International Journal of Multi Discipline Science
Vol. 6 No. 1 (February 2023)
e-ISSN: 2615-1707. Page: 29-37

Students' Mathematical Numeracy Ability in Grade IV in terms of Learning Interest on Squared Numbers

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Keywords:
Mathematical Numeracy Ability; Interest in Learning; Squared Numbers

ABSTRACT
This study aims to (1) describe students' mathematical numeracy ability; (2) describe the level of students' numeracy ability in terms of learning interest and (3) describe the factors that influence students' mathematical numeracy ability. This research method was qualitative descriptive research. The research subjects were 45 grade IV students at SD Negeri 84 Singkawang. Data collection techniques in this study were based on questionnaires, measurements and interviews. The data analysis technique used Miles and Huberman Model, namely data reduction, data presentation, and drawing conclusions. The results showed that (1) students' mathematical numeracy ability in solving problems on flat material had an average of 39.58 which was in the medium category, (2) students' mathematical numeracy ability in terms of learning interest had an average of 67.75 which was in the high category (a) students' mathematical numeracy ability in terms of high interest in learning were able to carry out all indicators very well and had an average of 38.64; (b) students' mathematical numeracy ability in terms of medium interest in learning was able to carry out all indicators well and had an average of 39; and (c) students' mathematical numeracy ability in terms of low interest in learning; students were able to solve problems well and had an average of 44.33, (3) Students' mathematical numerical ability influenced by internal factors, namely, the ability to remember, study habits, and interest in learning, while for external factors, namely family, community, and friends environments.

INTRODUCTION

In learning in elementary school there are five main subjects listed in the curriculum in Indonesia and are always given at every level of education, one of which is mathematics. According to Septiani (2016), mathematics education at the elementary education level has an important role in the student education process. The importance of mastering mathematics can be seen in RI Law no. 20 of 2003

concerning National Education System Article 37 emphasized that mathematics is a compulsory subject for students at the primary and secondary education levels.

Mathematics is a subject that is considered very difficult to understand among all subjects. Even though mathematics subjects need to be given to all students as a basis for improving their ability to think logically, analytically, systematically, critically and workability (Ministry of National Education, 2006). Realizing the importance of mathematics, mathematics is felt necessary to be understood and mastered by all levels of society. According to the NCTM (Kusumawardani et al., 2018) Curriculum standard, the main goal of learning mathematics should be to encourage students' belief that mathematics makes sense, to increase students' sensitivity to the power of mathematics, as well as confidence in students' ability to think. The demands of students' abilities in mathematics are not just having the ability to reason logically and critically, but also the ability to count in answering math questions. Mathematics is important because it is close to our lives and is useful in everyday life. Therefore mathematics should be mastered by every student.

Students' mathematical ability in performing numeracy operations is one of the competency standards that must be mastered by elementary school students. In grade IV students perform numeracy operations addition and subtraction should have mastered proficiently. This is because mastery of this material is a prerequisite provision for studying further numeracy material. According to Muchtar (Rahayu, 2016), several numeracy operations can be applied to numbers, these operations are (1) addition; (2) reduction; (3) multiplication; (4) division. These operations have a very close relationship so the understanding of concepts and ability in performing one numeracy operation will affect the understanding of concepts and ability of other numeracy operations.

According to Al Mustafa (2018), students with high or fast numeracy ability are very helpful in the process of solving math problems, and vice versa, students with slow numeracy ability tend to be slow in solving math problems. Therefore, the importance of students' numeracy ability is the main focus at every level (class), in fact, this ability should have been instilled before entering school.

Mathematical numerical ability is the ability of a person who is used to formulating mathematical problems so that they can be solved by ordinary calculation or numerical operations, namely addition, subtraction, multiplication, and division. Rahayu (2016) argued that the ability to count mathematically is an ability possessed by every child to know the number or amount of an object, which is done by connecting the concept of numbers with objects (one-to-one correspondence).

Students who have mastered number numeracy operations will be able to perform other numeracy operations such as mixed numeracy operations, fractions, and word problems. However, in reality, students' mathematical numeracy abilities are still relatively low and the results are not appropriate. It is shown from the results of Syamsuddin's research (2018) which stated that students' mathematical numeracy abilities are included in the low category, as seen from the way they solve problems with calculations that do not match the average of only 38.6%. So students' mathematical numeracy ability is still relatively low.

Based on the results of the pre-research conducted by the writer at SD Negeri 84 Singkawang, this was done by giving test questions and interviews. The test results showed that the students' numeracy abilities were low. Students' low mathematic ability is known from the results of tests conducted by giving 3 questions based on 3 indicators taken in this study, there are 3 mathematical numeracy abilities as follows: (1) simplify fractions into the simplest fractions; (2) able to change multiplication and addition numeracy operations into simple fractions; (3) be able to determine the final result of the division numeracy operation.

The pre-research results show that from the results of student work, it is known that students have low numeracy abilities in the questions given so what happens is that students miscalculate fractional

operations in the form of the questions requested. So that students still do the wrong work properly and correctly. Based on the results of the pre-research, it can be described according to the indicators of the questions which show that: (1) there were 6 students (26.1%) who could only answer and 17 students (73.9%) who could not do the calculations correctly in simplifying fractions; (2) there were 7 students (30.43%) who could only answer and 16 students (69.57%) who could not calculate the multiplication and addition operations of fractions into simple fractions; (3) there was 1 student (4.35%) who could only answer and 22 students (95.65%) who could not calculate the division operation carefully. From the students' answers, the writer indicates that the mathematical numerical ability of the fourth-grade students of SD Negeri 84 Singkawang is still low.

From the results of interviews conducted with Singkawang 84 Public Elementary School teachers, it was shown that students' mathematical numerical abilities were still not optimal. Information was obtained that most students experienced difficulties when dealing with number operations questions, even though these students already knew the material they had learned. The problems experienced by these students were due to their lack of thorough understanding of calculations, students only focused on memorization while mathematics itself was not material to be memorized, but required the ability to hone reasoning. In addition, most of the students were less active in class as indicated by several things, namely: students were less active in asking questions to the teacher, less interacting with other students, students had difficulty expressing opinions, and the lack of interest and attention of students towards learning activities. According to Redjeki (2012), the factors that influence students' mathematical numeracy abilities are the presence of internal factors which include: attitudes, talents, motivation, and interests. And external factors include family factors, school environment, and community environment. One that affects students' mathematical numeracy ability is interesting. Therefore interest plays an important role in the success of student learning and has a big impact on student desires.

Interest in learning is a driving force for students in learning based on the interest or pleasure and desire of students to learn. Kpolovie et al. (2014) revealed that interest in learning is the tendency of the soul to get something because these students feel interesting things in learning, which are generally characterized by feelings of pleasure.

Students who are interested in learning activities will try harder than students who are less interested in learning. According to Fahinu (Pranajaya, 2020) stated that someone who has an interest in learning can regulate his motivation, not only external motivators but also internal motivators and can pursue long-term assignments until the task is completed.

Chrissanti and Widjajanti (2015) said that students' interest in learning mathematics will determine the responses that will be given by these students to matters related to learning mathematics. Students who have a high interest in learning mathematics will tend to give a positive response to learning mathematics. They will tend to have the initiative and willingness to learn mathematics. It is different with students who are less interested in learning mathematics, they will tend to give a negative response to learning mathematics.

The results of previous research regarding mathematical numeracy ability conducted by Umamah, (2020) yielded the result that the low level of students' numeracy ability in tiered distribution based on student test scores was known to be almost 60.6% of the 33 students who had not completed. This is in line with research conducted by Syamsuddin et al. (2018) which yielded results that students' mathematical numeracy ability was in a low category.

The square number in finding the area of squares and triangles is one of the materials in flat shapes in class IV in the elementary school curriculum and is one of the materials tested in the implementation of the National Examination (UN) at the elementary level. The material for square numbers is related to everyday life, for example, questions in the form of stories to find the sides of the area of squares

and triangles as well as pictures. However, most students experience difficulties in solving problems in the form of stories. Walle (2018) said the results of the National Assessment of Educational Progress (NAEP) consistently showed that students had very weak abilities towards the concept of fractions. Deficiencies in this ability then result in difficulties in calculating numbers, the concept of decimals and percents, the use of numbers in measurement, the concepts of ratios and proportions, and difficulties in solving material numbers presented in the form of word problems. Based on the problems that have been described in general, this research aims to (1) describe students' mathematical numeracy ability; (2) describe the level of students' numeracy ability in terms of learning interest and (3) describe the factors that influence students' mathematical numeracy ability.

METHOD

The type of research used in this research was descriptive research with a qualitative approach. A descriptive research method is the form of the most basic research in the form of describing or describing something scientific in nature or following the actual situation without being engineered (Sukmadinata, 2011).

The research subjects were 45 grade IV students at SD Negeri 84 Singkawang. The technique for taking the subject of this research was means of purposive sampling which was selected based on the objectives to be achieved, namely to describe the level of mathematical numeracy ability in terms of students' learning interests. The object of this research was students' mathematical numerical ability in terms of learning interest. Mathematical numeracy ability data is classified into three categories namely high, medium and low while interest in learning data will be classified into three categories namely high, medium and low according to the level of student score categories student.

The indicator of the ability to mathematical numeracy on squared numbers in this study was being able to solve problems, be able to make questions and their solutions, and explain steps or provide solutions to problem-solving. Indicators of interest in learning in this study used indicators of interest, namely feelings of pleasure, student involvement, interest, and student attention.

The location of this research was at SD Negeri 84 Singkawang, having its address at Jl. Trisula, Naram Village, North Singkawang District, Singkawang City, West Kalimantan. This research was conducted in the 2021/222 academic year, even semester.

Data collection techniques used in this research were questionnaires, measurements, and interviews. The questionnaire technique in this study was used to determine students' interest in learning. The interest in learning questionnaire contained a list of statements related to students' interest in learning according to the indicators of interest in learning. The measurement technique used to measure students' mathematical numerical abilities on squared numbers was a test using scoring, namely by giving students a score on each item answered correctly following the scoring guideline and answer key. The interview technique in this study was used to describe the factors that led to students' lack of mathematical numeracy ability in squared numbers with answers when interviewed. The interview used in this research was semi-structured. Semi-structured interview guidelines are detailed interview guidelines. In this study, content validity was sought first so that the interview guide was feasible to use.

The data analysis technique used in this research was technique interactive analysis developed by Miles and Huberman (Sugiyono, 2016). The interactive analysis technique consisted of three components namely data reduction, data presentation, and drawing conclusions.

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RESULTS AND DISCUSSION

Students' Mathematical Numeracy Ability

After analyzing the results of the mathematical numeracy test results as seen from the overall total score of the three indicators of students' mathematical numeracy ability, data was obtained on how students' mathematical numeracy abilities in class IV in each category. The number of students in each category of mathematical numeracy ability is presented in Table 1.

Table 1
Mathematical Numeracy Ability in Each Category

Category	Many Student	Total Test Scores	The Average	Category
Low	16	220.33	13.77	**Medium**
Medium	14	583.33	41.67	
High	10	925	92.5	
Total	**40**	**1728.33**	**43.21**	

Based on Table 1, the mathematical numeracy abilities in each of these categories can be seen as the students' mathematical numeracy abilities are mostly in the low category, totalling 16 people. Meanwhile, students' mathematical numeracy abilities were at least in the high category, amounting to 12 students. This means that the average mathematical numeracy ability of fourth-grade students at SDN 84 Singkawang is in the medium category. This matter agrees with Affandi (2018) that the level of students' mathematical numeracy ability is the medium category.

It can be seen from the results of the analysis of students' mathematical arithmetic abilities as follows: (1) able to solve questions, the level of students' mathematical arithmetic abilities in solving questions is medium, this can be seen by students being able to write down what is known and asked about the problem correctly; (2) being able to make questions and solving them, the level of students' mathematical numeracy ability in making and solving questions is medium, this can be seen by students being able to write down what is known and asked about the problem correctly; and (3) explaining the steps or providing solutions to problem-solving, the level of students' mathematical numeracy abilities in solving problems is medium, this can be seen by students being able to write down what is known and asked about the problem correctly. Students' mathematical numeracy abilities on flat shape material in class IV SDN 84 Singkawang with a total of 40 students obtained an average overall mathematical numeracy ability of 43.21 which is in the medium category with a description that students can do calculations but are not careful in counting, students can make and solve what is known and asked from the problem quite correctly, and students are not good at explaining the steps towards solving the problem.

Data Analysis of Students' Mathematical Numeracy Ability in Terms of Learning Interest

Analyzing the results of the questionnaire on student interest in learning obtained data on the level of student interest in learning which was grouped based on three categories namely low, medium and high. Students learning interest in each category is briefly presented in Table 2.

Table 2
Interest in Learning Each Category

Category	Many students	Questionnaire value	The average	Category
Low	6	135	22.5	**High**
Medium	12	675	56.25	
High	22	1895	86.14	
Total	**40**	**2705**	**67.63**	

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Based on Table 2, the interest in learning for each of these categories showed that most students' interest in learning was in the high category and at least was in a low category. This means that the average student interest in mathematics in class IV SDN 84 Singkawang is in the high category. This can be seen from the percentage of student interest analysis table. Grade IV students have more interest in learning mathematics. Each indicator has an average with a high category, whether it's feeling happy, interested in learning, showing attention while studying and involvement in learning.

Furthermore, analyzing the results of students' mathematical numeracy tests in terms of students' learning interest shows that students with high learning interest categories have an average mathematical numeracy ability in the medium category, students with medium learning interest categories have an average mathematical numeracy ability of students in the medium category, and students with a low learning interest category have an average mathematical ability of students in the medium category.

The results of students' mathematical numeracy abilities in terms of learning interest can be briefly seen in Table 3. Based on Table 3, it is found that each category of interest in learning has the same level of mathematical numeracy ability. Meanwhile, high, medium and low learning interests have low, medium and high mathematical numeracy abilities.

Table 3
Students' Mathematical Numeracy Ability in terms of Learning Interest

Category of Students' Learning Interests	Category of Mathematical Numeracy Ability Test	Total Student	Total Test Scores	Test Average	Category Average Test
High	Low	8	119	14.89	**Medium**
	Medium	9	348	38.67	
	High	5	383	76.6	
Total		**22**	**850**	**38.64**	
Medium	Low	6	85	14.17	**Medium**
	Medium	3	150	50	
	High	3	233	77.67	
Total		**12**	**468**	**39**	
Low	Low	2	17	8.5	**Medium**
	Medium	2	83	41.5	
	High	2	166	83	
Total		**6**	**266**	**44.33**	

a. Students' Mathematical Numeracy Ability in Terms of High Learning Interest

The number of students with mathematical numeracy skills who are in the category of high learning interest totalled 22 people. Students' mathematical numeracy ability in terms of high learning interest in flat wake material in class IV SDN 84 Singkawang has an average of 38.64 which is in the medium category with a description that students can do calculations but are not careful in counting, students can make and solve what is known and asked from the question quite correctly, and students are not good at explaining the steps towards solving the problem.

b. Students' Mathematical Numeracy Ability in Terms of Medium Learning Interest

The number of students' mathematical numeracy skills who are in the category of medium learning interest is 12 people. Students' mathematical arithmetic abilities in terms of medium learning interest in flat shape material in class IV SDN 84 Singkawang has an average of 39 which is in the medium category with a description that students can do calculations but are not careful in counting, students

can make and complete what known and asked about the question quite correctly, and students were not good at explaining the steps towards solving the problem.

c. Students' Mathematical Numeracy Ability in Terms of Low Learning Interest

The number of students' mathematical numeracy ability who are in the category of low learning interest is 6 people. Students' mathematical numeracy abilities in terms of low learning interest in flat wake material in class IV SDN 84 Singkawang have an average of 44.33 which is in the medium category with a description that students can do calculations but are not careful in counting, students can make and solve what is known and asked from the question quite correctly, and students are not good at explaining the steps towards solving the problem.

Factors Affecting Students' Mathematical Numeracy Ability

According to Syah (Pranajaya, 2020), the factors that influence student learning interest are internal factors (in students) and external factors (environment and surroundings).

a. Factors Affecting Students' Mathematical Numeracy Ability

Table 4
Factors Affecting Students' Mathematical Numeracy Ability

No	Factors that Influence Students' Mathematical Numeracy Ability	Interview Result	Percentage
1	Internal factors	There is the ability to remember, student study habits, student interest in learning, namely student interest that is strong in wanting to know more about the material or there is no desire for students to study mathematics because they do not like the subject of mathematics, student concentration while studying, self-confidence, and enthusiasm for student learning when class.	55%
2	Ekternal factors	Factors from the family where students study at home with help from the family at home, factors from the child's community also interact with the environment in the community, and at school where learning in class is less attractive (fun).	45%
Total			**100%**

This is following the research conducted by Syah (Pranajaya, 2020), the factors that influence student learning interest when carrying out learning activities when the researcher conducts an interview test on one of the students there is the same thing that is felt by students so that there is one factor which affects students in the learning process in solving the problems given. From the results of interviews with students in the high, medium and low categories of mathematical numeracy ability, it was found that the majority of students in mathematical numeracy ability had 55% of internal factors that influenced mathematical numeracy ability where these factors were the ability to remember, students' study habits, interest student learning, namely students' strong interest in wanting to know more about the material and students not wanting to study mathematics because they do not like the math lesson, student concentration while studying, self-confidence, and student learning enthusiasm in class. While there are 45% of external factors that affect students' mathematical numeracy abilities where these

factors are factors from families where students study at home with help from families who are at home, factors from the community, and schools.

CONCLUSIONS

Based on the results of the study, (1) students' mathematical numeracy ability in solving problems on flat material has an average of 39.58 which is in the medium category, (2) students' mathematical numeracy ability in terms of learning interest in flat shape material, namely Students' interest in learning mathematics has an average of 67.75 which is in the high category (a) students' mathematical arithmetic abilities in terms of high learning interest can carry out all indicators very well and have an average of 38.64; (b) students' mathematical numeracy ability in terms of learning interest while students can carry out all indicators well and have an average of 39; and (c) students' mathematical numeracy ability in terms of low interest in learning can carry out all indicators quite well and has an average of 44.33.

Mathematical numeracy ability in the high, medium and low categories was obtained from the majority of students in mathematical arithmetic ability that there were 55% internal factors that influenced mathematical arithmetic ability where these factors were the ability to remember, student study habits, student interest in learning namely student interest strong desire to know more about the material and no students' desire to study mathematics because they do not like the subject of mathematics, student concentration while studying, self-confidence, and student enthusiasm for learning in class. While there are 45% of external factors that affect students' mathematical numeracy abilities where these factors are factors from families where students study at home with help from families who are at home, factors from the community, and at schools where learning in classes is less attractive (fun).

Based on the conclusions above, there are several suggestions that researchers can convey in this study as follows: (1) for students, in this study students are expected to work more on questions with various variations to make it easier to work on various questions, besides that it is hoped that students will be more active in learning with high enthusiasm and interest in learning in mathematics and other subjects; (2) for class teachers, in this study the class teacher is expected not only to give tests in the form of questions that only focus on one way of solving and one answer, it is hoped that class teachers will create a learning atmosphere that can increase students' interest in learning so that they can support students in learning because in general students are weak in understanding mathematical problems. In addition, it is also hoped that the class teacher can induce steps in students' numeracy skills, especially at the stage of explaining the steps or providing solutions to problem-solving because this stage is very important in students' mathematical numeracy abilities; (3) for the principal, in this study it is hoped that the principal can increase cooperation with parents of students in increasing student interest in learning so that student's interest in learning is encouraged.

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