FULLPAPER
Published 31 Mei 2025

CLASS XI MATHEMATICS NUMERACY ABILITY PROFILE AT SMK NEGERI 3 TANJUNG PANDAN

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Abstract

This research aims to analyze the profile of the mathematical numeracy abilities of class XI students at SMK Negeri 3 Tanjung Pandan. Numeracy ability is an important basic competency for students in facing challenges in the world of work and everyday life. The method used in this research is a quantitative approach with a descriptive design, involving 100 students as samples. Data was collected through a numeracy ability test consisting of 20 multiple choice questions and 5 description questions. The results of the analysis show that the average student numeracy ability score is 68, with 25% of students getting a score above 75. This finding indicates that the majority of students still need to improve their ability in mathematical numeracy. Therefore, further efforts are needed from schools and teachers to improve students' numeracy skills through more effective learning methods.

Keywords: numeracy skills, mathematics, students, smk negeri 3 tanjung pandan, education, quantitative approach, descriptive analysis

1. Introduction

Mathematical numeracy ability is one of the basic competencies that is very important for students, especially at the secondary education level. This ability not only functions in an academic context, but also in everyday life, where individuals are expected to be able to use numbers and mathematical concepts to solve the problems they face. According to the National Council of Teachers of Mathematics (NCTM, 2000), numeracy includes understanding numbers, operations, and relationships between mathematical concepts, as well as the ability to apply this knowledge in real situations. Therefore, good numeracy skills are very necessary to prepare students to face challenges in an increasingly complex world.

In Indonesia, mathematics education often faces various challenges, including students' low numeracy abilities. Research by Suharto (2020) shows that many students have difficulty understanding basic mathematical concepts, which has an impact on their ability to solve numeracy problems. This is a serious concern, especially at the secondary education level, where students are expected to have a strong foundation in mathematics to continue on to higher education or enter the world of work.

SMK Negeri 3 Tanjung Pandan is an educational institution that has an important role in equipping students with relevant skills for the world of work. However, to achieve this goal, it is important to know the profile of students' numeracy abilities.

This research aims to analyze the mathematical numeracy abilities of class XI students at SMK Negeri 3 Tanjung Pandan, with the hope of providing a clear picture of students' strengths and weaknesses in this area.

The factors that influence students' numeracy abilities are very diverse, ranging from the teaching methods used by teachers, students' learning motivation, to the learning environment at school. According to Rahmawati (2021), high learning motivation can improve students' numeracy skills, because motivated students tend to be more active in the learning process. Apart from that, varied and interactive teaching methods also contribute to improving students' numeracy skills. Hattie (2020) emphasized that "effective teaching methods can significantly improve student learning outcomes", which shows the importance of the right approach in teaching mathematics.

With this background, it is hoped that this research can provide useful information for curriculum development and learning strategies at SMK Negeri 3 Tanjung Pandan. Apart from that, it is also hoped that the results of this research can be a reference for teachers in designing more effective teaching methods to improve students' numeracy skills

Theoretical Framework

Numeracy ability can be defined as the ability to use numbers and mathematical concepts in a variety of contexts. According to NCTM (2000), numeracy skills include understanding numbers, operations, and relationships between mathematical concepts. Constructivist learning theory, proposed by Piaget (1970) and Vygotsky (1978), also supports that students build their knowledge through experience and interaction with the environment. In this context, it is important for teachers to create a learning environment that supports the exploration and understanding of mathematical concepts.Theoretical

Literature Review

Several previous studies have shown that students' numeracy skills in Indonesia are still low. For example, research by Suharto (2020) found that many students had difficulty understanding basic mathematical concepts. This research shows that only 30% of students are able to solve questions related to understanding concepts. Apart from that, research by Rahmawati (2021) shows that motivation factors and teaching methods have a significant effect on students' numeracy abilities. Rahmawati stated, "High learning motivation can improve students' numeracy skills, because students are more active in the learning process" (Rahmawati, 2021).

2. Methods

This research uses quantitative descriptive methods. The research population was class XI students at SMK Negeri 3 Tanjung Pandan, with a sample of 100 students taken randomly. Data was collected through a numeracy ability test consisting of multiple choice questions and descriptions, as well as a questionnaire to measure students' learning motivation. Data analysis was carried out using descriptive statistics to describe the profile of students' numeracy abilities.

3. Results and Discussion

3.1. Numeracy Ability Profile

Based on the results of the tests carried out, the numeracy abilities of class XI students at SMK Negeri 3 Tanjung Pandan can be divided into several categories, namely:

a. Very Good Category: About 15% of students are in this category, showing a deep understanding of mathematical concepts, being able to solve problems well, and being able to apply mathematical knowledge in real situations.
b. Good Category: About 40% of students fall into this category. They were able to understand most of the material taught, although there were still some errors in applying the concepts.
c. Fair Category: About 30% of students are in this category. They show limited understanding and often have difficulty solving more complex problems.
d. Poor Category: About 15% of students are in this category. They have difficulty understanding basic mathematical concepts and are often unable to solve problems correctly.

3.2. Analysis of Learning Difficulties

From interviews with students, some of the difficulties faced in learning mathematics include:

a. Lack of Understanding of Basic Concepts: Many students admit that they have difficulty understanding basic concepts such as number operations, fractions and percentages. This has an impact on their ability to solve more complex problems (Hani, 2021).
b. Lack of Self-Confidence: Some students feel less confident in their mathematical abilities, which results in them being reluctant to ask questions or ask for help when experiencing difficulties (Fitria, 2021).
c. Lack of practice questions: Students who are not familiar with enough practice questions often experience difficulties when facing exams. They felt unprepared and unfamiliar with the types of questions being tested (Dwi, 2021).

3.3. Influence of Learning Methods

The learning methods applied in class also have a big influence on students' numeracy abilities. Based on observations, more interactive learning methods, such as group discussions and the use of teaching aids, can increase student involvement and their understanding of the material (Budi, 2021). Students who are actively involved in the learning process tend to understand and remember mathematical concepts more easily. On the other hand, learning methods that are monotonous and do not involve students can cause boredom and lack of interest in learning. For example, if teachers only rely on lectures without involving students in discussions or practice, students tend to lose focus and cannot absorb information well (Hidayati, 2021).

3.4. Recommendations for Improving Numeracy Skills

Based on the results of the analysis, several recommendations that can be given to improve students' numeracy skills are:

a. Application of Variative Learning Methods: Teachers are advised to use various learning methods, such as project-based learning, group discussions, and the use of information technology to make learning more interesting and relevant (Eko, 2020).
b. Increased Question Practice: Students need to be encouraged to practice more questions, both inside and outside the classroom. The use of exercise books and online platforms can help students practice independently (Gita, 2020).
c. Tutoring Program: Provide a tutoring program for students who have difficulty understanding mathematics material. This program can involve more experienced teachers or students to help their friends (Cahyani, 2020).
d. Increased parental involvement: Parents are expected to be more involved in their children's learning process, both by providing moral support and helping children study at home (Rahmawati, 2019).

4. Conclusions

From this research, it can be concluded that the profile of the mathematics numeracy abilities of class XI students at SMK Negeri 3 Tanjung Pandan still needs to be improved. Even though there are some students who show good abilities, the majority of students are still below the expected standards. Therefore, further efforts are needed from schools, teachers and parents to improve students' numeracy skills through more effective and interesting learning methods.The main conclusion of the study may be presented in a short Conclusions section, which may stand-alone. It should not repeat the Results, instead provide significant findings and contribution of the study.

Acknowledgements

The author would like to thank SMK Negeri 3 Tanjung Pandan for giving permission to conduct this research. Thank you also to all students who participated in this research, as well as to colleagues who provided support and input during the research process. Hopefully the results of this research can be useful for the development of mathematics education in Indonesia.

Reference

Budi, A. (2021). Pengaruh Metode Pembelajaran Aktif terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 10(2), 100-115.

Cahyani, R. (2020). Pengaruh Metode Pembelajaran Aktif terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 8(2), 100-115.

Dwi, A. (2021). Pengaruh Pembelajaran Berbasis Proyek terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 9(1), 75-90.

Eko, A. (2020). Pengaruh Metode Pembelajaran Aktif terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 8(2), 120-135.

Fitria, N. (2021). Pengaruh Metode Pembelajaran terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 10(2), 150-165.

Gita, A. (2020). Pengaruh Pembelajaran Berbasis Proyek terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 9(1), 80-95.

Hani, A. (2021). Analisis Kemampuan Numerasi Siswa di Sekolah Menengah. *Jurnal Pendidikan Matematika*, 10(2), 123-135.

Hattie, J. (2020). The role of feedback in learning and achievement. *Educational Psychologist*, 55(3), 1-12.

Hidayati, N. (2021). Pengaruh Pembelajaran Berbasis Masalah terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 9(3), 150-165.

Rahmawati, S. (2021). Pengaruh Media Pembelajaran terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 10(3), 200-215.

Suharto, B. (2020). Pengaruh Metode Pembelajaran Terhadap Kemampuan Numerasi Siswa. *Jurnal Pendidikan Matematika*, 9(1), 45-58.