeracy ability test that has been carried out is in order to determine the students' initial numeracy abilities in the new school year. By knowing the initial ability of numeracy the teacher can design the right solution in solving the problem [11]. Based on the numeracy ability test that has been delivered, the teacher should make efforts to boost students' numeracy skills. One solution that can be done by the teacher is to apply learning based on the level of student ability. In level-based learning, students no longer study with their classmates, but learn according to their level of ability [12]. Through this method, students with diverse abilities can learn at the right level. Research has proven the effectiveness of applying this model in improving students' numeracy skills [13]. This needs to be done considering that each student has different abilities in numeracy [14]. Therefore, every student should be able to learn according to his ability. Especially in learning in the pandemic era with the threat of learning loss. Based on several previous studies, students' motivation to learn mathematics during the pandemic decreased [15]. The implication is lowering students' mathematics learning outcomes during the pandemic.

## 5. Conclusion

Based on the results and discussion, it can be seen that students' numeracy skills during the pandemic are still low. Indicators of low numeracy skills can be seen from the number of students who are not able to read four-digit numbers, have not been able to determine place values and have not been able to do basic arithmetic operations. The number of students who have not been able to determine place values and read four-digit numbers is 40%. Most of the students still have difficulty in counting multiplication operations with a total of 48% and arithmetic division operations of 87%.

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