THE MATH ANXIETY IN PRIMARY SCHOOLS AND ITS CAUSES

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Abstracts

This research aims were to know the math anxiety among students in Pacitan and to find out the causes of the math anxiety. Descriptive quantitative research was conducted to explore the mathematics anxiety among the elementary school students and to identify some factors contributing to the math learning challenges. The study carried out from February to May 2024, involved 75 students from various selected schools through purposive sampling technique. These students had math scores below the KKM. Data collection methods included the Mathematics Anxiety Scale Questionnaire and interviews. The results revealed different anxiety levels across aspects like difficulty in following math instructions, avoidance of math classes, physical and emotional distress, and inability to complete math exercises. Although the overall anxiety level was low, concerns were raised about emotional responses and challenges in math exercises. The study also delved into the root causes of these anxieties and difficulties, pointed out some factors such as poor understanding of mathematical concepts, ineffective teaching methods, low motivation, boredom, and teacher-related issues. Some students faced challenges with basic arithmetic, formula retention, and reading comprehension, especially in higher-order thinking skills (HOTS) problems. The findings emphasised the necessity for targeted interventions to address these issues, enhance students' engagement, and improve teaching methods. It was crucial to provide comprehensive support and strategic measures to reduce anxiety levels, and boost students' performance and confidence in mathematics.

Keywords: Math, Math Anxiety, Primary Schools

INTRODUCTION

Literacy and numeracy levels in Indonesia are still low. The results of the National Assessment state that Indonesian students have not mastered the minimum literacy and numeracy competencies (Napitupulu, 2022). Not only literacy, the numeracy level in Indonesia is also still low. Research by INOVASI at 18,370 elementary school students in 20 cities/districts in Indonesia stated that 2 out of 3 students or 78% of grade 3 elementary school students had not met the minimum numeracy skills (Riswan, 2022).

There are many obstacles to increasing numeracy skills in primary schools in Indonesia. Teachers encounter obstacles when introducing numeracy programs in primary schools, including limited understanding of mathematical literacy among teachers, inadequate facilities to enhance students' numeracy skills, low awareness of reading among students, lack of guidance for teachers, and discrepancies between government literacy plans and practical realities on the ground. Furthermore, challenges such as a heavy emphasis on reading-only activities, limited diversity in basic literacy approaches, media constraints, and inadequate resources all impede the successful execution of literacy programs (Rakhmawati & Mustadi, 2022). In addition, factors

contributing to students' low numeracy skills can include a lack of practice on numeracy literacy questions, inadequate compilation of numeracy literacy questions by teachers, psychological factors from students themselves, and difficulties in understanding mathematical symbols not commonly found in everyday life (Ridwan et al., 2023).

One of the factors affecting low students' numeracy skills is students' anxiety. Students' anxiety refers to excessive worry, fear, or stress experienced by students in response to academic tasks, evaluations, or performance expectations. It can manifest as math anxiety, test anxiety, or social anxiety, among others (Mulhamah, 2018). The main factors contributing to math anxiety among students according to the document are assigning tasks that are too difficult or have short deadlines by parents or teachers, negative evaluation of a child's work leading to increased fear of failure, internalizing negative feedback, and starting to believe they are unintelligent, lazy, or lacking motivation.

Math anxiety can grow due to misleading information and myths about math. Some common myths about math found in the classrooms are only those who are talented are good at math, math is a difficult subject, math is about numbers and abstract objects, math is about right or wrong, learning math is associated with anxiety or fear, math is the same as brain processing. However, it is important to clarify myths about math because these myths can mislead students and contribute significantly to their aversion and dislike for the subject. This aversion can result in students achieving unsatisfactory grades not due to a lack of ability, but because they feel allergic and fearful towards math from the outset, leading to reluctance and laziness in learning it. Clarifying these myths can help improve students' motivation and interest in mathematics (Jannah et al., 2024).

Math anxiety can have a significant impact on students' interest in learning math, as it can lead to feelings of incompetence and hinder their self-efficacy beliefs. Additionally, math anxiety can manifest in physical symptoms such as sweating, irregular heartbeat, and headaches, which can further disrupt students' focus and concentration during math learning (Jannah et al., 2024).

METHOD

This is descriptive quantitative research. The data were taken from the students grades 1,2,3 of SD Negeri 2 Pakis Baru, SD Negeri 5 Jeruk, SD Negeri 1 Gunungrejo, SD Negeri 2 Ngumbul, SD Negeri 3 Ploso, SD Negeri Kalipelus, and SD Negeri 2 Karangmulyo. 75 students selected as a sample are those with mathematics scores below the KKM. This research was conducted from February to May 2024. Researchers used questionnaires and interviews in this research. The questionnaire was used as an instrument with the Mathematics Anxiety Scale Questionnaire rubric. Questionnaires were given to students with low mathematics scores. Researchers used purposive sampling in selecting research samples. This questionnaire is used to answer questions about students' anxiety levels. Researchers also conducted interviews with students to explore the causes of the anxiety students experienced. In addition, interviews were used to explore mitigation strategies in solving this problem with ten teachers. After the data was collected, the research data was sorted regarding answers related to student anxiety. After the interview was conducted, the researcher classified the causes of anxiety and displayed the data. The data is then explained with descriptions of the results of interviews and

observations. Conclusions were drawn after the researcher analyzed the data thoroughly and comprehensively.

FINDINGS AND DISCUSSION

Students Anxiety Level

Table 1: Math Anxiety Level

Aspects	Average	Median	Standard Deviation	Anxiety Level
Aspect 1: Difficult to be ordered to do mathematics	**2,71**	3	0,64	Moderate
Aspect 2: Avoiding math class	**2,68**	3	0,64	Low
Aspect 3: Feeling physical pain and emotional disruption	**2,41**	2	0,63	High
Aspect 4: Cannot do a math exercise	**2,40**	2	0,65	High
Total	**2,54**	**3**	**0,66**	**Low**

The analysis of anxiety levels concerning various aspects of mathematics reveals differing average anxiety levels across the four aspects examined. The first aspect, "Difficulty in being instructed to engage in mathematics," exhibits an average anxiety level of 2.71, falling within the medium anxiety category. This suggests a notable degree of discomfort or resistance towards mathematical tasks, albeit not exceedingly high. In contrast, the second aspect, "Avoidance of math classes," demonstrates a mean anxiety level of 2.68, categorizing it as having low anxiety. This indicates a tendency to evade math-related activities with relatively low anxiety levels.

Conversely, the third aspect, "Experience of physical pain and emotional distress," records an average anxiety level of 2.41, indicating a high level of anxiety. This signifies substantial physical and emotional reactions when engaging with mathematics. Similarly, the fourth aspect, "Difficulty in completing math exercises," shows an average anxiety level of 2.4, reflecting high anxiety levels. This underscores the significant challenges individuals face in solving math exercises, potentially intensifying emotional and physical stress.

Collectively, the average anxiety level across these four aspects stands at 2.54, classifying it as low anxiety. However, it is crucial to highlight that two aspects manifest high anxiety levels—specifically, the third and fourth aspects. The first aspect indicates moderate anxiety, while the second aspect reveals low anxiety. This overall assessment underscores the presence of notable concerns that warrant attention, particularly concerning the physical and emotional responses to mathematics and the obstacles encountered in completing math exercises. Targeted interventions are imperative to alleviate anxiety levels in these areas and assist individuals in overcoming their anxieties and challenges related to mathematics.

Factors Causing Math Anxiety

Student's Difficulties in Learning Math

Based on the provided data, here are some possible categories for the responses related to difficulties in math:

a. Understanding of Mathematical Concepts

Difficulty understanding math concepts

Some students experience difficulties in understanding math concepts. It was experienced by the respondents no 4, 6, 7, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 39. Respondent no 4 said, "I have difficulty understanding mathematics lessons and cannot do it myself." In addition, respondent no 6 also said "I have difficulty in multiplication and division." Students have difficulties in understanding mathematical concepts due to several factors. The internal factors include difficulty in understanding abstract mathematical concepts, low motivation and interest in learning, and boredom. The sensory issues including problems in vision and hearing also can cause difficulties in learning. The external factors include the monotonous teaching and learning process, the unsupported environment, the lack of interesting teaching media, and family support.

Some students experienced difficulty in understanding mathematical concepts because of their limitations in understanding basic math. The basic learnings of math, like subtraction, addition, division, and multiplication in simple material were not understood well. However, their limitation grows bigger as they enter the higher grades. Students struggle to understand new math concepts if they have not mastered the material that has been previously taught. This is because there is an interconnection between different math topics (Arifin, 2020).

Trouble understanding the material

The students also experienced difficulties in understanding the material taught by the teacher in the classroom. As experienced respondent no 5, "I find it difficult to understand the mathematics lessons taught by the teacher." Different from the aspects of basic mathematical concepts, this part refers to specific material taught by teachers. The students already know basic math, but they can figure out the material taught by teachers. The contributing factors to the student's difficulties in math were the inability of students to grasp concepts and the teaching methods of the teachers not aligning with student problems. Finding it hard to comprehend the lessons (Hanan & Alim, 2023).

b. Engagement and Motivation

Lack of enthusiasm and boredom

The boredom was also experienced by the students. Respondent no 3 said "less enthusiastic and bored" in joining the math teaching and learning process. This was caused by several factors. Children can get bored with mathematics due to several factors. Monotonous and less interactive teaching methods are often the main cause. In addition, the material presented may feel too abstract or difficult to understand without real examples. Lack of confidence in understanding mathematical concepts can also make children reluctant to learn. If the classroom atmosphere is unsupportive, such as a lack of interesting games or activities related to mathematics, children tend to lose interest. Lastly, the negative stigma towards mathematics as a difficult subject can also influence their interest.

Not being focused or motivated

Children may lose interest and drive in learning mathematics due to various factors. An overwhelming or disconnected curriculum can lead to disinterest, while less engaging

teaching methods, like limited interactivity or independent exploration, can impact their motivation. Inadequate comprehension of concepts can also diminish their drive to learn. Personal aspects such as low confidence in math abilities contribute to their lack of focus when studying the subject. This feeling was experienced by respondents 30, 48, and 56.

Trouble with addition, subtraction, multiplication, and division

Difficulties in addition, subtraction, multiplication, and division in elementary school students can be caused by several factors. First, a lack of understanding of basic mathematical concepts makes it difficult for students to apply arithmetic operations. Second, teaching methods that are less effective or do not suit students' learning styles also play a role. Third, the lack of practice and practical application outside the classroom results in students not being familiar with mathematics problems. Fourth, attention disorders or cognitive problems can affect students' ability to process mathematical information. Finally, low motivation to learn and lack of support from the surrounding environment are also factors causing these difficulties. Respondents, no 1, 2, and 3 experienced this difficulty. The teaching methods may focus more on memorization rather than understanding, and may not be related to real-life applications, making it difficult for students to grasp and apply mathematical concepts.

c. Teacher-Related Issues

Teacher's clarity in explanations

Teacher clarity in teaching mathematics has a significant impact on student understanding and achievement. Teachers who can explain concepts clearly help students understand the material more easily, reduce confusion, and increase confidence in solving math problems. Clarity in delivery also minimizes misunderstandings and allows students to follow the lesson better. In addition, teachers who are clear in their teaching tend to create a more interactive and interesting learning environment, so that students are more motivated to learn. Thus, teacher clarity in teaching contributes positively to students' academic achievement and interest in mathematics. Respondent no 10 said, "The teacher is not clear when explaining."

Distractions from other students during lessons

Respondent no 11 said "Friends were chattering when the teacher explained mathematics lessons." This problem deals with teacher lack of classroom management. Distractions from fellow students during math classes can negatively impact students' concentration and comprehension of the material. When students create noise or distract themselves, it hinders other students' ability to focus on the teacher's instructions and assignments. This interruption leads to missing crucial information shared by the teacher, resulting in difficulties following the lessons. Moreover, an unfavorable classroom atmosphere diminishes the efficiency of teaching and learning while elevating students' stress levels. Thus, teachers must establish a structured and encouraging classroom setting to facilitate optimal learning without disruptions from peers. When students can concentrate effectively, they enhance their ability to absorb, retain, and apply the information being taught. This heightened focus contributes to better comprehension and memory retention, essential for academic achievement. For example, research indicates that students who sustain their focus in class typically excel

academically as they engage more and grasp complex concepts with greater ease (Setyawan et al., 2020).

d. Not being able to work independently

Difficulty in reading and counting

Respondents n2, 24, 44, 48, and 54 said that they have difficulties in reading. This relates to the students from grade 1. However, they also have difficulties in counting. Since the math exercises are in the form of a HOTS short story or explanation, the students cannot complete the exercise when they have limitations in reading. Students encounter challenges in recalling math formulas because of the abstract nature of mathematics, which may not directly relate to everyday experiences. Factors such as lack of interest and motivation, ineffective teaching approaches, and difficulties in reading comprehension further complicate the situation. Moreover, parental involvement, as well as a student's patience and determination, are significant; some parents face their math struggles, restricting their assistance.

Memory retention of formulas

Some students also experienced loss of memory in remembering math formulas. Respondents no 26,29,41, 45, and 62 said that they have limitations in remembering math formulas. To improve students' comprehension and retention of math formulas, it is essential to address these obstacles by implementing engaging teaching techniques, enhancing motivation, refining reading skills, and nurturing a supportive learning environment (Kristina & Permatasari, 2021).

CONCLUSION

The research sheds light on the widespread problem of math anxiety in elementary school students, pinpointing key factors contributing to their learning struggles. Despite an average anxiety level of 2.54, notable concerns arise from high anxiety levels linked to physical discomfort, emotional disruption, and difficulty completing math tasks. These findings emphasize the intricate nature of math anxiety and its diverse effects on students. Various internal and external factors were identified as the root causes of these challenges. Internally, students grapple with grasping abstract math concepts, lack of motivation, and boredom, while sensory issues like vision and hearing impairments also come into play. Externally, ineffective teaching approaches, the absence of stimulating learning environments, and inadequate family support compound these obstacles.

Moreover, the study uncovered that students' difficulties extend beyond basic math operations to encompass complex issues like formula retention and mastering higher-order thinking skills. Teacher-related aspects, such as clear explanations and classroom management, significantly impact student struggles. To tackle these issues, targeted interventions are crucial. These interventions should concentrate on improving teaching methods for enhanced engagement, creating supportive learning settings, and addressing both internal and external factors influencing students' learning. Additionally, comprehensive support networks involving teachers, parents, and the educational community are vital in alleviating anxiety and enhancing students' math performance and confidence. This comprehensive strategy aims to help students conquer math-related anxieties and obstacles, fostering a more positive and productive learning journey.

REFERENCES

Arifin, M. F. (2020). KESULITAN BELAJAR SISWA DAN PENANGANANNYA PADA PEMBELAJARAN MATEMATIKA SD/MI. *JIP: Jurnal Inovasi Penelitian*, *1*(5).

Hanan, M. P., & Alim, J. A. (2023). Analisis kesulitan belajar matematika siswa kelas vi sekolah dasar pada materi geometri. *Al Irsyad: Journal of Mathematics Education*, *2*(2), 59–66.

Jannah, S. Al, Sani, M. I., & Fitri, M. T. (2024). PENGARUH KECEMASAN MATEMATIKA TERHADAP MINAT BELAJAR SISWA SEKOLAH DASAR. *TSAQOFAH: Jurnal Penelitian Guru Indonesia*, *4*(1), 848–854.

Kristina, O., & Permatasari, G. (2021). PROBLEMATIKA PEMBELAJARAN MATEMATIKA DI SEKOLAH DASAR / MADRASAH IBTIDAIYAH Jurnal Ilmiah Pedagogy. *Jurnal Ilmiah Pedagogy*, *17*(20).

Mulhamah. (2018). Fobia dalam Pembelajaran Matematika di Pendidikan Dasar. *El-Midad Jurnal Jurusan PGMI*, *10*(1), 1–12.

Napitupulu, E. L. (2022). *Siswa Indonesia Belum Kuasai Kompetensi Minimum Literasi dan Numerasi*. Kompas.Com. https://www.kompas.id/baca/dikbud/2022/03/30/siswa-indonesia-belum-mencapai-kompetensi-minimum-literasi-dan-numerasipetensi Minimum Literasi dan

Rakhmawati, Y., & Mustadi, A. (2022). The circumstances of literacy numeracy skill : Between notion and fact from elementary school students. *Jurnal Prima Edukasia*, *10*(1), 9–18.

Ridwan, M., Ar, M. M., Budiyono, F., & Sukitman, T. (2023). Improve The Numeracy Skills of Fifth-Grade Students Through Self-Efficacy in Elementary Schools. *Jurnal Ilmiah Sekolah Dasar*, *7*(3), 526–535.

Riswan, K. K. (2022). *Riset : 45 persen siswa kelas 3 SD belum kuasai kemampuan literasi*. Antara.Com.

Setyawan, A., Novitri, Q. A., Rahartini, S., Pratiwi, E., Walidain, M. B., Guru, P., Dasar, S., Madura, U. T., & Indonesia, J. T. (2020). Kesulitan Belajar Siswa di Sekolah Dasar (SD) Agung. *Prosiding.Ikippgribojonegoro.Ac.Id*, 155–163.

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