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Numeracy Ability of Students at SDN 3 Kebonagung Sawahan District Nganjuk through 3D Learning Media based on Discovery Learning

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ABSTRACT
The purpose of this study is to ascertain whether using 3D learning materials based on discovery learning has improved the numeracy abilities of students at SDN 03 Kebonagung, Sawahan District, Nganjuk Regency. Students must possess numeracy skills in order to meet the challenges of the twenty-first century, particularly those related to digital change. Methods of quantitative description are used in this study. Using a purposive sample approach, class IV students and teachers at SDN 03 Kebonagung served as the research subjects. Questionnaires, documentation, and interview tools are used in the data collection process. Quantitative descriptive data analysis was employed for the data analysis in this study. The findings of the study demonstrated that the use of 3D learning materials based on discovery learning has been shown to improve class IV students' reading, writing, speaking, and numeracy skills at SDN 03 Kebonagung. In the Medium category, the average percentage of numeracy ability attained was 75%. The first and second stages of AKM implementation have an N-gain score of 0.56, placing them in the Medium category. It is believed that this study would help students become proficient in the interpretation of problems involving multiplication and division operations, ratios and scales, and whole numbers.

***Keywords**: Numeracy Skill, 3D Learning Media, Discovery Learning*

INTRODUCTION
The development of science and technology today has an impact on the world of education in Indonesia, one of which is the development of numeracy activities. Numeracy can also be referred to as "numeracy literacy". Numeracy is a skill needed by students because it relates to the application of numbers to work effectively on mathematics in real life (Mariamah et al., 2021). Numeracy requires students to be creative in utilizing ideas to determine mathematical topics and domains (Alfarisi et al., 2023). Therefore, Numeracy refers to an individual's ability to use their mathematical knowledge to solve problems from various life contexts.

The Australian Association of Mathematics Teachers (AAMT) provides a formal definition regarding numeracy, namely that numeracy is a fundamental component in learning that underlies the concept of mathematical skills from all disciplines (numerical, spatial, graphic, statistics and algebra) as well as thinking and strategies in the context of everyday life (Fitriana & Sukarto, 2022). The National Literacy Movement (GLN) Team and the Ministry of Education and Culture of the Republic of Indonesia define numeracy literacy as the knowledge and skills to use various kinds of numbers and symbols related to basic mathematics to solve practical problems in various contexts of daily life (Kementerian Pendidikan dan Kebudayaan, 2020). Numeracy literacy is the ability to solve practical problems in everyday life by using various numbers and symbols related to basic mathematics as well as being able to analyze the information presented in different forms and interpret the results of such analysis to predict and make decisions (Mahmud & Pratiwi, 2019). Numeracy literacy as one of the aspects evaluated in the Minimum Competency Assessment (AKM) is an important note to pay attention to its implementation in the learning process. This is emphasized by (Kemendikbud, 2020), numeracy as the ability to think using

concepts, procedures, facts and mathematical tools to solve everyday problems in various types of contexts that are relevant for individuals as Indonesian citizens and world citizens.

Numeracy ability is part of mathematics, based on the coverage in the 2013 Curriculum, the numeracy component consists of: (a) Numbers, including the ability to estimate and calculate with decimal whole numbers, percent, fractions and comparisons, (b) Numbers and algebra, including the ability to remember and utilizing patterns and relationships, (c) Geometry and Measurement, including the ability to utilize spatial reasoning and measurement, (d) Data processing, including the ability to explain the content of statistical information (Data Processing) (Han et al., 2017).

The state of Indonesia, based on data, shows that elementary school (SD) students still have low reading (literacy) and numeracy skills (Amenia et al., 2020). 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.

Based on the results of interviews and observations at SDN 03 Kebonagung, several things were obtained, including: 1) the implementation of numeracy activities for class IV students only used basic textbooks or thematic books (Sari et al., 2022), 2) most students preferred to be good listeners. both during learning (Pamungkas et al., 2015), 3) library infrastructure in schools is still minimal and there is a lack of variety of books available, 4) students still have difficulty applying the mathematical knowledge they learn to solve problems that occur (Maulidina & Hartatik, 2019) and 5) teachers are less skilled in providing mathematical explanations to students and do not use interesting learning media.

In an effort to overcome this problem, a pre-test activity was carried out first to determine students' abilities through AKM (minimum competency assessment) activities as material for further evaluation. In the pre-test activity, data was obtained from class IV students at SDN 3 Kebonagung Sawahan Nganjuk who were declared complete and were able to answer questions correctly with a completion percentage of 100% (category 1 & 3), while all students were declared incomplete with a percentage of 0% (category 2). Through this data, it can be concluded that class IV students at SDN 3 Kebonagung Sawahan Nganjuk still have low numeracy abilities due to their lack of ability to analyze mathematically. Apart from that, students' learning resources are inadequate in each class and there is a lack of learning media used by teachers in teaching. The role of teachers in seeking to improve and enhance students' numeracy skills is very crucial (Mariamah et al., 2021; Suciyati et al., 2022; Udil & Samo, 2023). Therefore, there is a need for learning alternatives to support students' numeracy skills so that students are more enthusiastic about learning, one of which is the use of appropriate discovery learning-based 3D learning media so that students can be motivated in learning.

Based on this, the researchers conducted this research with the aim of finding out the numeracy abilities of students at SDN 3 Kebonagung Sawahan Nganjuk through 3D learning media based on discovery learning. This is done so that students have good numeracy skills and develop the ability to understand and represent whole numbers, ratios and algebra material.

METHOD

The research method used is a descriptive method with a quantitative approach to the problem studied by the author, namely knowing the numeracy abilities of students at SDN 03 Kebonagung, Sawahan District, Nganjuk Regency. The type of research used is quantitative research. The focus of this research is not to provide special treatment to the research sample so it does not require a control class or experimental class.

The data collection technique in this research is by giving tests, and questionnaires, and observing the learning process in class. The data collected comes from a sample with the aim of getting an overview of certain aspects or characteristics of the population from which the sample comes. The population in this study were class IV students at SDN 03 Kebonagung in the odd semester of the 2022/2023 academic year. The sampling technique uses a purposive sampling method. The research sample was fourth-grade students at SDN 03 Kebonagung.

The data obtained will be processed and analyzed. The final results of all test instruments are in the form of percentages overall and for each indicator. (Purwanto, 2008) states that the final score is categorized based on the level of numeracy ability which consists of very high, high, medium, low, and very low. Correct answers are given a score of 1 (one) and incorrect or unanswered answers are given a

score of 0 (zero). The student's numeracy ability score is calculated using the percentage calculation between the correct score and the maximum score. The percentage of scores obtained by students is grouped into very high, high, medium, low, and very low criteria as in Table 1.

Table 1 Criteria for assessing students' numeracy abilities

No	Category	Interval (%)
1	Very High	86-100
2	High	76-85
3	Medium	60-75
4	Low	55-59
5	Very Low	≤ 54

The N-gain score calculation in this study was obtained by comparing the first AKM (Minimum Competency Assessment) data and the second AKM using the formula below and adjusted to the criteria in Table 2.

N-gain Score = (Posttest score – Pretest score) / (Maximum score – Pretest score)

Table 2 Criteria for N-gain score

N-gain Score	Category
g > 0,7	High
0,3 ≤ g ≤ 0,7	Medium
G < 0,3	Low

RESULT AND DISCUSSION

Result

The results of the implementation of this research were obtained through activities to develop numeracy media in the SDN 3 Kebonagung environment, Sawahan District, Nganjuk Regency. Teachers together with students from the Teaching Campus Program (KM) Class 4 of 2022 collaborated in compiling and developing several learning media to improve students' numeracy skills. The results of the development of learning media based on discovery learning include: a) Snakes and Ladders Numeracy Media (Figure 1), b) posters of flat figures, prime numbers, and multiplication (Figure 2), and c) Operations Tracks Media (LitOp).

Numeracy snakes and ladders media is a learning media in the form of a banner designed like a snakes and ladders game. The way to use this media is like a game of snakes and ladders in general. The first step, students throw the dice, then move according to the dice number obtained. If students stop at the question box, then students are required to answer the multiplication questions (related to numeration) that the teacher/educator gives. The use of this media can give students a new atmosphere in learning, not get bored, and students can also learn while playing.

Numeracy learning using flat poster media is intended for students to introduce shapes and calculate their area. This poster media is made from materials that are easy to find, namely folded paper shaped like a square, parallelogram, circle, triangle, rectangle and rhombus. Below the flat shape, information about the area and perimeter is given so that through this poster it is hoped that students will be able to know the area and perimeter of the flat shape at any time.

Prime number posters are numeration media in learning which are made using Manila paper with prime numbers attached. Numeracy learning using prime number posters aims to introduce students to prime numbers. Apart from that, this poster also makes it easier for students to find the KPK when adding and subtracting fractions so that students can more easily remember prime numbers.

Multiplication posters are numeration media made using Manila paper. We attach manila paper with multiplications from 1 to 10. This media is intended for the lower classes to make it easier for them to memorize multiplications. Through this media, it is easier for students to memorize and understand basic multiplications.

This operating track media (LitOp) numeracy learning program uses used bottle caps and cardboard which are easy to find anywhere. How to use it is that students have to move the bottle cap containing the numbers in the direction of the trajectory. This operation track game is used to teach students in subtraction and addition. The aim of creating LitOp is to teach students to count in a fun and creative way.

Figure 1 Media Ular Tangga Numerasi

Figure 2 Poster Bangun Datar, Bilangan Prima, dan Perkalian Pembagian

Figure 3 Media Lintasan Operasi (LitOp)

Apart from the contextual learning-based learning media that has been created, the teachers and students of KM Batch 4 also designed the Corner Room which is used as a mini library for students to study and read various kinds of books including: textbooks, educational magazines, comics, cartoons and encyclopedias. . These various learning resources were obtained from educational donations by SDN 3 Kebonagung and cooperation assistance with the Nganjuk Regency Library and Archives Service.

Figure 4 Ruang Pojok Baca SDN 3 Kebonagung

The application of discovery learning-based learning media is carried out by KM Class 4 teachers and students in every lesson. This is carried out based on the results of the evaluation of the implementation of the first AKM (Minimum Competency Assessment). In the implementation of the second AKM, several things were obtained which are presented in Table 3 and the N-Gain Score was obtained at 0.56 in the medium category.

Table 3 Results of Student Numeracy Ability Assessment

No	Competency	Cognitive Level	AKM 1 Precentage	AKM 2 Precentage
1	Using ratios/scales to determine unknown values/numbers (simplification)	Ratio and Proportion	25%	100%
2	Understand whole numbers (maximum six digits)	Representation	50%	50%
3	Solve simple equations using multiplication/division operations only (in a child-friendly form)	Algebra	25%	75%
Average			33%	75%

Discussion

Based on Table 3, it shows that there was an increase in competencies Numbers 1 and 3 so that the average percentage obtained was 75% in the Medium category. The N-gain score in the implementation of the first stage of AKM and the second stage of AKM is 0.56 or in the Medium category. The results of these data show that varied learning through the use of discovery learning-based learning media can help improve students' numeracy skills. This is shown in particular by an increase in students' ability to understand whole numbers and be able to explain them (representation). Apart from that, enthusiastic student activity and high motivation in learning use several learning media based on discovery learning. Therefore, the use of 3-dimensional learning media based on discovery learning can help students develop numeracy skills.

Numeracy ability is one of the main tools in solving mathematical problems in everyday life. Numeracy ability is the ability to apply number concepts and arithmetic operation skills in daily life, for example, at home, work in community life, and the ability to explain information found around us (Han et al., 2017). This is supported by (Qasim & Awaludin, 2015) where numeracy skills in PISA (Program for International Student Assessment) focus on students' ability to analyze, provide reasons, and convey ideas effectively, formulate, solve, and interpret mathematical problems. in various forms and situations.

Numeracy Literacy is one of the aspects evaluated in the Minimum Competency Assessment (AKM) which refers to the good practice of international level assessment, such as the Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) (Iswara et al., 2022). The following is the PISA Numeracy Literacy Ability Indicator in Table 4 (Purwasih et al., 2018).

Table 4 PISA Numeracy Literacy Ability Indicator

Level	Indicator
1	Answer questions with known context and all relevant information from clear questions. Collecting information and carrying out ways of settlement in accordance with clear orders
2	Interpreting, recognizing situations and using formulas in solving problems
3	Carry out procedures well and select and implement simple problem-solving strategies. interpret and represent the situation
4	Work effectively with models in concrete but complex situations and represent different information and relate it to real situations
5	Work with models for complex situations and select and implement strategies in solving complex problems
6	Making generalizations and using mathematical reasoning in solving problems and communicating them

Indicators of numeracy ability include: (1) being able to use various kinds of numbers or

symbols related to basic mathematics in solving daily life problems, (2) being able to analyze information displayed in various forms, (3) interpreting analysis results to predict and make decisions (Han et al., 2017; Nurhayati et al., 2022).

(Evans et al., 2017) explains that there are 3 keys to supporting a literacy or numeracy environment, namely:

- the demands that the practices may make on the adult.
- the opportunities the practices may offer to the adult engaged in them.
- the supports / resources offered, or conversely the barriers existing (or put up) within these practices, and cultures more generally, that impede the adult's numerate development.

Apart from that, according to (Economics, 2023) there are recommendations for ways to manage learning so that students' numeracy abilities can grow and improve, namely 1) Adult learners are a diverse group whose goals, needs, strengths and weaknesses vary, dan 2) A holistic view of an individual's numeracy needs should include their use of numeracy skills outside of formal education settings.

Efforts to improve students' numeracy skills in several ways, one of which is through the use of 3D learning media based on discovery learning. This is based on several research results such as (Widodo et al., 2023) where the results of the development of 3-dimensional animation media developed by teachers are also very varied, interesting and can then be used in cross-subject numeracy learning, so that it can motivate students in learning because of the material. The teaching is presented in an interesting way. According to (Ma'rufah et al., 2023), PMRI-based multimedia mathematics learning uses a learning approach that emphasizes understanding the material so that it can be applied in real life contexts (realistic) so that the knowledge students gain is knowledge that is built and owned by themselves. This is supported by (Suttrisno et al., 2023) where Math Garden Media is also very interesting for students, which can help them develop their numeracy skills and make it easier for them to calculate multiplication and division procedures and (Bopo et al., 2023) where learning uses Smart board media has a big effect, namely students are more enthusiastic and motivated to study actively. Apart from that, according to (Fadiana et al., 2022) that one of the suggested learning models to be implemented to develop numeracy literacy skills is problem-based learning. Learning activities assisted by literacy and numeracy modules have an impact on increasing the average literacy and numeracy abilities of students (Hendrowati & Sunanto, 2021). Therefore, the application of 3-dimensional learning media can be an effective alternative in improving students' numeracy skills through an interactive and fun atmosphere that helps create a positive learning environment and builds students' curiosity.

CONCLUSION

The results of the research showed that there was an increase in students' numeracy skills after being given discovery learning-based 3D learning media in the form of a) Snakes and Ladders Numeration Media, b) posters of flat shapes, prime numbers, and multiplication, and c) Operations Trajectory Media (LitOp) obtained on average percentage of 75% in the Medium category. The N-gain score in the implementation of the first stage of AKM and the second stage of AKM is 0.56 or in the Medium category. The results of these data show that varied learning through the use of 3D learning media based on discovery learning can help improve students' numeracy skills. The role of teachers is also very important in improving students' numeracy skills through presenting interesting learning materials and media to foster students' interest as well as utilizing school library facilities to train students' abilities in exploring their understanding of whole numbers and algebra. the application of 3-dimensional learning media can be an effective alternative in improving students' numeracy skills through an interactive and fun atmosphere that helps create a positive learning environment and builds students' curiosity.

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