EXPLORING THE ROLE OF MATHEMATICS ANXIETY IN STUDENTS' COMMITMENT TO SCIENCE EDUCATION IN THE NIGER DELTA

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ABSTRACT

Mathematics anxiety is a prevalent concern that impedes the academic achievement and overall welfare of numerous students at all educational levels on a global scale. The presence of anxiety can impede the attainment of mathematical proficiency and result in a lack of interest or involvement in the discipline. Nevertheless, with the implementation of various tactics aimed at managing mathematics anxiety, fostering student engagement, and cultivating resilience, educators and policymakers possess the ability to assist students in surmounting these obstacles and attaining success in the realm of mathematical education. This study explores the relationship between mathematics anxiety, engagement and resilience by discussing causes and consequences based on literature findings, and proposes effective techniques for managing these factors to improve mathematical performance.

Keywords: Mathematics anxiety; engagement; resilience; mathematics achievement

INTRODUCTION

Mathematics holds a crucial position in the realm of education, serving as a cornerstone for cognitive growth and the enhancement of problem-solving abilities. Nevertheless, a considerable number of pupils encounter mathematical anxiety, a phenomenon that can significantly impede their learning progress and academic performance (Ashcraft & Ridley, 2005). This anxiety frequently arises due to adverse experiences, apprehension of failure, and societal beliefs that mathematics is intrinsically challenging. A rise in mathematics anxiety can lead to the avoidance of math-related tasks, the manifestation of physiological symptoms of stress, and a decrease in motivation among students (Hembree,1990). Mathematics plays a pivotal role in contemporary education, exerting its influence across a wide range of domains (Niss & Højgaard, 2019). English functions as the primary means of communication within the domains of science, technology, engineering, economics, and business. The possession of strong mathematical skills serves as an indicator of academic achievement and holds significant importance in a society that is progressively dependent on decision-making processes driven by data. Nevertheless, the process of attaining a high level of mathematical competence is frequently accompanied by various difficulties, one of which is the significant obstacle posed by mathematics anxiety (Lai, Zhu, Chen, & Li, 2015).

Mathematics anxiety is a widely observed psychological phenomena that is distinguished by the experience of fear, worry, and stress in response to mathematical problems (Hembree, 1990). Math anxiety is often characterized by physiological manifestations such as heightened heart rate and perspiration, which commonly result in the avoidance of mathematical tasks. Regrettably, extensive evidence exists on the adverse impact of mathematics anxiety on the attainment of mathematical skills, leading to diminished performance on assessments, impeded advancement in scholastic pursuits, and perhaps limited professional prospects (Ashcraft & Moore, 2009). In light of the widespread concern surrounding mathematics anxiety, scholars and practitioners have undertaken an endeavor to comprehend its underlying causes, observable expressions, and, notably, effective strategies for its mitigation. This undertaking encompasses not only the mitigation of anxiety but also the promotion of active involvement with mathematical concepts and the development of resilience in students.

The concept of engagement in mathematics education extends beyond mere participation, encompassing active involvement,intrinsic drive, and a profound sense of connection to mathematical information (Skinner, Furrer, Marchand, & Kindermann, 2008). Individuals who actively participate in the learning process demonstrate a greater inclination to persevere in the face of difficulties, exhibit a desire to comprehend mathematical topics at a profound level, and finally attain elevated levels of mathematical aptitude. The term "resilience" in the field of mathematics education pertains to a student's ability to recover from setbacks, persist in the face of difficult mathematical problems, and sustain a mindset that is focused on improvement (Martin, 2013). Resilient individuals perceive mathematical hurdles not as insurmountable impediments, but rather as occasions for acquiring knowledge and personal development.

In the currentday, where the importance of mathematical literacy has heightened, it is crucial to not only comprehend the difficulties encountered by students but also to provide them with the required skills and tactics to effectively navigate the realm of mathematics. The subsequent segments of this manuscript will provide a more comprehensive analysis of the administration of mathematics anxiety, the fostering of engagement, and the fostering of resilience, elucidating practical methodologies, interventions, and exemplary strategies that can result in enhanced mathematics attainment and a more promising outlook for all students. On the other hand, the involvement in the field of mathematics is linked to favorable dispositions, drive, and persistence (Jett, 2019). Students that are actively engaged in their learning are more inclined to actively participate in educational activities and actively seek out challenging tasks. Moreover, it is worth noting that resilience, which refers to the capacity to recover from setbacks and endure in the presence of challenges, assumes a pivotal function in assisting students in surmounting obstacles encountered in the realm of mathematics (Alfain, Soleh, & Yamani, 2023).

The primary objective of this research article is to explore the effective management of mathematics anxiety, explore tactics that can promote student engagement in mathematics, and identify approaches that can cultivate resilience in students. The final purpose of this study is to improve mathematics success outcomes. In this study, we aim to investigate the intricate relationship among the aforementioned three variables and propose evidence-driven strategies for educators, policymakers, and parents to effectively facilitate students' mathematical learning. The rest of the paper is as follows, In Section 2 and Section 3, we will explore the mathematics anxiety causes and consequences and strategies for managing mathematics anxiety, respectively. Engagement in mathematics and resilience towards mathematics achievement are

discussed in Section 4 & Section 5, respectively. In Section 6, Interplay between mathematics anxiety, engagement and resilience is discussed. Final remarks and future thought are discussed in Section 7.

MATHEMATICS ANXIETY CAUSES AND CONSEQUENCES

Causes of Mathematics Anxiety

Mathematics anxiety is a multifaceted psychological phenomenon that can manifest in diverse manners, resulting in emotions of worry, trepidation, and stress when faced with mathematical activities. The presence of this factor may impede an individual's aptitude in mathematical endeavors and perhaps result in enduring consequences for their educational and vocational endeavors. The occurrence of previous failures or adverse encounters in the field of mathematics has the potential to instill a sense of apprehension against engaging in similar activities, hence inducing anxiety (Suárez-Pellicioni et al., 2016). One of the primary factors contributing to mathematics anxiety is the presence of adverse experiences in the past, such as encountering difficulties with mathematics throughout early education or obtaining unsatisfactory grades on math's assignments or assessments. These encounters have the potential to instill a phobia of unsuccessful outcomes and undermine an individual's self-assurance in mathematical pursuits. The presence of cultural stereotypes and societal attitudes regarding the difficulty of mathematics can potentially lead to the development of mathematics anxiety (Abramski, Citraro, Lombardi, Rossetti, & Stella, 2023). The influence of peers and the act of comparing oneself to others might intensify the experience of mathematics anxiety. The act of comparing one's mathematics ability to those of their peers might potentially induce feelings of judgement and inferiority among students, thereby resulting in increased levels of anxiety. The apprehension and unease experienced by students can be heightened due to the perceived scrutiny and assessment from both educators and classmates (Luttenberger et al., 2018).

The presence of teaching methods that are ineffective or induce anxiety can be a contributing factor to the development of mathematics anxiety. Educators that priorities rote memory over comprehensive comprehension or employ punitive measures in response to erroneous responses have the potential to foster an anxiety-inducing educational setting (Kim, Kadkol, Solomon, Yeh, Soh, Nguyen & Ajilore, 2023). The administration of high-stakes assessments, such as standardized tests or final exams, has been found to have a significant impact on individuals' anxiety levels. The burden of achieving high scores on these examinations might exert a significant psychological strain on certain individuals, resulting in the manifestation of symptoms associated with anxiety during the assessment. The anxiety experienced by a youngster might be influenced by the attitudes and expectations of their parents towards mathematics. Parents who exhibit signs of concern towards mathematics or hold high expectations for their child's mathematical abilities may unintentionally contribute to the development of math anxiety in their children (Szczygieł & Pieronkiewicz, 2022). The influence of cultural and gender stereotypes can be observed in the manifestation of mathematics anxiety. specific individuals may internalize stereotypes that imply specific groups, such as females or minorities, has lesser abilities in mathematics, resulting in increased levels of anxiety. The impression that mathematics possesses inherent difficulty can potentially contribute to the development of anxiety. The perception that mathematics poses an insurmountable obstacle can result in heightened levels of stress when confronted with mathematical problems. Mathematics anxiety can be significantly influenced by an individual's lack of self-assurance in their mathematical skills. When individuals have uncertainty regarding their own proficiency in mathematics, it is more probable for them to encounter feelings of worry. The intricacy and rapidity of the mathematics curriculum may also be a contributing factor to the experience of worry (Faulconer, Bolch, & Wood, 2023). The presence of a substantial workload or difficulties in comprehending novel mathematical concepts might lead to heightened feelings of anxiety. Individuals diagnosed with learning difficulties, namely dyscalculia, exhibit a higher susceptibility to experiencing mathematics anxiety. Individuals who experience difficulties in mathematics as a result of a learning disability may encounter increased levels of anxiety.

Consequences of Mathematics Anxiety

Mathematics anxiety can result in several outcomes that impact an individual's academic, personal, and professional spheres. The enduring nature of these consequences can be observed, with their intensity being contingent upon the degree of anxiety experienced and the coping mechanisms employed to manage it. There exists a negative correlation between elevated feelings of mathematics anxiety and performance outcomes in mathematics, including lower test scores and overall academic achievement (Hembree,1990). It has been observed that students may exhibit a tendency to evade mathematics-related assignments or coursework, resulting in a lack of progress in their mathematical skills (Ashcraft & Moore, 2009). The presence of anxiety has the potential to diminish one's intrinsic drive towards mathematics, resulting in decreased levels of enjoyment and engagement with the subject (Pekrun et al., 2002). The presence of mathematics

anxiety has the potential to hinder the acquisition of knowledge and skills in the field of mathematics. When individuals experience anxiety, it can have a detrimental impact on their cognitive abilities, leading to challenges in concentration, knowledge retention, and comprehension of mathematical concepts. This phenomenon may lead to a decrease in academic performance in courses linked to mathematics. The presence of anxiety frequently results in diminished performance in mathematical problems. During examinations, students may encounter instances of cognitive impairment commonly referred to as "blanking out," which can result in the manifestation of simple errors (Chishti & Rana, 2021). These occurrences can be attributed to the heightened levels of stress experienced by students in such high-pressure situations. This phenomenon has the potential to result in diminished performance on assessments and academic evaluations. Individuals who experience mathematics anxiety may engage in proactive avoidance of circumstances that necessitate the utilization of mathematical abilities. Individuals have the option to pursue educational or professional trajectories that do not require mathematical skills, or they may decide to abstain from engaging in activities that include mathematics. However, this choice may restrict their capacity for personal and vocational development. The experience of mathematics anxiety has the potential to result in adverse effects on one's self-perception and selfesteem (Xie, Xin, Chen & Zhang, 2019). Individuals may experience a decline in self-assurance regarding their overall competency and cognitive capacities, extending beyond the domain of mathematics. This phenomenon can potentially exert a more extensive influence on an individual's self-assurance and perception of personal value. In the contemporary era characterized by a reliance on data and technology advancements, proficiency in mathematics has become a fundamental requirement across various occupational domains. Individuals who experience significant mathematics anxiety may encounter constraints in their job options, as numerous professional domains necessitate a minimum level of mathematical competence. Individuals who suffer from mathematics anxiety may encounter increased levels of tension when faced with mathematical activities. Chronic stress has been found to exert detrimental impacts on physical health and general well-being. Mathematics worry has the potential to cultivate a detrimental disposition towards the discipline of mathematics. The enduring nature of this unfavorable image may have long-term effects, hindering individuals from adopting a positive attitude towards the topic and actively pursuing avenues for enhancing their mathematical abilities (van AalderenSmeets, & Walma vanderMolen, 2018). Mathematics anxiety can serve as an impediment for students who wish to pursue further education or specialized training in disciplines that necessitate mathematical proficiency. This constraint has the potential to impede both personal and professional development. Mathematics anxiety has the potential to impede an individual's ability to effectively engage in problem-solving activities. In both academic and practical contexts, the apprehension towards mathematical activities can impede individuals' ability to effectively address challenges that necessitate mathematical reasoning. The phenomenon of parents transmitting their mathematics anxiety and poor perceptions of arithmetic to their children can contribute to the perpetuation of math anxiety.

STRATEGIES FOR MANAGING MATHEMATICS ANXIETY

The management of mathematics anxiety is of utmost importance in fostering a conducive and productive learning atmosphere within the realm of mathematical education. Through the use of various tactics aimed at addressing anxiety, instructors and students can collaborate in order to cultivate self-assurance, alleviate tension, and promote a more nurturing environment conducive to the acquisition of mathematical knowledge.

Cognitive-Behavioral Techniques (CBT)

The utilization of cognitive-behavioral approaches, such as cognitive restructuring and exposure treatment, has demonstrated efficacy in the management of mathematics anxiety (Hembree, 1990). These tactics encompass the identification and interrogation of negative cognitive schemas associated with mathematics, as well as the gradual exposure of pupils to anxiety-provoking scenarios. CBT have demonstrated significant efficacy in the management of mathematics anxiety Bicer, Perihan & Lee, 2020). CBT has been found to be effective in addressing mathematics anxiety by facilitating cognitive restructuring and fostering the development of more adaptive attitudes towards mathematics. The initial stage of CBT involves cultivating an awareness of harmful cognitive processes. This entails the identification of erroneous or unreasonable cognitions that lead to the experience of negative affect. Frequent cognitive distortions encompass the cognitive processes of catastrophizing, all-or-nothing thinking, and overgeneralization. Once individuals have discovered negative thought patterns, they are urged to question the validity of these patterns. This entails inquiring about the presence of evidence to substantiate the aforementioned notion, or whether the notion in issue is an instance of hyperbole. Following the process of cognitive restructuring, individuals engage in the task of cultivating more balanced and realistic alternative thinking subsequent to confronting their initial negative thoughts. The generation of alternative perspectives should be grounded in empirical evidence and strive to present a more precise and objective viewpoint. CBT frequently incorporates behavioral studies as a means to assess the validity of negative cognitions (Niles, Axelsson,

Andersson, HedmanLagerlöf, Carlbring, Andersson & Ljotsson, 2021). This process may entail the experimentation of novel behaviors or cognitive patterns, followed by the observation of their effects on emotional states and subsequent results.

Relaxation Techniques and Mindfulness

Relaxation techniques and mindfulness practices are seen as useful strategies for effectively managing stress, anxiety, and enhancing overall well-being. The implementation of mindfulness practices and relaxation strategies, such as deep breathing exercises and meditation, has the potential to mitigate the physiological manifestations associated with mathematics anxiety Ramirez & Beilock, 2011). These strategies facilitate the modulation of emotions and support pupils in maintaining a state of calmness when engaging in math-related activities. These practices have the potential to facilitate individuals in cultivating self-awareness, mitigating physical and emotional strain, and augmenting their capacity to effectively navigate the trials and tribulations of life. Deep breathing is a technique that entails the deliberate inhalation and exhalation of slow, deep breaths with the intention of stimulating the body's relaxation response. This activity can be performed in any location and serves as an efficient method for alleviating tension. Attempt to engage in a deep inhalation through the nasal passage, maintaining this breath for a duration of four counts, afterwards followed by an exhalation through the oral cavity for an equivalent count of four. Progressive Muscle Relaxation (PMR) is a technique that entails the deliberate and sequential contraction and subsequent release of various muscle groups inside the human body. It aids in the alleviation of bodily strain. Commencing with the distal extremities, specifically the toes, and progressing proximally towards the cranium, sequentially contract each muscle cluster for a brief duration, afterwards followed by relaxation. Visualization entails the cognitive process of creating a mental image of a serene and tranquil environment or situation (Kaur, Ghosh, Sahani & Sinha, 2019).

Supportive Learning Environment

The establishment of a conducive learning environment is contingent upon the active involvement of both educators and parents (Luttenberger et al., 2018). Promoting a culture of open communication, offering constructive criticism, and prioritizing effort over intrinsic talent have been shown to be effective strategies in mitigating anxiety and cultivating a favorable disposition towards the subject of mathematics. The establishment of a conducive learning environment is vital in promoting the academic achievement, active participation, and overall welfare of students. The concept comprises a multitude of facets pertaining to the educational experience, encompassing the physical, emotional, and social dimensions of the learning environment. The presence of a nurturing educational setting can significantly influence students' levels of motivation, academic achievements, and general contentment. An environment characterized by warmth and inclusivity in the classroom fosters a feeling of belongingness among students and facilitates the exchange of ideas through open and effective communication (Wang & Degol, 2016). Educators have the ability to cultivate such an environment by demonstrating reverence towards every student and acknowledging their varied cultural backgrounds. The cultivation of a supportive environment necessitates the incorporation of essential elements such as respect for variety, cultural sensitivity, and inclusivity. Promote the cultivation of a climate that fosters reverence towards other perspectives, cultural heritages, and individual encounters. Establish explicit guidelines for conduct, tasks, and evaluations. When students possess a clear understanding of the expectations placed upon them, they are more inclined to experience a sense of self-assurance and stability in their educational endeavors. Facilitate the cultivation of a conducive environment for open and effective dialogue between educators and learners (Magolda, Magolda & Carducci, 2023). Promote an environment that fosters student inquiry, facilitates the pursuit of clarification, and enables the open expression of concerns, free from apprehension of criticism or evaluation.

Real-World Applications

Real-world applications encompass the pragmatic utilization of knowledge, concepts, and abilities acquired within an educational or theoretical framework, in the context of everyday situations or professional environments. These applications serve as a means of connecting the divide between theoretical comprehension and actual problem-solving. The incorporation of real-world applications is of utmost importance in showcasing the significance and practicality of education, as well as in tackling intricate issues across many domains. Establishing connections between mathematics and real-life contexts and highlighting its practical significance has the potential to enhance motivation and alleviate anxiety (Steenkamp et al., 2017). When students possess a comprehensive understanding of the practical applications of mathematics in various everyday circumstances, their inclination to actively participate and involve themselves in the subject matter is heightened.

ENGAGEMENT IN MATHEMATICS

The cultivation of student interest, motivation, and overall achievement in mathematics is heavily reliant upon active engagement. Students who are actively engaged in their learning are more inclined to participate actively, persist in the face of problems, and acquire a more profound comprehension of mathematical topics.

Active Learning

The educational approach of active learning in mathematics places emphasis on student engagement, interaction, and hands-on experiences as a means to foster a more profound comprehension of mathematical concepts. Active learning strategies promote student engagement in the construction of knowledge, fostering collaborative effort and the application of mathematical ideas to real-world problems. The implementation of active learning tactics, such as problemsolving activities, group discussions, and hands-on projects, has been found to effectively increase student engagement in the field of mathematics (Fredricks et al., 2004). These instructional approaches promote student engagement and foster a more profound comprehension of mathematical principles. Providing mathematical exercises that necessitate the application of critical thinking and problem-solving abilities. It is advisable to promote independent or collaborative problem-solving among pupils in order to tackle intricate mathematical issues or riddles. The proposed pedagogical approach involves the implementation of peer teaching, wherein students are given the opportunity to alternate in the role of explaining mathematical topics to their fellow classmates. Collaborative learning activities, such as engaging in group projects or participating in problem-solving sessions, facilitate the exchange of ideas and foster a collective comprehension among participants (Ghazal, Al-Samarraie & Wright, 2020).

Technology Integration

The concept of technology integration in education pertains to the utilisation of diverse technological tools, resources, and platforms to augment and facilitate the instructional and educational process. When technology is seamlessly incorporated into the curriculum, it has the potential to enhance educational experiences, foster student engagement, and assist instructors in attaining targeted learning outcomes. Commence by establishing explicit learning objectives and curriculum goals. The identification of how technology can enhance or support these objectives is crucial in ensuring that the usage of technology corresponds with educational outcomes. The use of instructional technology, such as interactive online materials and software, has the potential to enhance student engagement in mathematics, particularly among those who are proficient in utilising technology (Doyle, 2018). The utilisation of gamified math applications and virtual simulations has the potential to augment motivation levels and offer prompt feedback. To effectively engage students in mathematics, it is crucial to provide them with high-quality instruction, clear explanations, and pedagogical approaches that are both engaging and effective (Lubienski & Crane, 2010). Educators who design engaging and interactive instructional materials have the potential to cultivate a profound enthusiasm for mathematics among students.

RESILIENCE TOWARDS MATHEMATICS ACHIEVEMENT

Resilience, within the realm of mathematics achievement, pertains to an individual's capacity to persist in the presence of mathematical difficulties, recover from failures, and sustain a constructive mindset and motivation towards the discipline. The acquisition of mathematical knowledge encompasses more than just the mastery of concepts; it also involves the development of a mentality and emotional resilience necessary to navigate the occasionally challenging landscape of mathematical education. The process of cultivating resilience in the realm of mathematics attainment is a complex and diverse endeavour, involving not just the learning of mathematical aptitude, but also the cultivation of essential life skills. The process entails adopting adversities as prospects for personal development, deriving knowledge from errors, and cultivating the self-assurance necessary to confront intricate mathematical issues.

The promotion of a growth mindset, characterized by the belief that pupils may better their mathematical ability via dedicated effort and practice, has been found to positively impact resilience (Baker, Baker, Burrell, 2021). Promoting a focus on the learning process rather than the outcome cultivates a resilient mindset. The cultivation of problem-solving skills enables pupils to approach complex mathematical projects with a sense of assurance (Schoenfeld, 2022). Promoting the persistence of students in tackling challenging mathematical problems fosters the development of resilience and a constructive attitude towards the subject. The provision of peer support, mentorship programmes, and excellent teacher-student connections can serve as helpful support networks for children who encounter difficulties in mathematics. These interconnections have the potential to enhance both resilience and motivation.

INTERPLAY BETWEEN MATHEMATICS ANXIETY, ENGAGEMENT, AND RESILIENCE

The nuanced nature of the interaction between mathematics anxiety, engagement, and resilience is evident. To achieve optimal outcomes, it is imperative that interventions effectively target and address all three characteristics concurrently. The mitigation of mathematics anxiety has the potential to enhance student engagement, whilst the cultivation of resilience can enable students to persist in the face of anxiety-provoking circumstances (Suárez-Pellicioni et al., 2016). The interplay between these three factors can be described as follows:

- Mathematics Anxiety and Engagement: Elevated levels of mathematics anxiety have the potential to reduce students' degree of involvement and participation in the field of mathematics. The presence of anxiety-induced avoidance behaviors and unpleasant emotions can operate as deterrents for students, impeding their active engagement in mathrelated activities and their willingness to seek assistance when necessary. On the other hand, students who actively participate in mathematics tend to cultivate a favorable disposition and experience decreased levels of anxiety, perceiving mathematics as a topic that is both pleasurable and significant.
- Mathematics Anxiety and Resilience: The role of resilience is crucial in minimizing the adverse consequences of mathematics anxiety. Students that possess resilience demonstrate enhanced abilities to effectively manage situations that induce anxiety, such as complex mathematical problems or examinations. Individuals are inclined to exhibit greater levels of perseverance, actively seek assistance when necessary, and sustain their motivation even in the face of fear.
- Engagement and Resilience: Engaged students frequently demonstrate elevated levels of resilience due to their intrinsic motivation to surmount challenges and persist in their pursuit of knowledge. In contrast, resilience promotes student involvement by instilling a mindset that perceives setbacks as occasions for personal development rather than as instances of defeat.

In brief, the interaction among mathematics anxiety, engagement, and resilience is a dynamic and mutually influential association. Mathematics anxiety has the potential to impede one's level of involvement, although engagement in mathematical activities can alleviate worry. Resilience serves as a protective mechanism against the adverse consequences of anxiety, fostering increased involvement and overall academic performance in the field of mathematics. The active involvement of educators, parents, and mentors is of paramount importance in cultivating resilience, promoting active participation, and mitigating anxiety related to mathematics, so establishing a conducive and fruitful milieu for the acquisition of mathematical knowledge.

CONCLUSION

The field of mathematics education encompasses more than the simple acquisition of mathematical information and skills. It is a complex process that involves navigating the challenges posed by mathematics anxiety, stimulating active involvement, and developing resilience. The dynamic interaction among these three variables significantly impacts the mathematical learning experiences and outcomes of pupils. Mathematics anxiety presents a notable obstacle to the academic performance of students in the field of mathematics. Nevertheless, via the implementation of many initiatives aimed at effectively managing anxiety, fostering active involvement, and cultivating resilience, educators and policymakers possess the capacity to provide substantial support to students in their efforts to overcome these obstacles. The integration of cognitive-behavioral strategies, a conducive learning environment, interactive teaching methods, and a growth mindset can effectively augment mathematics attainment and cultivate a lasting affinity for the subject. In order to cultivate a comprehensive approach to mathematics education, it is imperative to address the management of mathematics anxiety, the development of engagement, and the fostering of resilience. When the aforementioned variables are successfully incorporated into the educational process, pupils are enabled to confront mathematical difficulties with assurance and resolve. Students acquire not only mathematical competence but also essential life skills that extend beyond the confines of the educational setting. Mathematics anxiety undergoes a transformation, leading to the development of mathematical resilience. Engagement with mathematics becomes a lifetime quest, and achievement in this subject becomes amanifestation of the enduring spirit of learning.

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