

A COMPARATIVE STUDY OF MATHEMATICS TEACHING ANXIETY AMONG ELEMENTARY SCHOOLTEACHERS IN INDONESIA AND NIGERIA

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ABSTRACT

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Teachers play a critical role in their efforts to provide meaningful mathematics learning to students to prevent them from experiencing learning anxiety. This study examined the experiences of elementary schoolteachers in Indonesia and Nigeria in confronting and overcoming mathematics teaching anxiety, recognizing the critical role teacher confidence plays in shaping student learning outcomes. The comparative approach of this study provided a nuanced understanding of how cultural context influences mathematics teaching anxiety and the coping strategies employed by teachers in different settings. The study utilized a descriptive survey research design, employing quantitative collection methods. This study included all elementary schoolteachers in Indonesia and Nigeria, selecting a representative sample of 331 elementary mathematics teachers using a stratified random sampling technique. Two researcher-developed instruments were used: The Level of Anxiety among Elementary School Teachers in Indonesia and Nigeria Rating Scale (LAESTINRS) and the Causes and Strategies Employed to Overcome Mathematics Teaching Anxiety Questionnaire (CSEOMTAQ). The findings revealed that the level of anxiety among elementary schoolteachers in Indonesia and Nigeria was low. Insufficient self-confidence in mathematical abilities and a lack of resources and teaching materials became the major causes of mathematics anxiety among the teachers, among others. Teacher-to-teacher mentorship and collaborative learning as well as organizing and encouraging professional development programs were the strategies used in managing mathematics teachers' anxiety. There was a significant difference in the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria. It was recommended that continuous training programs and professional development opportunities that address the root causes of mathematics teaching anxiety should be organized.

Keywords: Cross-cultural comparison; elementary education; Indonesia; mathematics teaching anxiety; Nigeria; teacher training

1. INTRODUCTION

Mathematics is often considered a challenging subject, both by students and teachers. Math-anxiety can come from an unpleasant experience in learning mathematics. It is a form of emotional discomfort that significantly reduces prospective teachers' confidence to teach mathematics and science effectively. This has been shown to influence teachers' confidence and teaching performance (Bursal & Paznokas, 2006). Through the validation of the Mathematics Anxiety Scale for Teachers, it is emphasized that it not only affects one's problem-solving capacity but also influences how one communicates and teaches mathematical content to others (Ganley et al., 2019). Furthermore, it has been found to have an inverse relationship with teacher efficacy as teachers with higher levels of anxiety often perceive themselves as less capable of teaching mathematics (Gresham, 2008). It is also important to distinguish between general mathematics anxiety and mathematics teaching anxiety because specific teaching-related triggers, such as fear of student evaluation or insufficient content mastery, can intensify the anxiety (Peker & Ertekin, 2011). Teachers may also experience mathematics anxiety due to classroom expectations, performance pressures, and unresolved personal experiences with mathematics (Polacco et al., 2023). Overall, it can become both a cognitive and affective burden that interferes not only with mathematical understanding but also with pedagogical decision-making (Swars et al., 2006).

This study adopts a working definition of math anxiety as "a negative emotional reaction, characterized by tension, fear and avoidance that occurs when engaging with mathematics content or teaching mathematics and that negatively affects self-confidence, instructional decision-making, and overall classroom performance." There are three learning environments for students, family, school, and society. In the family environment, although parental anxiety about mathematics is not directly related to the development of their children's math anxiety, it may be associated with the development of their children's early math skills, which are strong indicators of not only academic achievement but also success and happiness in adulthood (Guzmán et al., 2023; Tomasetto et al., 2025). In the school environment, anxiety in learning mathematics can be influenced by various aspects; for example, student readiness (Irfan, 2017, 2018; Möhring et al., 2024), difficult mathematics material and lack of student motivation (Supriadi et al., 2024), and teachers' teaching, including the selection of teaching methods (Iyamuremye et al., 2023; Schreiber & Ashkenazi, 2024). Anxiety in teaching mathematics is not a new phenomenon and has become a concern in the world of education, especially among elementary schoolteachers. Anxiety in teaching mathematics can affect teacher performance in delivering material, which in turn has an impact on student learning achievement, such as the results of Sa'adah and Mariana's (2018) study, which state that bad past experiences and lack of mastery of the material can cause anxiety. In addition, the learning methods used by teachers can also affect anxiety in teaching mathematics (Rahayu et al., 2019). There is an impact from various teachers' teaching methods, one of which is from word problem abstract (Schreiber & Ashkenazi, 2024).

Although there have been many studies related to math anxiety, research related to anxiety in teaching mathematics remain limited, especially for elementary school mathematics teachers. Elementary school is a basic phase for learning mathematics and teachers must have good competencies; otherwise they can experience anxiety when teaching. Teacher pedagogy contributes to the aspect of students' enjoyment of learning mathematics and understanding of mathematical knowledge (Chiu & Seah, 2024). This means that it can be one of the factors in the emergence of math anxiety. Several studies in Indonesia have highlighted the issue of mathematics anxiety. Fitriyah et al. (2022) examined the effect of peer tutoring on students' mathematics anxiety levels among middle school students. The results show that the peer tutoring method is effective in reducing it in both male and female students. Paramitha and Ajisukmo (2021) highlight the importance of mathematics self-efficacy and attitudes toward mathematics. The study finds that there is a relationship between mathematics self-efficacy and attitudes toward mathematics in junior high school students. This suggests that increasing students' confidence in mathematics can help reduce their anxiety toward the subject. In Nigeria, a study in the Nsukka Local Government Primary Education Authority of Enugu State, Nigeria shows that socioeconomic status and classroom climate significantly influence mathematics anxiety (Adimora et al., 2015). In addition, teacher conditions in Nigeria such as financial worries, living conditions, and gender constraints can give the influence (Humphreys et al., 2020). This condition becomes more complex when we compare the experiences of teachers in various countries with different cultural backgrounds and education systems, such as Indonesia and Nigeria.

Indonesia and Nigeria have differences in education systems and socio-cultural contexts, but both face the same challenges related to anxiety in teaching mathematics. In Indonesia, research on mathematics anxiety has predominantly focused on prospective teacher students while studies involving practicing teachers remain limited. The interaction between learning styles and mathematical content has been shown to influence the level of anxiety in teaching mathematics (Kusmaryono & Ulia, 2020). There are also findings that mathematics

teachers who have non-mathematics competencies have high levels of anxiety (Juhriani & Faisal, 2017). Meanwhile, teachers' mathematics anxiety and skills in Nigeria posit that a high level of teachers' mathematics anxiety negatively influences their mathematics competency (Sopekan & Awofala, 2019). Similarly, a study carried out in Nigeria on comparative analysis of the impact of mathematics teaching anxiety on service and pre-service teachers' teaching experience reveals that both pre-service and in-service teachers often have mathematics anxiety, which often make them skip some difficult topics (Odebode, 2021).

Another significant aspect that can appear in relation to the comparison of Nigeria and Indonesia is the contribution of socio-cultural and educational differences to the development of teachers' mathematics anxiety. In Indonesia, studies find that math teachers with less anxiety attribute it to higher teaching self-efficacy, improved lesson material preparation, and increasing confidence with technology, particularly Technological Pedagogical Content Knowledge (TPACK) and ICT competency. These competencies have increased significantly in the last 20 years (Yanuarto et al., 2023). In comparison, in Nigeria, the reduced anxiety of some teachers is more directly related to the mastery of math content, proper lesson preparation, student-centered pedagogical approaches, and professional development that enhances the teaching efficacy (Awofala et al., 2024; Tella, 2011). These trends are not only a result of institutional disparities, in which Indonesia has a greater focus on ICT-based pedagogy versus Nigeria's struggle with infrastructure and training disparities, but also socio-cultural differences in teacher training, classroom instruction, and expectations. The description of these contrasts preconditions the explanation of the ways in which the cultural and educational systems influence the appearance of mathematics teaching anxiety in various contexts.

A notable gap observed that necessitates this current study is that many studies emphasize pupils, students, and preservice teachers' mathematics anxiety, both in Nigeria and Indonesia. Few studies consider teachers' mathematics anxiety, and most studies do not consider anxiety comparison among countries to give wider coverage of levels in a global context. The main question that arises is how the level of anxiety is experienced by elementary schoolteachers in both countries and what causes this anxiety to arise. Furthermore, it is important to explore the strategies used by teachers to overcome this anxiety in the context of teaching mathematics. This study aims to answer several key questions: What is the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria? What are the causes of anxiety in teaching mathematics among the elementary schoolteachers in both countries? What are the strategies used by the elementary schoolteachers in Indonesia and Nigeria to overcome anxiety in teaching mathematics?

Through this approach, the study is expected to provide deeper insights into the factors that influence mathematics teaching anxiety and how differences or similarities in culture, education, and work environment can affect teachers' experiences. Therefore, the findings of this study are relevant not only to educational policymakers but also to educational practitioners seeking solutions to reduce mathematics teaching anxiety, both in Indonesia and Nigeria.

2. METHODS

2.1 Design

The study adopted a descriptive survey research design since the study intended to sample the respondents' views about the variable under investigation. A descriptive survey research design allows an investigator to evaluate the perception, views, behavior, and opinion of a population from a sample selected (Ogirima et al., 2021; Siedlecki, 2020). This design was adopted because the study administered Google Forms to the selected respondents; the method was appropriate to investigate Indonesian and Nigerian elementary schoolteachers' experiences of overcoming mathematics teaching anxiety.

Indonesia and Nigeria were chosen for this comparison due to their similarities as well as their differences in terms of education and socio-cultural backgrounds. Being developing countries with high education systems, the two countries have common challenges of teacher shortage, lack of resources, and differences in teacher qualifications. Moreover, mathematics education is also an important issue, and past research has indicated that mathematics achievement and anxiety in students in both countries have been chronic, and therefore it is important to determine whether the same trends are also evident among teachers. Although both Indonesia and Nigeria are developing countries, they vary in terms of culture, language, and pedagogy, which gives a chance to understand the contextual factors more deeply in terms of their impact on mathematics teaching anxiety. Moreover, most of the available research on the topic has been focused on students and pre-service teachers, and little has been done regarding cross-country comparisons of teachers. Therefore, the comparison of Indonesia and Nigeria not only fills this gap in the research but also adds to the broader view of teachers' mathematics anxiety.

2.2 Population and sampling techniques

The population of this study were all the teachers teaching in elementary schools in Indonesia and Nigeria, while the target population were all the elementary mathematics schoolteachers in Indonesia and Nigeria. A total of 400 elementary mathematics schoolteachers from both countries were randomly mailed through Google Forms by using a simple random sampling technique (200 Indonesian teachers and 200 Nigerian teachers). Then, 184 forms were retrieved from Nigeria and 147 forms were retrieved from Indonesia. The selection of these two countries was not solely based on the ease of access to respondents but also considering the importance of the contrasting socio-cultural contexts between the two. The comparison between Indonesia and Nigeria provides an opportunity to understand mathematics teaching anxiety in a broader framework, which is how cultural factors, education systems, and socio-economic conditions can influence teachers' perceptions and experiences of teaching anxiety. Therefore, the selection of these two countries allows for a deeper and more meaningful understanding of the variations in mathematics teaching anxiety while enriching cross-cultural literature studies in the field of mathematics education.

2.3 Research instrument

The LAESTINRS (Level of Anxiety among Elementary School Teachers in Indonesia and Nigeria Rating Scale) and CSEOMTAQ (Causes and Strategies Employed to Overcome Mathematics Teaching Anxiety Questionnaire) instruments were independently developed by the researchers based on the results of a literature review and adaptation of various empirically tested mathematics anxiety measurement instruments. The development of these two instruments aimed to measure the level of mathematics teaching anxiety and identify the causes and strategies for handling it contextually among the elementary schoolteachers in Indonesia and Nigeria.

The LAESTINRS instrument was adapted from several mathematics anxiety scales that emphasized the affective aspects and teachers' self-confidence in their ability to teach mathematics. Some of the main references used as a reference for the development included the instrument from Bursal and Paznokas (2006) which evaluates mathematics anxiety and the self-confidence of prospective teachers in teaching mathematics and science, and Ganley et al. (2019) who compile and test the construct validity of the Math Anxiety Scale for Teachers (MAST), which is relevant in the context of elementary schoolteachers.

In addition, Gresham (2008) and Swars et al. (2006) emphasize the relationship between mathematics anxiety and teacher efficacy in teaching, which also became the basis for building the LAESTINRS scale dimensions. Peker and Ertekin (2011) also make an important contribution through identifying the relationship between mathematics teaching anxiety and general mathematics anxiety, which was considered in formulating the scale indicators.

For the CSEOMTAQ instrument, its development focused on exploring the causes of anxiety and teachers' strategies in overcoming it. This instrument adapted findings from Polacco et al. (2023) who explore teachers' perspectives on the signs and causes of mathematics anxiety. The coping strategy aspect was also strengthened based on the approaches that emerged in previous studies which show the importance of professional training, collaboration between teachers, and strengthening self-efficacy as strategies for managing anxiety (Bursal & Paznokas, 2006; Swars et al., 2006).

By referring to and adapting various instruments, the preparation of LAESTINRS and CSEOMTAQ was carried out through a process of indicator selection, preparation of items that were appropriate to the cultural and educational context of Indonesia and Nigeria, and content validation through expert opinions to ensure the relevance, clarity, and depth of the aspects being measured.

The instruments were compiled in a single Google Form subdivided into 4 sections. Section A contains demographic distributions of respondents based on country and gender, Section B consists of ten (10) items measuring the level of anxiety, Section C consists of ten (10) items that elicit information on causes of mathematics teaching anxiety among elementary schoolteachers in Indonesia and Nigeria, and Section D consists of five (5) items on the strategies elementary schoolteachers in Indonesia and Nigeria employ to overcome mathematics teaching anxiety. In Sections B to D, a 4-point Likert scale was used to assess the level of respondents' agreement with each statement. This scale consists of the following options: SA (Strongly Agree), A (Agree), D (Disagree), and SD (Strongly Disagree). The selection of this 4-point scale was intended to encourage respondents to provide more assertive answers and avoid the tendency to choose neutral options. The use of this scale also facilitated a quantitative analysis, both descriptively and comparatively, to obtain a clearer picture of the level of anxiety, causal factors, and coping strategies used by teachers in the cross-cultural context between Indonesia and Nigeria. The validity of the instruments was established by lecturers in the faculty of education at the University of Ilorin and Universitas Negeri Yogyakarta. The reliability of the instruments was assessed by administering 20 copies of the instruments (LAESTINRS and CSEOMTAQ) to 10 teachers in Nigeria and Indonesia, each at an interval of 2 weeks, who are not part of the original sample of the

study. The collected instruments were correlated by using Pearson product-moment correlation, and a reliability index of 0.73 and 0.82 was established, which made the instruments reliable for data collection.

2.4 Data collection and analysis

The instruments were developed and administered by using the online medium of Google Forms; informed consent was sought before sharing the link to the Google Form instruments to the sampled respondents. The demographic distribution of the respondents was analyzed by using descriptive statistics of frequency and percentage; the research questions were analyzed by using frequency counts, mean, and standard deviation, while the research hypothesis was tested by using an independent sampled t-test at the 0.05 level of significance. SPSS version 21 was used as the statistical tool.

3. RESULTS

This study aimed to answer several key questions: What is the level of anxiety among elementary schoolteachers in Indonesia and Nigeria? What are the causes of mathematics teaching anxiety among elementary schoolteachers in both countries? What are the strategies used by elementary schoolteachers in Indonesia and Nigeria to overcome mathematics teaching anxiety? In addition to answering these questions, this study also sought to test the hypothesis that there is no significant difference in the levels of anxiety between elementary schoolteachers in Indonesia and Nigeria. A total of 184 forms were collected from Nigeria, and 147 forms were collected from Indonesian elementary school mathematics teachers. The instrument was structured into 4 sections. Section A consisted of the demographic distribution of the respondents based on country and gender, Section B consisted of ten (10) items measuring anxiety levels, Section C consisted of ten (10) items obtaining information on the causes of mathematics teaching anxiety among the elementary schoolteachers in Indonesia and Nigeria, and Section D consisted of five (5) items on the strategies used by the elementary schoolteachers in Indonesia and Nigeria to overcome mathematics teaching anxiety. The data obtained are explained below.

Table 1: Frequency and percentage distribution of respondents' demographics based on countries and gender

Variable	Frequency	Percentage
Countries		
Indonesia	147	44.4
Nigeria	184	55.6
Total	331	100
Gender		
Male	101	30.5
Female	230	69.5
Total	331	100

Table 1 shows the frequency and percentage distribution of respondents' demographics based on country and gender. The table reveals that out of 331 elementary schoolteachers who participated in this study, 147 (44.4%) were from Indonesia while 184 (55.6%) were from Nigeria. It is important to note that more Nigerian elementary schoolteachers participated. The table also revealed that out of 331 elementary schoolteachers, 101 (30.5%) were male while 230 (69.5%) were female. From this, it can be deduced that most of the elementary schoolteachers are female.

3.1 Research question one: What is the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria?

Table 2: Frequency, percentage, mean, and standard deviation showing the level of anxiety among elementary schoolteachers in Indonesia and Nigeria

No.	Item	Always	Sometimes	Never	Mean	SD
1	I frequently have anxiety before starting a math lesson at my elementary school.	61 (18.4%)	169 (51.1%)	101 (30.5%)	1.88	0.69
2	I'm worried that I cannot motivate the pupils due to my prejudices against mathematics.	38 (11.5%)	171 (51.7%)	122 (36.8%)	1.75	0.65

Table 2: Frequency, percentage, mean, and standard deviation showing the level of anxiety among elementary schoolteachers in Indonesia and Nigeria (continued)

No.	Item	Always	Sometimes	Never	Mean	SD
3	The thought that the pupils cannot comprehend when I turn a concept into mathematical sentence (e.g. 2+3), makes me anxious.	47 (14.2%)	160 (48.3%)	124 (37.5%)	1.77	0.68
4	My concern is that I might fall short of my pupils and their parents' expectations.	51 (15.4%)	188 (56.8%)	92 (27.8%)	1.88	0.65
5	I frequently doubt my ability to teach effectively.	37 (11.2%)	143 (43.2%)	151 (45.6%)	1.66	0.67
6	I feel uncomfortable in mathematics since I do not have enough experience.	42 (12.7%)	160 (48.3%)	129 (39.0%)	1.74	0.67
7	A rise in the level differences among my pupils while teaching mathematics worries me.	68 (20.5%)	179 (54.1%)	84 (25.4%)	1.95	0.68
8	When a pupil does not understand mathematical operations, I get anxious about how to explain them.	73 (22%)	172 (52%)	86 (26%)	1.97	0.69
9	I feel anxious that I cannot finish the outcomes of the mathematics curriculum on time.	73 (22%)	175 (52.9%)	83 (25.1%)	1.97	0.69
10	I sleep less because I have to prepare and get ready for lesson often.	89 (26.9%)	156 (47.1%)	86 (26%)	2.01	0.73
Average mean					1.86	

Weighted mean: 2.00

Table 2 shows the frequency, percentage, mean, and standard deviation on the level of anxiety among elementary schoolteachers in Indonesia and Nigeria. The respondents frequently had anxiety before starting a math lesson at their elementary school (1.88), were worried that they could not motivate the pupils due to their prejudices against mathematics (1.75), felt anxious that the pupils could not comprehend when they turned a concept into mathematical sentence (e.g. 2+3) (1.77), concerned that they might fall short of their pupils and the parents' expectations (1.88), frequently doubted their ability to teach effectively (1.66), felt uncomfortable in mathematics since they did not have enough experience (1.74), were worried about the rise in the level differences among their pupils while teaching mathematics (1.95), got anxious about how to explain when a pupil did not understand mathematical operations (1.97), felt anxious that they could not finish the outcomes of the mathematics curriculum on time (1.97), and slept less because they had to prepare and get ready for lesson often (2.01). The above-average mean of 1.86 is less than the weighted mean of 2.00, which implies that the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria is low.

3.2 Research question two: What are the causes of mathematics teaching anxiety among the elementary schoolteachers in Indonesia and Nigeria?

Table 3: Frequency, percentage, mean, and standard deviation showing the causes of mathematics teaching anxiety among the elementary schoolteachers in Indonesia and Nigeria

No.	Item	Strongly agree	Agree	Disagree	Strongly disagree	Mean	SD
1	Lack of experience in teaching mathematics makes me anxious in teaching	60 (18.1%)	138 (41.7%)	107 (32.3%)	26 (7.9%)	2.70	0.86
2	The abilities of my fellow math teachers at my school make me feel inferior	40 (12.1%)	88 (26.6%)	157 (47.4%)	46 (13.9%)	2.37	0.87
3	In my school, we are required to integrate mathematics with other materials/knowledge (e.g. religion, culture, local wisdom, etc.) which makes me anxious	55 (16.6%)	113 (34.1%)	134 (40.5%)	29 (8.8%)	2.58	0.87
4	The teacher training programs for elementary mathematics are inadequate, which is a major cause of mathematics anxiety among teachers	81 (24.5%)	150 (45.3%)	80 (24.2%)	20 (6.0%)	2.88	0.85
5	Teachers are often compelled to cover the curriculum of each class at the expense of pupils understanding	81 (24.5%)	138 (41.7%)	95 (28.7%)	17 (5.1%)	2.86	0.85
6	Lack of resources and teaching materials is a major cause of mathematics anxiety among teachers	90 (27.2%)	146 (44.1%)	76 (23.0%)	19 (5.7%)	2.93	0.85
7	Teachers' prior negative experience while going to school or dealing with pupils is also a cause of anxiety	53 (16.0%)	172 (52.0%)	89 (26.9%)	17 (5.1%)	2.79	0.77

Table 3: Frequency, percentage, mean, and standard deviation showing the causes of mathematics teaching anxiety among the elementary schoolteachers in Indonesia and Nigeria (continued)

No.	Item	Strongly agree	Agree	Disagree	Strongly disagree	Mean	SD
8	In my class, there are pupils with superior math abilities, so it makes me anxious when asked.	56 (16.9%)	88 (26.6%)	155 (46.8%)	32 (9.7%)	2.51	0.89
9	Insufficient self-confidence in mathematical abilities is a major cause of mathematics anxiety among teachers	84 (25.4%)	166 (50.2%)	69 (20.8%)	12 (3.6%)	2.97	0.78
10	In certain materials, I am less able to understand mathematical concepts, so I am anxious when teaching them.	46 (13.9%)	166 (50.2%)	94 (28.4%)	25 (7.5%)	2.70	0.80
Average mean						2.73	

Weighted mean: 2.50

Table 3 shows the frequency, percentage, mean, and standard deviation of the causes of mathematics teaching anxiety among the elementary schoolteachers in Indonesia and Nigeria. The respondents agreed that lack of experience in teaching mathematics makes them anxious in teaching (2.70), abilities of their fellow math teachers at their school make them feel inferior (2.37), at their school, they are required to integrate mathematics with other materials/knowledge (e.g. religion, culture, local wisdom, etc.) which makes them anxious (2.58), teacher training programs for elementary mathematics are inadequate, which is a major cause of mathematics anxiety among teachers (2.88), teachers are often compelled to cover the curriculum of each class at the expense of pupils understanding (2.86), lack of resources and teaching materials is a major cause of mathematics anxiety among teachers (2.93), teachers' prior negative experience while going to school or dealing with pupils is also a cause of anxiety (2.79), in their class, there are pupils with superior math abilities, so it makes them anxious when asked (2.51), insufficient self-confidence in mathematical abilities is a major cause of mathematics anxiety among teachers (2.97), and in certain materials, they are less able to understand mathematical concepts, so they are anxious when teaching them (2.70). The average mean of 2.73 is greater than the weighted mean of 2.50, which implies that the above items are the causes of mathematics teaching anxiety among the elementary schoolteachers in Indonesia and Nigeria.

3.3 Research question three: What strategies do elementary schoolteachers in Indonesia and Nigeria employ to overcome mathematics teaching anxiety?

Table 4: Frequency, percentage, mean, and standard deviation showing what strategies elementary schoolteachers in Indonesia and Nigeria employ to overcome mathematics teaching anxiety

No.	Item	Strongly agree	Agree	Disagree	SD	Mean	SD
1	Teacher-to-teacher mentorship and collaborative learning can help to overcome mathematics teaching anxiety	166 (50.2%)	147 (44.4%)	13 (3.9%)	5 (1.5%)	3.43	0.64
2	Integration of technological application into teaching and learning of mathematics is a strategy to reduce mathematics teaching anxiety	143 (43.2%)	174 (52.6%)	10 (3%)	4 (1.2%)	3.38	0.61
3	Organizing and encouraging professional development programs can also help in managing teachers' anxiety	149 (45%)	168 (50.8%)	10 (3%)	4 (1.2%)	3.40	0.61
4	Teachers should be allowed to adapt the curriculum contents to suit the phase of learners	144 (43.5%)	163 (49.2%)	18 (5.4%)	6 (1.9%)	3.34	0.67
5	Numerous stress management activities should be promoted among teachers as a strategy to reduce stress	138 (41.7%)	171 (51.7%)	15 (4.5%)	7 (2.1%)	3.33	0.66
Average mean						3.38	

Table 4 shows the frequency, percentage, mean, and standard deviation of the strategies the elementary schoolteachers in Indonesia and Nigeria employ to overcome mathematics teaching anxiety. The respondents strongly agreed that teacher-to-teacher mentorship and collaborative learning can help to overcome mathematics teaching anxiety (3.43), integration of technological application into teaching and learning of mathematics is a strategy to reduce mathematics teaching anxiety (3.38), organizing and

encouraging professional development programs can also help in managing teachers anxiety (3.40), teachers should be allowed to adapt the curriculum contents to suit the phase of learners (3.34), and numerous stress management activities should be promoted among teachers as a strategy to reduce stress (3.33). The average mean of 3.38 is greater than the weighted mean of 2.50, which implies that the above items are the strategies that the elementary schoolteachers in Indonesia and Nigeria employ to overcome mathematics teaching anxiety.

3.4 Research hypotheses one:

H₀₁: There is no significant difference in the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria.

Table 5: Summary of independent sample t-test showing significant difference in the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria

Countries	N	Mean	SD	T	df	Sig	Decision
Indonesia	147	16.76	3.6669				
Nigeria	184	19.99	4.4648	-7.079	329	.000	Significant

From Table 5, the results showed $t(331) = -7.079$, $df = 329$ at the 0.05 level of significance. The significance value is 0.000, which is less than the 0.05 alpha level. Therefore, the formulated hypothesis that there is no significant difference in the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria is rejected, which implies that there is a significant difference in the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria

4. DISCUSSION

The findings of the study reveal that the level of anxiety among the elementary schoolteachers in Indonesia and Nigeria is low. This aligns with the findings of Çatlioglu et al. (2009), who found a low level of mathematics anxiety among pre-service elementary schoolteachers, with notable variations based on classes, abilities, and achievement levels. Teachers with low mathematics anxiety tend to teach elementary mathematics effectively, with full confidence, and using a variety of teaching methodologies (Haciomeroglu, 2013). This finding concurs with a study which reveals that the level of mathematical anxiety among primary education degree students in the post-pandemic is low to medium which implies that the prevalence of anxiety is low; however, the teachers sometimes feel anxious (Costado Dios & Piñero Charlo, 2024). These findings support the observation that elementary and middle schoolteachers exhibit low levels of both mathematics anxiety and teaching anxiety, yet they contradict reports of high mathematics anxiety among pre-service elementary schoolteachers and align with evidence that preschool teachers experience significant anxiety during teaching activities (Özlü, 2024; Park et al., 2024; Rahayu et al., 2019).

Low levels of anxiety among elementary schoolteachers in Indonesia have been attributed to the fact that younger students are generally more supportive and provide a safe learning environment (Pasaribu & Harendita, 2018). Studies connecting technological confidence (TPACK) and ICT literacy with anxiety indicate that greater integration of technology and pedagogy contributes to lower levels of teaching anxiety. The increase in the use of technology over the past two decades has also been identified as a factor contributing to the reduction of anxiety among Indonesian teachers (Yanuarto et al., 2023). In contrast, the average level of mathematics teaching anxiety among Nigerian teachers tends to be moderate although certain mechanisms consistently explain the reduction of anxiety in specific subgroups. Such mechanisms include increased teaching self-efficacy, improved content and pedagogical knowledge, effective lesson planning, continuous professional growth, student-centered teaching strategies, higher technology self-efficacy, and supportive classroom practices (Awofala et al., 2024; Ismail et al., 2022; Tella, 2011).

The study also reveals the following as the causes of mathematics anxiety in Indonesia and Nigeria: lack of teaching experience, the abilities of fellow math teachers at school make them feel inferior, ability to integrate mathematics with other materials/knowledge, teacher training programs for elementary mathematics are inadequate, covering the curriculum of each classes at the expense of pupils' understanding, lack of resources and teaching materials, teachers' prior negative experience, pupils with superior math abilities, insufficient self-confidence in mathematical abilities, and inadequate understanding of mathematical concepts. In corroboration, inadequate training programs for elementary schoolteachers in mathematics contribute to mathematics anxiety, which in turn affects their attitude, engagement, and students' achievement in mathematics (Artemenko et al., 2021). Similarly, teachers' anxiety is influenced by multiple factors, such as

insufficient subject knowledge, low self-confidence in teaching mathematics, and a lack of resources and instructional materials (Prasetyo et al., 2023). Furthermore, mathematics anxiety among teachers is also attributed to student-related factors and teachers' prior negative experiences (Park et al., 2024; Ramirez et al., 2018).

The findings of this study further indicate that elementary schoolteachers in Indonesia and Nigeria employ various strategies to mitigate mathematics teaching anxiety. These strategies include teacher-to-teacher mentorship and collaborative learning, the integration of technological applications in mathematics instruction, the organization and promotion of professional development programs, the adaptation of curriculum content to align with learners' developmental stages, and the implementation of stress management activities to reduce anxiety among teachers. Aruvee and Vintere (2023) also posit strategies for overcoming mathematics teaching anxiety which include the integration of information and communication technology tools in mathematics instruction, the promotion of collaborative activities among teachers and students, and the contextualization of mathematics learning through real-life applications. Although various factors contribute to mathematics anxiety, fostering positive collaborations among parents, teachers, and learners is a crucial strategy for mitigating mathematics learning anxiety (Mehmet & Hulya, 2021).

Furthermore, significant differences have been found in the level of mathematics anxiety among the elementary schoolteachers in Indonesia and Nigeria, with studies reporting moderate to high levels of teaching anxiety across both countries. The level amongst Indonesian teachers is generally moderate, with no significant differences based on gender, teaching experience, or school type (Tasdemir, 2015, 2016). Mathematics teaching anxiety may also vary among teachers primarily due to their mathematical beliefs and skill levels (Sopekan & Awofala, 2019).

5. CONCLUSION

The study provides evidence on the level of anxiety amongst the elementary schoolteachers' mathematics anxiety in Indonesia and Nigeria, and it can be concluded that the level is low in both countries. The study also reveals the various causes of mathematics anxiety amongst teachers which ranges from lack of teachers' experience, the abilities of fellow math teachers at school makes them feel inferior, ability to integrate mathematics with other materials/knowledge, inadequate teacher training programs for elementary mathematics, covering the curriculum of each classes at the expense of pupils' understanding, lack of resources and teaching materials, teachers' prior negative experience, pupils with superior math abilities, insufficient self-confidence in mathematical abilities, and inadequate understanding of mathematical concepts.

Furthermore, evidence demonstrates that the teaching anxiety is not predetermined. It varies according to the classroom, instructional practices, and technology. In Indonesia, elementary educators found that supportive young students, as well as an emphasis on core competencies, resulting in a classroom that reduces anxiety. Similarly, the increased use of technology in the classroom increases the confidence of teachers and reduces anxiety in the long term. Math teachers in Nigeria generally report moderate anxiety. Nevertheless, most groups report reduced anxiety when they develop self-confidence, enhance teaching knowledge, plan, acquire professional growth, and use technology. All in all, these findings indicate that providing educators with high-quality teaching and technology, as well as establishing favorable classrooms, can gradually reduce anxiety and enhance the quality of teaching all over the world.

The study concludes that elementary schoolteachers in Indonesia and Nigeria utilize various strategies to combat mathematics teaching anxiety. These strategies include teacher-to-teacher mentorship and collaborative learning, incorporating technology into mathematics teaching, organizing and encouraging professional development programs, tailoring curriculum content to the learners' stage, and promoting numerous stress management activities among teachers as a stress-reduction strategy. Lastly, the study concludes that there is a significant difference in the anxiety levels of the elementary schoolteachers between Indonesia and Nigeria. This is likely due to variations in the educational system, cultural differences, and facilities, which could generally influence elementary schoolteachers' levels of anxiety.

This study is limited to the elementary schoolteachers in Indonesia and Nigeria, so its findings are less applicable to other levels of education. The study also relies on self-reported data, which may be subject to bias, and is cross-sectional, precluding longitudinal analysis of changes in anxiety. Differences in education systems, teacher training, and policies between the two countries may also have influenced the results. Additionally, external factors such as workload, school facilities, and government support were not the primary focus. Cultural variations in perceptions of anxiety may influence responses, and while this study identified strategies used by teachers, it did not test their effectiveness.

We derive the following recommendations from the findings: to reduce mathematics anxiety, elementary schoolteachers training programs in Indonesia and Nigeria must incorporate more classroom

instructional strategies and classroom management skills; curriculum adaptation to suit diversified teachers and learners' needs should be encouraged; teacher-to-teacher mentorship should be encouraged in which experienced teachers could guide and help teachers. This is an era of technological advancements, so teachers should be trained on how to incorporate instructional technology to support their teaching and learning activities.

The limitation of this research includes limited generalizability; the study focuses only on elementary schoolteachers in Indonesia and Nigeria. The findings may not be fully applicable to teachers in other educational levels or countries with different socio-cultural and educational backgrounds. Another limitation is the self-reported data; the study relies on self-reported measures of anxiety, which may be subject to personal bias, social desirability effects, or inaccurate self-assessments by participants. The next limitation is the lack of longitudinal data; the research appears to be cross-sectional, indicating that it captures data at a single point in time. A longitudinal approach would provide deeper insights into how mathematics anxiety evolves over time among teachers. Another limitation is also the potential variability in educational systems; the educational systems, training, and curriculum structures in Indonesia and Nigeria are different, which may introduce additional variables that influence anxiety levels but are not controlled in the study. Further limitation is the limited consideration of external factors; such factors as school infrastructure, teacher workload, availability of teaching resources, and government policies might also contribute to anxiety levels but may not be fully explored in this study. The last limitation is the cultural differences in perception of anxiety; the way anxiety is perceived and reported may differ across cultures, potentially influencing the results and making direct comparisons between Indonesia and Nigeria more complex. By recognizing these limitations, future research can address these gaps to provide a more comprehensive understanding of mathematics teaching anxiety among elementary schoolteachers across different contexts.

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