

STUDENT'S NUMERACY PROFILE AND SELF CONFIDENCE CHARACTER IN THE ERA OF "MERDEKA BELAJAR" IN ELEMENTARY SCHOOLS

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Abstract

This study aims to identify the numeracy skills and self-confidence profiles of fifth-grade elementary school students in the Merdeka Belajar era. The research employs a quantitative descriptive approach, using numeracy tests and self-confidence measurement scales as the primary instruments. The numeracy test consists of five questions aligned with key indicators of geometry, including spatial visualization and area and perimeter calculations, while the self-confidence scale assesses six aspects, such as initiative, public speaking ability, and resilience in the face of challenges. Data were analyzed using the Miles and Huberman model, involving data reduction, presentation, and conclusion drawing, complemented by descriptive statistics, including percentages and averages. The findings reveal that the average numeracy score is 60.42, categorized as low, with 68.6% of students in the low category, 22.8% in the medium category, and only 8.6% in the high category. Similarly, self-confidence levels are low for 34.3% of students, medium for 28.6%, and high for 22.9%. Further analysis shows that limited self-confidence significantly hampers students' ability to solve numeracy problems, especially in spatial reasoning and geometric calculations. To address these challenges, it is recommended that educators adopt innovative teaching strategies, such as utilizing interactive tools like GeoGebra, incorporating collaborative learning methods, and implementing real-life problem-solving tasks to build both numeracy skills and self-confidence. These strategies align with the Merdeka Belajar framework, promoting active and meaningful learning experiences that cater to diverse student needs.

Keywords: numeracy; self-confidence; elementary education; geometry

Abstrak

Penelitian ini bertujuan untuk mengidentifikasi profil kemampuan numerasi dan karakter percaya diri siswa kelas V SD di era Merdeka Belajar. Penelitian ini menggunakan pendekatan deskriptif kuantitatif, dengan instrumen utama berupa tes numerasi dan skala pengukuran kepercayaan diri. Tes numerasi terdiri dari lima soal yang disusun berdasarkan indikator utama geometri, seperti visualisasi spasial serta perhitungan luas dan keliling. Sementara itu, skala kepercayaan diri mengukur enam aspek, termasuk inisiatif, kemampuan berbicara di depan umum, dan ketahanan menghadapi tantangan. Data dianalisis menggunakan model Miles dan Huberman, yang mencakup reduksi data, penyajian, dan penarikan kesimpulan, serta didukung oleh statistik deskriptif seperti persentase dan rerata. Hasil penelitian menunjukkan bahwa rata-rata skor numerasi siswa adalah 60,42, yang tergolong dalam kategori rendah, dengan 68,6% siswa berada pada kategori rendah, 22,8% pada kategori sedang, dan hanya 8,6% pada kategori tinggi. Tingkat kepercayaan diri siswa juga menunjukkan 34,3% berada pada kategori rendah, 28,6% pada kategori sedang, dan 22,9% pada kategori tinggi. Analisis lebih lanjut mengungkapkan bahwa rendahnya kepercayaan diri secara signifikan menghambat kemampuan siswa dalam menyelesaikan masalah numerasi, terutama dalam penalaran spasial dan perhitungan geometri. Untuk mengatasi tantangan ini, disarankan agar pendidik mengadopsi strategi pembelajaran inovatif, seperti menggunakan alat interaktif seperti GeoGebra, menerapkan metode pembelajaran kolaboratif, dan melibatkan tugas pemecahan masalah berbasis kehidupan nyata. Strategi ini selaras dengan kerangka Merdeka Belajar, yang mendorong pengalaman belajar aktif dan bermakna sesuai kebutuhan beragam siswa.

Kata Kunci: numerasi; percaya diri; pendidikan dasar; geometri

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Introduction

In human life, education plays a significant role. Through education, an educated society can be created, which can improve the quality of human resources and enhance individual character (Indayanti & Sagala, 2023). Currently, education in Indonesia faces numerous challenges. According to Patandung and Panggua (2022), these challenges include the still-low quality of education, teachers' lack of professional competence, high education costs, and fundamental issues with education laws that are considered inadequate.

The toughest challenge for Indonesia's education system is improving the quality of learning activities to produce graduates who are competitive and adaptable in solving problems they encounter (Utomo, 2021). Purwasih (2018) elaborates that Indonesian students' PISA results in mathematical literacy rank only 69th out of 76 countries. At levels 1-6, Indonesia only achieves levels 1-2 in mathematical literacy (Purwasih et al., 2018).

Teachers play a crucial role in preparing students to face the challenges of Society 5.0 by meeting specific qualifications and enhancing their abilities and skills (Abidah et al., 2022). According to Nurzannah (2022), teachers' role in teaching is not only to deliver the subject matter but also to motivate students. To ensure the learning process is effective and efficient, teachers act as facilitators, both in terms of physical resources and in facilitating students' mental readiness during the learning process (Nurzannah, 2022). The success of learning is heavily influenced by the teaching process conducted by the teacher. Thus, teachers must integrate teaching media with appropriate teaching methods to achieve the learning objectives. Even when learning is conducted online, teachers must facilitate students in the learning and assessment process (Wiryanto et al., 2023a).

Teachers are equipped to choose, develop, and apply various teaching methods integrated with appropriate learning media to achieve learning objectives (Wulandari et al., 2023). In selecting and implementing learning media, teachers must be selective to ensure the media used is not only engaging but also effective in helping students understand the material and make students feel comfortable in the learning process (Wulandari et al., 2023). Additionally, mathematics education in elementary schools must be integrated with other disciplines to prepare the generation for the 4.0 era, whether in the form of STEM, STEAM, or STREAM, to keep up with the times (Mariana, 2019).

Numeracy is the ability to solve problems in various life situations using mathematical skills. Numeracy involves analyzing information and interpreting it to make calculations and decisions (Andri Nurcahyono, 2023). This shows that numeracy is not only about solving mathematical problems but also encompasses mathematical functions, including critical and creative thinking required to solve everyday problems. This aligns with the statement that mathematics serves as a tool to solve and find solutions in daily life (Ainurrohmah & Mariana, n.d.). Numeracy is not merely about arithmetic; it also involves the ability to understand, interpret, and apply mathematics in real-life contexts (Purwasih et al., 2018). Numeracy skills are the foundation for mastering mathematics subjects.

At the elementary education level, numeracy skills are essential for understanding more advanced mathematical concepts. Numeracy, which includes critical and creative thinking skills to use mathematics in solving everyday problems, is one aspect that requires significant attention. Unfortunately, many students struggle to understand numeracy materials, particularly in geometry. This issue is exacerbated by conventional teaching approaches, the lack of engaging learning media, and low student confidence in solving mathematical problems (Wati & Nurcahyo, 2023). Therefore, enhancing numeracy in elementary schools should be a

priority focus, especially within the Merdeka Belajar framework, which provides teachers the freedom to use innovative teaching methods.

The abstract principles of numeracy that can be precisely defined will facilitate students in formulating and solving real-life problems. Thus, mathematics mastery should be taught from an early age (Purwasih et al., 2018). Numeracy literacy consists of three components: arithmetic, numeracy relations, and arithmetic operations. Numeracy literacy also includes the ability to understand number concepts and arithmetic operations in daily life (Fauzanah et al., 2022; Putri et al., 2022).

One of the numeracy materials commonly encountered in everyday life is geometry. In mathematics, geometry focuses on spatial situations and compositions, as well as their properties, sizes, and relationships (Nurhayati et al., 2022). Geometry consists of two-dimensional geometry (flat shapes) and three-dimensional geometry (solid shapes). Traditionally, media used to teach geometry concepts are drawings on blackboards or grid paper. However, many students struggle with geometry problems. It has been reported that students lack the minimum competence to solve these problems (Wati & Nurcahyo, 2023).

Teachers' monotonous teaching methods and the use of conventional learning media, combined with limited active interaction between students and teachers, often result in students being mere listeners and information receivers. This makes learning passive, causing students to become lazy and bored during class because they find the learning without engaging media ineffective and uninteresting (Rasdiyanti et al., 2023). During learning activities, teachers must create a conducive classroom atmosphere and deliver material effectively so students can understand the material (Setiyaningsih & Wiryanto, 2022). However, many students consider mathematics to be a difficult subject that is often avoided due to its complexity (Nugraha & Mariana, 2018). Students' lack of understanding in geometry leads to passive learning because they lack the confidence to express their ideas. Confidence is crucial as it enables students to express their ideas in solving mathematical problems (Andriani & Aripin, 2019).

Students' self-confidence also becomes a key factor in numeracy learning. Students with high self-confidence are more likely to ask questions, attempt problem-solving, and face academic challenges. Conversely, students with low confidence are often reluctant to actively participate in the learning process, affecting their learning outcomes (Andriani & Aripin, 2019). Previous research shows that technology-based learning approaches, such as the GeoGebra application, can enhance students' understanding of geometry while building their confidence (Eva Wulanningtyas, 2024).

Students with high self-confidence are better able to achieve personal success because confidence in their abilities influences their performance. Confident students are enthusiastic about completing tasks, leading to optimal results (Andriani & Aripin, 2019). Similarly, students' learning outcomes are related to their motivation to learn. Higher motivation leads to higher learning outcomes (Wiryanto, Kumala et al., 2023).

In previous research by Nurhayati in 2022 on numeracy skills analysis, it was noted that upper-grade students' numeracy skills, particularly in geometry, were low among the subjects studied. Segers et al. (2015) found that family environments, particularly parents who provide early numeracy-related activities, contribute to children's cognitive and linguistic development in counting compared to those who do not. Similarly, Skwarchuk et al. (2014) state that formal and informal home numeracy activities are linked to early numeracy competencies in children, influencing subsequent learning.

Based on this background, this research is important as it provides an initial description of the condition of students' numeracy skills and self-confidence in the context of elementary

education in Indonesia. These findings can serve as a basis for developing more effective and relevant teaching methods to address gaps in mathematics learning. Additionally, the results of this research are expected to contribute to the development of educational policies that focus on strengthening numeracy literacy and building students' self-confidence in the Merdeka Belajar era. The novelty of this study lies in revealing the profile of students' numeracy skills and self-confidence in geometry, linked to the implementation of innovative approaches in the Merdeka Belajar era. This research also serves as a starting point for gaining a deeper understanding of the relationship between students' numeracy skills and self-confidence at the elementary school level.

Research Methods

This study was conducted at UPT SD Negeri 30 Gresik during the odd semester of the 2024/2025 academic year in a fifth-grade class consisting of 35 students. The data collection technique used was a numeracy test administered to 35 fifth-grade elementary school students at UPT SD Negeri 30 Gresik, comprising 18 boys and 17 girls. The researcher then selected six students representing each level of numeracy skills based on the numeracy test results. The groups consisted of two students with high numeracy skills, two with moderate skills, and two with low skills.

The purpose of this test was to determine students' numeracy skills and self-confidence profiles. The numeracy test was designed based on five main indicators in geometry learning, such as spatial visualization and calculations of area and perimeter. The test questions were developed based on relevant learning objectives and aligned with the national curriculum. Meanwhile, the self-confidence measurement scale comprised 20 statements reflecting six main aspects, such as the courage to ask questions, initiative, and the ability to face challenges. Instrument validity was tested through content validity by involving experts in geometry and psychometrics to ensure the suitability of the questions with the indicators being measured. Additionally, the instruments were piloted on a small sample of students.

The data collection techniques included surveys and written tests. During the survey stage, the researcher interviewed teachers and students. The written test consisted of numeracy material tests focused on geometry and measurement scales to gather information about students' numeracy skills and self-confidence in geometry learning. The test lasted 60 minutes. After completing the test, the answers were collected and corrected. The purpose of the test was to categorize students' abilities into low, moderate, or high categories. The types of data and data collection techniques used in this study are shown in Table 1.

Table 1. Types of Data and Data Collection Techniques Used

Type of Data	Data Collection Techniques
Students' numeracy skills	Written test
Measuring self-confidence	Measurement scale

Table 2. Score Intervals for Each Category

Score Interval	Category
≤ 69	Low skills
70 - 83	Modeate skills
≥ 84	High skills

(Source: Nurhayati dkk., 2022)

Data analysis began by examining the numeracy test results to categorize students into low, moderate, and high skill levels. This study used the Miles and Huberman data analysis method. This interactive model of data analysis was carried out in three ways: data reduction, data presentation, and conclusion drawing or verification (Nurhayati et al., 2022).

In the data reduction stage, the data from students' work and interview results were meticulously recorded. Data reduction involved filtering and selecting data relevant to the study. Irrelevant or excessive data were eliminated, retaining only data that supported the study. The goal was to facilitate the researcher in understanding the data and focusing on essential aspects relevant to the research objectives.

In the data presentation stage, the data were presented in table form. The data from the written test answers were further analyzed in-depth through narrative text and diagrams. Meanwhile, in the conclusion drawing stage, the data collected from the analysis were synthesized into conclusions, including both written data and recorded results. Conclusions had to be supported by sufficient data. This study used technique triangulation.

The flow of the data analysis technique is illustrated in the following diagram:

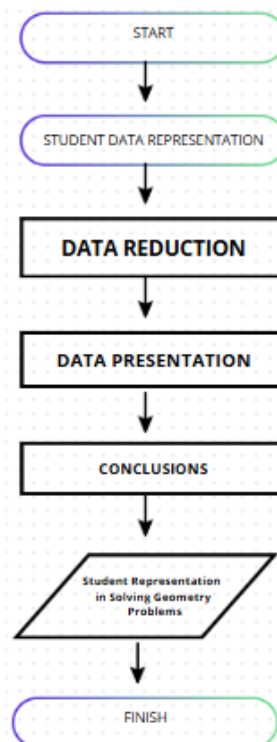


Figure 1. Diagram Data Analysis Procedure

Results and Discussion

The indicators in this study were fifth grade students at UPT SD Negeri 30 Gresik as seen from the students' ability to use numeracy indicators in solving problems and the students' self-confidence. Data on students' numeracy abilities were obtained by giving 5 numeracy test questions specifically for 5 geometry questions. The results showed that the majority of students were in the low numeracy ability category (68.6%), followed by medium (22.8%) and high (8.6%) abilities. The level of self-confidence was also similar, with 34.3% of students in the low category, 28.6% medium, and 22.9% high. The data showed a correlation between low levels of self-confidence and the ability to solve numeracy problems, especially in the aspects of spatial visualization and geometry calculations.

Table 3. Numeracy ability indicators according to CP Geometry Phase C material

Indicator
1. Construction of spatial structures
2. Recognizing spatial visualization
3. Calculating the area and circumference of flat or solid shapes
4. Comparing geometric shapes
5. Maps and grid systems

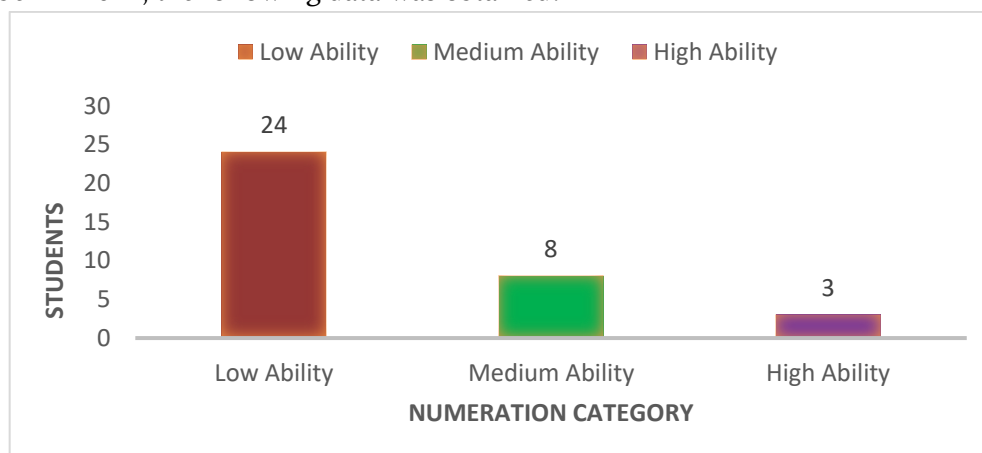
Students' inability in geometry is largely due to the conventional teaching approach, which does not facilitate active and contextual learning. Many teachers use the lecture method without utilizing visual media or interactive technology such as GeoGebra. In addition, external factors such as lack of family support for mathematics learning and limited school resources, such as technological devices, also contribute.

Based on the results of the tests that have been carried out, and supported by a scale of self-confidence character measurement in fifth grade students conducted on October 21-26, 2024, data were obtained in the form of numeracy test results and students' self-confidence character. The presentation of the data explained is in accordance with the objectives of this study, namely to determine the profile of students' numeracy abilities in solving problems on geometry material and students' self-confidence character.

**Figure 2.** Grade 5 students work on numeracy and self-confidence character tests

a. Numeracy Profile

Based on the results of the numeracy test for class 5 students which was carried out on October 22 2024, the following data was obtained.

**Figure 3.** Diagram Grade 5 Students' Numeracy Test Results

Based on the results of the numeracy test above, it can be said that the numeracy ability of class 5 students at UPT SD Negeri 30 Gresik on geometry material at low ability reached 68.6%, at medium ability 22.8% and at high ability 8.6% with an average -The average geometric numeracy test score is 60.42, which is also still in the low category.

The obtained numeracy profile shows that a more varied and adaptive approach is needed to encourage low-ability students to improve their abilities. Based on the idea of free learning, teachers have the freedom to use more innovative learning methods that are appropriate to students' needs. Thus, the methods chosen by teachers can help students understand concepts related to numeracy better.

According to Piaget's Theory of Cognitive Development, elementary school children's numeracy abilities are at the concrete operational stage, where they learn to understand numerical concepts through direct experience and practical problem solving.(Nainggolan & Daeli, 2021).Children at this stage are not yet able to think abstractly, so they need concrete learning and support their cognitive development. The condition of most students who are at low abilities indicates that perhaps the methods used are not fully in accordance with their developmental needs.

According to Piaget, a child's cognitive development is influenced by the potential and experience of the environment. In line with Rohaendi, Piaget's theory states that students' cognitive development depends on how much students can manipulate and interact with the environment.(Rohaendi & Laelasari, 2020).Teachers act as facilitators and motivators so that children can develop according to their stages by providing experiences in learning so that students' potential can be optimal.(Nainggolan & Daeli, 2021). This can be a motivation for teachers to design contextual numeracy activities, so that students can understand the concept better.

In Vygotsky's theory, it is explained that teachers can provide scaffolding or support in order to build interactions between students with geometric and numeracy concepts in a more dynamic and interesting way. Assistance can come from teachers or peers who influence the child's cognitive development.(Afwan et al., 2022).Assistance can be in the form of instructions or directions so that students can gradually become independent. In this way, students can more easily develop an understanding of numeracy according to their level of development(Rohaendi & Laelasari, 2020).

These findings indicate the need for interventions to improve students' self-confidence as well as their numeracy skills. Teachers can be trained to adopt technology-based and collaborative learning strategies. In addition, family support can be increased through numeracy literacy programs that involve parents.

b. Student self-confidence character profile

The researcher used several questions related to the students' self-confidence aspects. The assessment aspects are presented in the following table.

Tabel 4. Self-Confidence Character Assessment Aspects

Assessment Aspects
Courage to Ask or Answer
Taking Action Initiative
Public Speaking Skills
Ability to Face Challenges
Attitude Towards Failure
Independence in Facing Tasks

Based on a self-confidence measurement questionnaire conducted on Tuesday, October 22, 2024, on 35 5th grade students at UPT SD Negeri 30 Gresik, the following results were obtained:

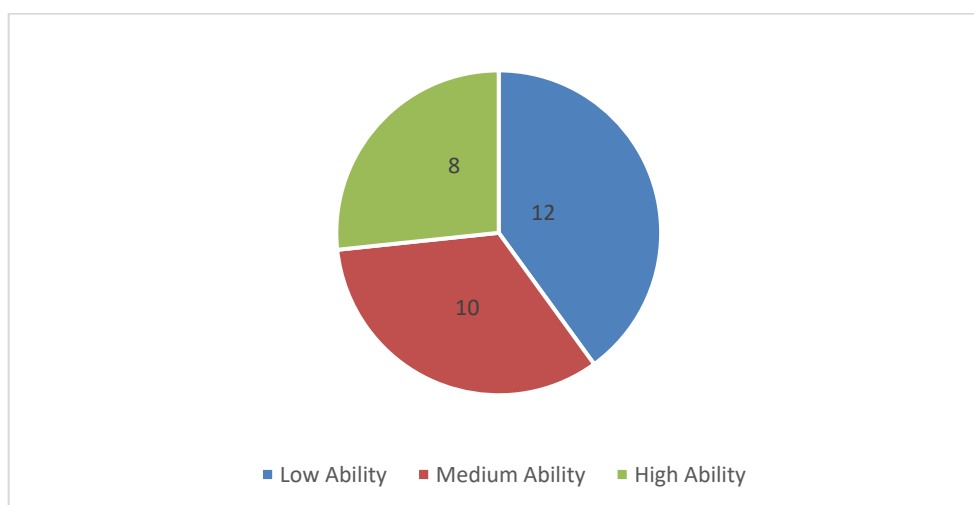


Figure 4. Diagram Results of the Self-Confidence Measurement Questionnaire for Grade 5 Students

From the data above, it can be seen that the category of student self-confidence is divided into three groups: low, medium, and high. A total of 12 students are included in the low self-confidence category, 10 students are in the medium category, and 8 students are in the high self-confidence category.

Students with low self-esteem may feel less confident in understanding material or approaching academic tasks, which can affect their motivation and performance. Low self-esteem can be a barrier to academic achievement, as students may feel anxious or hesitant about taking risks or asking questions in class.(Eva Wulanningtyas, 2024).

Bandura stated that self-confidence or self-efficacy greatly influences learning outcomes. If students are confident in their abilities, they will be more motivated to learn and will not give up easily. This belief is the belief that a person can control circumstances and achieve positive results.(Yulanda, 2017). In the context of these test results, low ability students may demonstrate low self-confidence in numeracy, which could be a barrier to learning. It is possible that learning not only increases knowledge and skills, but also grows students' attitudes(Eva Wulanningtyas, 2024). Teachers play a role in creating a learning environment that supports and empowers students, so that they feel safe to try, make mistakes, and fix them without fear. This can be done through collaborative learning methods, self-reflection, or the use of interactive learning tools.

Based on the explanation, researchers can link the numeracy profile and self-confidence character of elementary school students. These theories emphasize the importance of providing a supportive learning environment, including the use of learning aids that can facilitate understanding of numeracy concepts in a concrete and interesting way. Teachers can create numeracy learning strategies that can build student confidence by using appropriate methods. Through the implementation of holistic and inclusive learning strategies, it is hoped that students can improve their numeracy skills gradually. Special guidance programs that combine numeracy learning with self-confidence character building can be one strategy in improving students' overall numeracy skills.

Some things that can be done based on the results of the research include (1) Integrating interactive learning media such as GeoGebra in geometry teaching. (2) Organizing training for teachers to improve their skills in teaching numeracy with an innovative approach. (3) Involving families in learning programs to provide emotional and academic support to students. (4) Providing more technological resources in schools to support numeracy learning.

Conclusion

The results of the analysis of the numeracy profile and self-confidence character of grade 5 students at UPT SD Negeri 30 Gresik found that the majority of grade V elementary school students have low numeracy skills and less than optimal levels of self-confidence. The relationship between these two aspects indicates the need for a more innovative learning approach to improve student learning outcomes. As a follow-up, further research can be focused on the application of technology-based learning media, such as GeoGebra, to evaluate its effectiveness in more depth. In addition, studies involving family support and the impact of school resources on numeracy learning can provide additional insights. The results of this study can be applied in daily educational practices through teacher training, integrating technology in the classroom, and strengthening family involvement in supporting student learning. This study is limited to the numeracy skills of geometry material in grade 5 of elementary school. For subsequent researchers, it can be developed again on broader learning materials, or at more levels of students. It is hoped that later there will be researchers or teachers who can find methods or media for learning geometry material that can have an impact on improving students' numeracy skills and self-confidence character.

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