Turning Fear into Fascination: Exploring Math Teachers' Experiences in Shaping Positive Classroom Attitudes Toward Math

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Abstract

Mathematics is often regarded as one of the most challenging and anxiety-inducing subjects among learners, which hampers both academic performance and student confidence. This study, Turning Fear into Fascination: Exploring Math Teachers' Experiences in Shaping Positive Classroom Attitudes Toward Math, examines the lived experiences of secondary school mathematics teachers in transforming students' negative perceptions into more positive and engaging outlooks. Anchored in Social Cognitive Theory, Math Anxiety Theory, Constructivist Learning Theory, and Self-Determination Theory, the research highlights the emotional, cognitive, and instructional dimensions of teaching mathematics. Employing a qualitative phenomenological design, the study purposively selected five licensed math teachers with extensive classroom experience and conducted semi-structured interviews to capture their challenges, strategies, and reflections. Thematic analysis revealed that teachers face recurring obstacles such as students' foundational skill gaps, prior negative experiences, and fear of judgment that hinder participation and confidence. To address these, teachers employ contextualized and relatable examples, collaborative and student-centered approaches, and emotionally safe environments that view mistakes as learning opportunities and celebrate effort. Teacher enthusiasm and dedication emerged as critical factors in enhancing student motivation, confidence, and engagement, as well as in reshaping attitudes toward mathematics. Findings underscore the pivotal role of teacher-student relationships, emotional support, and sustained commitment in turning math fear into fascination. The study contributes valuable insights for educators, policymakers, and curriculum developers, emphasizing the need for supportive learning environments, early interventions, and professional development to foster equitable and quality mathematics education.

Keywords: Mathematics education; Math anxiety; Teacher enthusiasm; Student engagement; Phenomenological study; and Classroom strategies

1. Introduction

1.1. Background of the study

Mathematics is widely recognized as a foundational subject critical to students' academic and lifelong success, yet it remains one of the most feared and disliked disciplines among learners across all levels (Ashcraft & Krause, 2007; Tobias, 1993). This aversion, often rooted in early academic failure, anxiety, and negative classroom experiences, not only hampers performance but also diminishes students' confidence and willingness to engage (Beilock & Maloney, 2015). In the Philippines and many other countries, mathematics continues to be a subject where performance lags significantly behind global benchmarks, as seen in international assessments such as PISA (OECD, 2019). These outcomes highlight the urgent need to transform students' perceptions and experiences with mathematics.

This study is anchored on the belief that teachers play a pivotal role in either reinforcing math anxiety or dismantling it. Their attitudes, classroom practices, and emotional investment have a significant influence on how students perceive the subject. Enthusiastic, supportive, and student-centered teachers can help turn fear into fascination by making math more

relatable, less intimidating, and more accessible (Boaler, 2016). On the contrary, authoritarian or rigid teaching methods may further alienate students who already struggle with self-confidence in math (Ramirez et al., 2013).

Aligned with the United Nations Sustainable Development Goal (SDG) 4: Quality Education, this study supports efforts to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all." Specifically, SDG Target 4.1 seeks to ensure that all learners acquire relevant foundational skills in reading, mathematics, and numeracy by the end of primary and secondary education. Additionally, the research relates to SDG Target 4.c, which emphasizes the importance of increasing the supply of qualified and motivated teachers. The study also resonates with SDG Goal 5: Gender Equality, recognizing how math anxiety and negative perceptions are often more prevalent among female students due to societal expectations and stereotypes (Else-Quest et al., 2010)

Several related studies highlight the crucial relationship between teacher behavior and student math attitudes. For example, Frenzel et al. (2009) found that teacher enthusiasm positively correlates with students' enjoyment and effort in mathematics. Likewise, Usher and Pajares (2006) emphasized that students' self-efficacy in math improves when teachers use encouragement, relate content to real-life, and show belief in students' capabilities. Boaler (2016) argued that when teachers allow students to explore mathematical ideas in engaging, non-threatening ways, performance and attitudes significantly improve. In Filipino classrooms, however, there remains a gap in understanding how math teachers experience and navigate the emotional climate of their classrooms, particularly in turning resistance into engagement.

This study, "Turning Fear into Fascination: Exploring Math Teachers' Experiences in Shaping Positive Classroom Attitudes Toward Math," seeks to explore the challenges, strategies, and emotional investments of teachers as they work to change how students perceive and experience mathematics. It seeks to answer the following research questions:

1. What challenges do math teachers face in transforming students' negative perceptions of math?
2. What teaching strategies and classroom practices do teachers use to make math more engaging and less intimidating?
3. How does teacher enthusiasm and dedication influence students' interest and confidence in learning math?

By capturing teachers' perspectives and experiences, this study aims to contribute valuable insights into effective teaching practices and inform policy, training, and support systems that will help enhance mathematics education and student well-being in alignment with the goals of equitable and quality education.

2. Theoretical framework

This study is grounded in multiple interrelated theoretical perspectives that illuminate the emotional, cognitive, and instructional dynamics involved in shaping students' attitudes toward mathematics. These theories provide a lens to understand both the challenges math teachers face and the strategies they employ to foster engagement, reduce anxiety, and build student confidence.

Social Cognitive Theory (Bandura, 1986). At the core of this study is Albert Bandura's Social Cognitive Theory, which emphasizes the importance of observational learning, self-efficacy, and reciprocal determinism between the learner, behavior, and environment. In math classrooms, students form beliefs about their abilities—math self-efficacy—based on prior success, social comparison, and teacher feedback.

Teachers, through enthusiasm, encouragement, and personalized support, serve as social models. Their emotional tone, behavior, and reactions to mistakes significantly influence how students perceive both the subject and themselves as learners. When teachers model confidence and resilience, students are more likely to internalize similar attitudes (Usher & Pajares, 2006).

"People's beliefs in their efficacy affect how they think, feel, motivate themselves, and act." – Bandura (1997)

Math Anxiety Theory (Ashcraft & Krause, 2007). This study also draws from Math Anxiety Theory, which explores how fear and tension associated with math tasks disrupt working memory, thereby impairing performance and reinforcing

negative beliefs. According to Ashcraft, students with math anxiety are more likely to disengage, avoid participation, and underperform even when capable.

Teachers play a critical role in mitigating anxiety through classroom practices that normalize mistakes, promote effort over perfection, and build a low-stakes learning environment. Reducing public embarrassment and fostering a supportive space can decrease cognitive overload caused by fear and allow students to access and apply their skills more effectively (Beilock & Maloney, 2015).

Constructivist Learning Theory (Vygotsky, 1978; Piaget, 1952). Constructivist theory suggests that learning is an active, social process in which students construct meaning from experiences. This theory supports the use of real-life contexts, collaborative learning, and scaffolding, all ofwhich teachers in this study identified as effective strategies for transforming students' attitudes toward mathematics.

Vygotsky's concept of the Zone of Proximal Development (ZPD) is especially relevant: teachers provide guidance and support (scaffolding) that enables students to perform tasks they might not accomplish alone. This aligns with findings in the study where teachers report chunking tasks, using games, and creating group activities to engage students who struggle with math.

Self-Determination Theory (Deci & Ryan, 1985). Self-Determination Theory (SDT) posits that student motivation is fostered when three basic psychological needs are met: competence, autonomy, and relatedness. Teachers influence all three through their dedication and relational efforts.

- Competence: Encouragement, feedback, and celebrating small wins help students feel capable.
- Autonomy: Giving students choices and ownership over how they learn math fosters motivation.
- Relatedness: When students feel cared for and supported by enthusiastic, empathetic teachers, they are more likely to invest emotionally in learning (Niemiec & Ryan, 2009).

These concepts frame the teachers' efforts in this study, showing how their dedication and personal investment impact student confidence, interest, and willingness to engage.

3. Methodology

3.1. Research design

This study utilized a qualitative phenomenological research design. Phenomenology seeks to understand and describe the lived experiences of individuals (Creswell, 2013), making it an appropriate approach for exploring how mathematics teachers experience and navigate the emotional, instructional, and relational dynamics of reshaping students' negative attitudes toward math. By focusing on the subjective experiences and personal insights of math teachers,this study aimed to uncover deeper meanings, patterns, and strategies that emerge in the classroom context.

3.2. Participants and inclusion criteria

Participants were selected based on the following inclusion criteria:

- Must be a licensed mathematics teacher in a public or private secondary school
- Must have at least 5 years of teaching experience in mathematics.
- Must have demonstrated experience or initiatives in addressing students' math anxiety, low motivation, or negative perceptions toward the subject.
- Willing to participate in in-depth interviews and share personal reflections and classroom experiences.

A total of five teachers who met the inclusion criteria willingly participated in the study.

3.3. Sampling technique

The study used purposive sampling, specifically criterion sampling, to select participants who meet the defined characteristics (Palinkas et al., 2015). Teachers known for their student- centered teaching approaches or recognized for engaging struggling learners were recommended by school administrators or math coordinators.

This sampling method ensured that the participants could provide rich, relevant, and insightful data related to the research questions.

3.4. Data collection instrument

The primary data collection instrument was a semi-structured interview guide developed by the researcher and validated by content experts. The guide included open-ended questions designed to elicit the participants' lived experiences, teaching strategies, classroom practices, and perceptions of student engagement and transformation.

Sample Questions from the Interview Guide:

- Can you describe a time when a student was initially afraid of math but later became more engaged in your class?
- What do you believe are the root causes of students' negative attitudes toward math?
- What teaching methods or strategies have you found effective in reducing math anxiety?
- How do your own enthusiasm or teaching style influence student participation or interest?
- What challenges do you face in changing students' perceptions of math, and how do you address them?

Each interview lasted approximately 45–60 minutes, conducted either in person or via video call, and was audio-recorded with the participants' consent.

3.5. Validity and reliability of the data

To ensure the trustworthiness of this qualitative study, strategies were employed to establish credibility, transferability, dependability, and confirmability, core criteria for evaluating validity and reliability in qualitative research as outlined by Lincoln and Guba (1985).

1. Credibility (Internal Validity)
Credibility was ensured through triangulation of data sources and member checking. Semi-structured interviews were conducted with multiple teachers from varied backgrounds and teaching contexts to gather a diverse range of experiences. After transcription, participants were given the opportunity to review their interview responses to validate the accuracy of the data and correct any misinterpretations. This helped ensure that the researcher's interpretation faithfully represented the participants' perspectives.

2. Transferability (External Validity)
Although the study does not aim to generalize findings to all math teachers, thick descriptions of participant experiences, teaching contexts, and classroom dynamics were provided. This allows readers and future researchers to determine the applicability of the findings to similar educational settings or populations.

3. Dependability (Reliability)
A detailed audit trail was maintained throughout the research process, including thedevelopment of interview guides, data collection procedures, and data analysis steps. Coding processes were documented systematically to ensure that another researcher could follow the same procedures and arrive at comparable conclusions. A peer debriefing process was also utilized, in which an external qualitative researcher reviewed the codes and themes to check for consistency and logic in the interpretation of the data.

4. Confirmability (Objectivity)
The researcher maintained reflexive notes during the data collection and analysis phases to minimize bias and ensure that the findings were grounded in participant narratives rather than personal assumptions. Direct quotes

from participants were used extensively to support emerging themes and interpretations, enhancing the transparency and confirmability of the results.

By applying these rigor-enhancing strategies, the study ensured that the findings were not only accurate and trustworthy but also meaningful in providing insights into how teachers work to transform student fear of mathematics into positive attitudes through classroom strategies and personal commitment.

3.6. Data analysis procedure

Data were analyzed using thematic analysis, following the six-phase framework of Braun and Clarke (2006):

1. Familiarization with the Data – Transcribing interviews verbatim, reading and re-reading transcripts to become immersed in the data.

2. Generating Initial Codes – Identifying meaningful units of information across the dataset.

3. Searching for Themes – Grouping codes into potential themes and subthemes aligned with the research questions.

4. Reviewing Themes – Refining themes for coherence, clarity, and distinctiveness.

5. Defining and Naming Themes – Finalizing the names and definitions of themes that capture the essence of the participants' experiences.

6. Producing the Report – Organizing thematic findings into a coherent narrative supported by direct quotations from participants.

Coding was done manually and inductively, allowing themes to emerge from the data rather than being predetermined.

To ensure trustworthiness, the study employed the following:

- Member checking: Participants were given a summary of their interview responses to verify accuracy.
- Peer debriefing: Colleagues reviewed emerging themes and interpretations.
- Audit trail: The researchers maintained documentation of decisions and changes throughout the analytic process.

3.7. Ethical considerations

- Ethical clearance was obtained from the institution’s ethics review committee.
- Participants signed informed consent forms, and confidentiality was maintained through pseudonyms.
- Data were stored securely and used solely for research purposes.

4. Results and discussion

Guided by a qualitative-descriptive research design, this study employed semi-structured interviews to explore mathematics teachers’ experiences in shaping students’ attitudes toward the subject. Particular attention was given to how teachers’ enthusiasm, strategies, and dedication influence students’ engagement, confidence, and perceptions of mathematics. Through thematic analysis of the responses, the study uncovered key challenges and effective practices in transforming students’ often negative views of math into more positive and motivated outlooks.

4.1. Challenges math teachers face in transforming students' negative perceptions of math

This section presents and interprets the key findings derived from interviews with mathematics teachers regarding their experiences in addressing students' negative attitudes toward the subject. It specifically addresses the research question: *What challenges do math teachers face in transforming students' negative perceptions of mathematics?* The responses reveal several interconnected challenges, including bridging conceptual gaps left by earlier learning disruptions (e.g., the pandemic), addressing low confidence and math anxiety, and sustaining student engagement despite prior negative experiences. The data also show that students' attitudes toward math are influenced not only by the content and methods of instruction, but also by
emotional safety, peer dynamics, and the perceived support provided by teachers. The following themes emerged from the analysis, each highlighting specific aspects of these challenges and the complex dynamics of teaching and learning mathematics.

4.2. Foundational gaps and prior negative experiences hinder students' confidence and engagement

A recurring concern expressed by the teachers in this study is that many students begin their secondary-level math education with significant gaps in foundational skills. Deficits in number sense, basic operations, and early arithmetic concepts such as fractions, integers, and decimals were repeatedly cited as barriers to both engagement and confidence.

Gerald noted:

> *"Students tend to get anxious whenever they see negative numbers, or algebraic expressions that they perceive to be complex."*

He also described a student who could not grasp even basic addition and subtraction despite using various manipulatives and visual aids.

Similarly, Delaguiron emphasized:

> *"The student's numeracy is very low,"*
> *citing that many Grade 7 students could not distinguish between a numerator and denominator.*

These challenges are not isolated cases; rather, they reflect a systemic issue in mathematics education where early misconceptions and lack of mastery snowball over time, impeding students' ability to engage meaningfully with more advanced content. Existing research supports these findings. According to Geary (2011), early deficits in numerical processing and working memory can have long-term effects on mathematical achievement. Similarly, Kikas and Mägi (2017) found that students with weaker prior math knowledge displayed significantly less engagement in later math classes, often due to a growing sense of incompetence. These knowledge gaps are often compounded by prior negative experiences, such as repeated failure, public embarrassment, or unsupportive instruction. Such experiences condition students to internalize beliefs like *"I'm not good at math"* or *"Math is only for smart people."*

Ferrer echoed this sentiment:

> *"Many students had been scolded, failed, or didn't understand earlier lessons."*

She noted that this history led them to resist or dismiss activities that seemed non-traditional or too easy, even if they were pedagogically appropriate.

Negative academic self-concept in mathematics is widely recognized as a barrier to learning. According to Boaler (2016), fixed mindsets about mathematical ability, which are often formed early, can lead to math anxiety and avoidance behaviors. Students internalize these beliefs and disengage when tasks seem even mildly challenging, reinforcing a cycle of underachievement.

Villaflor observed:

> *"Students condition their mind that math subject is difficult."*

Teachers are then placed in the difficult position of having to address both current curriculum demands and these underlying cognitive and emotional barriers. Often with limited time and instructional resources, they must backtrack to reteach concepts that ideally should have been mastered years earlier. This places additional pressure on both the teacher and student and makes shifting students' perceptions of math an uphill battle.

The interplay between foundational skill gaps and prior negative experiences creates a dual burden that erodes students' confidence and interest in math. Without intentional remediation,emotional support, and positive classroom experiences, students remain trapped in a self reinforcing belief that they are inherently bad at math, a belief that undermines both their current learning and future potential in the subject.

4.3. Fear of judgment and classroom anxiety discourages participation

A prevalent theme across teacher responses is the emotional barrier created by fear of judgment, which significantly impacts student participation in math. Many students experience high levels of math anxiety, particularly in public or evaluative settings such as board work, recitations, or examinations. This anxiety often stems from a fear of making mistakes in front of others, which can trigger embarrassment, ridicule, or a sense of personal failure. Teachers report behaviors such as students avoiding eye contact, pretending to be absent, or intentionally withdrawing from class activities. These behaviors are clear indicators of psychological distress associated with math.

This aligns with existing literature on math anxiety and classroom performance. According to Ashcraft and Krause (2007), math anxiety impairs working memory and cognitive processing, especially in high-stakes or peer-observed scenarios. The fear of negative evaluation reduces students' willingness to participate or take academic risks, even if they have the capacity to understand the material. Similarly, Beilock and Ramirez (2011) argue that anxiety experienced in math settings contributes to a self-fulfilling cycle of avoidance and low performance, reinforcing a student's belief that they are incapable of succeeding in the subject.

Teachers in the study actively attempt to counter this dynamic by creating emotionally safe classrooms where making mistakes is normalized and even encouraged as part of the learning process. Yet, the struggle persists, particularly among students who have deeply internalized failure as an inevitable outcome in math.

Pantonial shared:

> *"Students experience fear towards math when they are called to do the board work."*

Ferrer observed:

> *"Some students freeze or cry during tests," because of their fear of being wrong.*

Furthermore, social comparison plays a crucial role in reinforcing math anxiety. When students see peers succeeding or quickly grasping concepts they find difficult, it reinforces their own perceived inadequacy. This comparison deepens their reluctance to participate.

Villaflor noted:

> *"Students bow their heads not to be called," and avoid active engagement.*

The problem is not merely cognitive but also deeply emotional and relational. To address it, teachers often employ differentiated instruction, use humor, praise effort rather than correctness, and incorporate group work to reduce performance pressure. However, these interventions are often insufficient against years of internalized fear and negative associations with math.

Delaguiron remarked:

> *"Students make leeway for an excuse," resisting engagement even when real-life relevance is emphasized.*

Fear of judgment in math classrooms is a formidable obstacle to student participation. While effective pedagogy and emotional support from teachers can mitigate this to some degree, long-term change requires a sustained effort to reshape

classroom culture, build student confidence gradually, and provide consistent emotional safety that allows students to take academic risks without fear.

4.4. Teaching strategies and classroom practices teachers use to make math more engaging and less intimidating

To address this question, the study examined math teachers' reflections on their classroom experiences and the instructional strategies they employ to influence students' motivation and understanding of mathematics. Drawing from their narratives, several key themes emerged that highlight both conventional and innovative teaching practices aimed at reducing math anxiety and increasing student engagement. These findings reflect the ways in which teachers intentionally create a more supportive, interactive, and learner-centered environment, one thatfosters confidence and curiosity rather than fear and avoidance. The themes presented below illustrate the various strategies that teachers found effective or impactful in transforming how students view and experience mathematics.

4.5. Use of contextualized, relatable, and real-life scenarios builds curiosity and relevant experiences

A consistent theme among teachers is the strategic use of real-life, relatable, and contextualized scenarios to teach mathematics. This approach helps bridge abstract concepts with concrete experiences, stimulates curiosity, reduces intimidation, and fosters meaningful engagement. Teachers often use familiar references such as food, shopping discounts, transportation fares, money, and popular culture like song lyrics to connect lessons to students' everyday realities. These contexts make math feel useful, relevant, and enjoyable.

Research supports this practice. Boaler (2016) notes that contextualizing math in real-life settings allows learners to see the subject as a dynamic, human-centered discipline rather than a static set of procedures. Likewise, the National Council of Teachers of Mathematics (NCTM, 2014) emphasizes that tasks rooted in real-world problems improve both understanding and motivation.

In the classroom, teachers apply this approach in various creative ways. Ferrer shared:

> *"Using pizza slices to teach fractions got students curious and excited."*

Villaflor explained that he uses the metaphor of money and debt to teach integers, helping students grasp positive and negative values more easily.

Pantonial described how she introduces percentage and discount lessons through everyday shopping scenarios:

> *"If you are the salesgirl, what is the 20% discount if the price of the t-shirt is 200 pesos?"*

Gerald highlighted the emotional and cultural connection of lessons, noting:

> *"I tend to intrigue them with contexts or themes."*

Similarly, Delaguiron emphasized the importance of adapting to student interests:

> *"Introduce something new" if a strategy does not work.*

These teaching practices align with constructivist learning theory (Vygotsky, 1978), which suggests that learners construct knowledge best when it is meaningfully connected to their experiences. Framing math in contexts that students already understand reduces resistance, increases participation, and transforms math from an abstract challenge into a practical problem-solving tool.

The integration of contextualized and relatable examples in math instruction enhances engagement, reduces anxiety, and encourages deeper learning. By connecting lessons to students' daily lives, teachers make math feel accessible, practical, and relevant, laying the foundation for more confident and motivated learners.

4.6. Supportive, energetic, and student-centered learning environment creates better learning

A recurring theme among the teacher narratives is the intentional creation of a supportive, enthusiastic, and emotionally safe classroom environment, particularly in the context of mathematics, a subject often associated with stress and fear. Teachers emphasized the importance of maintaining high energy, modeling positive attitudes, and using student-centered strategies such as humor, encouragement, group activities, and differentiated instruction to engage students and reduce psychological barriers.

Research supports this approach. Dweck (2006) highlights the importance of cultivating a growth mindset, where students believe their abilities can improve through effort and perseverance. In a student-centered classroom that values progress over perfection, mistakes are seen as essential components of learning. Teachers in the study echoed this mindset. Gerald shared:

> *"Our class is a safe space… learning means making mistakes."*

Ferrer also noted:

> *"I remind them that mistakes are okay. I give praise for effort, not just correct answers."*

The role of teacher enthusiasm is well-documented in education literature. Patrick, Hisley, and Kempler (2000) link teacher enthusiasm to increased student motivation, enjoyment, and learning outcomes. In this study, teachers reported that students were more attentive and engaged when they observed genuine excitement. Ferrer reflected on this, saying:

> *"Their faces light up… one quiet student thanked me after class saying, 'Math is fun today.'"*

Group work and collaborative learning were also highlighted as strategies to build a supportive environment. These approaches allow students to learn from one another, reduce performance pressure, and feel less isolated. Delaguiron emphasized:

> *"You should have more activities… COLLABORATIVE EFFORT is very important."*

Pantonial reinforced the importance of emotional safety:

> *"I assure them that no one will be insulted if they cannot answer correctly."*

Research by Johnson and Johnson (2009) supports the benefits of cooperative learning, showing that it improves achievement in math while enhancing interpersonal relationships and self-esteem. It creates an inclusive space where all students feel valued, regardless of skill level. Overall, creating a student-centered, energetic, and emotionally safe math classroom is a powerful strategy to improve confidence, increase participation, and reduce the fear of failure. Teacher enthusiasm, praise for effort, collaborative work, and an accepting environment help make math more enjoyable and accessible, especially for students who previously viewed it with dread.

4.7. How teacher's enthusiasm and dedication influence students' interest and confidence in learning math

To explore this question, the study examined students' perceptions of their teachers' attitudes, behaviors, and commitment in the classroom. The findings revealed that teacher enthusiasm and dedication play a critical role in shaping how students feel about learning mathematics. Students consistently pointed to the emotional and motivational impact of having teachers who are passionate, patient, and invested in their success. Several themes emerged that illustrate the different ways in which a teacher's presence and persistence can either inspire confidence or lead to disengagement. These themes underscore the relational and affective dimensions of math instruction, emphasizing that how math is taught is just as important as what is taught.

4.8. Teacher's enthusiasm catalyzes student engagement and confidence

Teacher enthusiasm plays a transformative role in shaping how students perceive and engage with mathematics. Across the interviews, teachers described how their passion and energy acted as a catalyst, breaking down walls of anxiety,

disinterest, and self-doubt that often accompany math learning. When teachers express genuine excitement, it signals to students that math is both worth learning and enjoyable. This positive energy fosters a classroom climate where students feel safe to participate, take risks, and recover from mistakes.

Research supports this observation. Keller, Hoy, and Goetz (2006) found that teacher enthusiasm positively correlates with student motivation, enjoyment, and attention, especially in challenging subjects like math. Frenzel et al. (2009) highlight that teacher emotions directly influence students' emotional experiences and motivation. When teachers model confidence and positivity, students internalize these attitudes in their own learning.

Teachers' narratives illustrate these ideas in practice. Gerald shared:

> *"This class is safe. No one will laugh at you or ridicule you when you get it wrong… We will learn together."*

He reflected on a hesitant student who began participating regularly, showing how enthusiasm paired with empathy can reshape student behavior and confidence.

Ferrer described how joy can unlock participation:

> *"I once got a quiet student to participate just because I kept showing joy and told stories related to the topic."*

Her experience aligns with Patrick et al. (2000), who found that teacher enthusiasm enhances students' perceived value of the subject, particularly in math, which is often seen as abstract or stressful.

Villaflor and Delaguiron highlighted similar effects. Villaflor noted:

> *"If you are a positive math teacher… the students become more engaged… They will become inspired."*

Delaguiron added:

> *"When they saw that their teacher is very enthusiastic while teaching, they will think that the subject is enjoyable… that math could be this enjoyable."*

These reflections show how enthusiasm directly combats the stereotype of math as boring or difficult.

Students' feedback also demonstrates the power of teacher enthusiasm. Ferrer shared that a student once wrote to her:

> *"You made me believe I can do math."*

Such moments reveal the emotional and psychological shift that can occur when students are met with consistent positive energy and belief from their teacher.

Teacher enthusiasm is more than a performance trait; it is a pedagogical tool that humanizes math, builds student confidence, and creates an environment where growth and participation are possible. It serves as both an invitation and reassurance, enabling students to reimagine their relationship with math, moving from fear to curiosity and from passivity to engagement.

4.9. Dedication and personalized support are tools to transform student attitudes

Dedication, demonstrated through extra time, personalized feedback, mentoring, and emotional investment, emerges as a powerful force in reshaping students' attitudes toward mathematics. Across the interviews, teachers shared how going beyond the textbook and schedule by offering tutoring during free periods, responding to messages after hours, and customizing instruction enabled them to support students who had previously struggled or disengaged. This theme underscores that teacher commitment is not just about delivering content but about forming relationships and cultivating belief in students who often lack it in themselves.

Research supports the importance of this sustained, student-centered support. Wentzel (1997) found that students are more motivated and perform better when they perceive that their teachers care about them as individuals. When students feel supported and understood, they are more likely to persist through academic difficulties. Similarly, Cornelius-White (2007), in a meta-analysis, found that learner-centered teacher behaviors, such as empathy, warmth, and encouragement, strongly correlate with student engagement and academic success, especially in challenging subjects like mathematics.

Teachers' experiences illustrate these principles in action. Gerald reflected on students who had once disliked math:

> *"I have students tell me they didn't understand Mathematics prior to being in my class... their child was excited to be in a Maths class."*

The shift from avoidance to enjoyment resulted from emotional safety and consistent support.

Ferrer described a student who once hated math but began participating confidently after receiving extra time, games, and praise:

> *"By the end of the year, she was answering confidently."*

Villaflor highlighted how engaging with students outside class hours made a difference:

> *"I teach them in my vacant time and still entertain those students who are asking in chat… they tell me they love mathematics because of my dedication."*

This extra attention signals to students that they are valued, which motivates them to reciprocate with effort and focus.

Pantonial shared a particularly transformative story about a struggling student who, through encouragement and study habits, not only excelled in a math competition but later became an engineer:

> *"I encouraged her to be studious… now she became an engineer and part-time teacher."*

Finally, Delaguiron stressed the emotional and moral obligation of dedication:

> *"The passion or fire burning in your heart should not fade; once the passion of the teacher is lost, all the students will be affected."*

His comment shows that teacher dedication is more than a strategy, it is a commitment that deeply influences student success and well-being.

This theme highlights that dedicated, personalized support from teachers acts as both a motivational and relational scaffold. It helps students overcome past failures, build confidence, and develop a growth-oriented mindset toward mathematics. When teachers invest in students beyond the lesson plan, they plant the seeds for resilience, success, and a lifelong appreciation for learning.

5. Conclusions

This study explored mathematics teachers' experiences in transforming students' negative perceptions of mathematics into more positive attitudes. Through semi-structured interviews and thematic analysis, several key findings emerged, highlighting the challenges teachers face and the strategies they employ to foster engagement, confidence, and a love for learning math.

A major challenge identified is the presence of foundational gaps and prior negative experiences that hinder students' confidence and engagement. Students often enter secondary-level math with weak number sense, incomplete mastery of basic operations, and early misconceptions. These deficits, compounded by previous academic failure or fear of judgment, create emotional and cognitive barriers that teachers must navigate alongside curriculum demands. Fear of judgment and math anxiety further discourage participation, as students often internalize failure and avoid taking risks in classroom activities.

In response to these challenges, teachers employ strategies designed to make math more engaging and less intimidating. The use of contextualized, relatable, and real-life scenarios helps students see the relevance of math and fosters curiosity. Creating supportive, energetic, and student-centered learning environments reduces anxiety, encourages participation, and models a growth mindset. Collaborative activities, humor, and praise for effort further build an emotionally safe space where students feel confident to explore and make mistakes.

Teacher enthusiasm and dedication emerged as critical catalysts for transforming student attitudes. Enthusiasm conveys passion and positivity, signaling to students that math is enjoyable and worth engaging with. Dedication, demonstrated through personalized support, extra time, and emotional investment, reinforces the message that students are valued and capable of success. Together, these relational and affective elements cultivate resilience, confidence, and a willingness to take academic risks.

Ultimately, the findings underscore that shaping positive classroom attitudes toward math is not solely about instructional methods, but about the human connection between teacher and student. Through empathy, encouragement, and sustained commitment, teachers can transform fear into fascination, helping students develop both competence and confidence. This study affirms that the emotional and motivational influence of teachers is a powerful factor in redefining how students perceive mathematics, laying the foundation for lifelong learning and a more positive engagement with the subject.

6. Recommendations

Strengthen foundational math skills early on. Educational institutions should prioritize early intervention programs at the elementary and junior high levels to address foundational mathgaps before they compound. Diagnostic assessments, targeted remediation, and mastery-based progression can help ensure students develop a solid understanding of numerical and conceptual skills, especially in the wake of pandemic-related learning disruptions.

Foster emotionally safe and non-judgmental classrooms. Teachers should be trained and encouraged to create psychologically safe learning environments where mistakes are viewed as natural parts of the learning process. Incorporating growth mindset practices, celebrating effort, and avoiding public shaming or ridicule can help reduce math anxiety and increase student participation.

Integrate contextualized and real-life math applications. Curriculum developers and teachers should embed math problems in everyday contexts that are meaningful to students' lives. Using scenarios involving money, shopping, transportation, or personal interests can increase curiosity and help students see the real-world value of mathematics.

Promote teacher enthusiasm and well-being. Schools and administrators may support the emotional and professional well-being of math teachers. Encouraging passion through recognition, mentorship, and professional development can help sustain enthusiasm and prevent burnout, which directly influences students' motivation and engagement.

Provide professional development on personalized and student-centered approaches. Teachers may be trained in differentiated instruction, collaborative learning, and student-centered teaching practices. Tailoring instruction to meet diverse needs and allowing students to work together can foster inclusivity and build a sense of competence among all learners.

Encourage teacher dedication and personalized support. Schools may provide teachers with the necessary time, resources, and recognition to offer individualized guidance and mentorship. Supporting teachers in this way enables them to invest in students' growth, build confidence, and foster positive attitudes toward mathematics.

Encourage strong teacher-student relationships. Teachers may intentionally build supportive relationships with students beyond academic instruction. Personalized encouragement, mentorship, and availability outside class hours (within reasonable boundaries) can instill confidence and positively shape students' long-term attitudes toward mathematics.

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References

Ashcraft, M.H., & Krause, J.A. (2007). Working memory, math performance, and math anxiety. Psychonomic Bulletin & Review, 14(2), 243–248.
Tobias, S. (1993). Overcoming math anxiety. W.W. Norton & Company.
Beilock, S.L., & Maloney, E.A. (2015). Math anxiety: A factor in math achievement not to be ignored. Policy Insights from the Behavioral and Brain Sciences, 2(1), 4–12.
OECD. (2019). PISA 2018 Results (Volume I): What Students Know and Can Do. OECD Publishing.
Boaler, J. (2016). Mathematical mindsets: Unleashing students' potential through creative math, inspiring messages and innovative teaching. Jossey-Bass.
Ramirez, G., Shaw, S.T., & Maloney, E.A. (2013). Math anxiety: Past research, promising interventions, and a new interpretation framework. Educational Psychologist, 48(1), 1–19.
Else-Quest, N.M., Hyde, J.S., & Linn, M.C. (2010). Cross-national patterns of gender differences in mathematics: A meta-analysis. Psychological Bulletin, 136(1), 103–127.
Frenzel, A.C., Goetz, T., Lüdtke, O., Pekrun, R., & Sutton, R.E. (2009). Emotional transmission in the classroom: Exploring the relationship between teacher and student enjoyment. Journal of Educational Psychology, 101(3), 705–716.
Usher, E.L., & Pajares, F. (2006). Sources of academic and self-regulatory efficacy beliefs of entering middle school students. Contemporary Educational Psychology, 31(2), 125–141.
Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Prentice-Hall.
Bandura, A. (1997). Self-efficacy: The exercise of control. W.H. Freeman.
Beilock, S.L., & Ramirez, G. (2011). On the interplay of emotion and cognitive control: Implications for enhancing academic achievement. In D.S. Dunn (Ed.), The Oxford Handbook of Undergraduate Psychology Education (pp. 352–363). Oxford University Press.
Vygotsky, L.S. (1978). Mind in society: The development of higher psychological processes. Harvard University Press.
Piaget, J. (1952). The origins of intelligence in children. International Universities Press.
Deci, E.L., & Ryan, R.M. (1985). Intrinsic motivation and self-determination in human behavior. Springer.
Niemiec, C.P., & Ryan, R.M. (2009). Autonomy, competence, and relatedness in the classroom. Theory and Research in Education, 7(2), 133–144.
Creswell, J.W. (2013). Qualitative inquiry and research design: Choosing among five approaches (3rd ed.). SAGE Publications.
Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N., & Hoagwood, K. (2015). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. Administration and Policy in Mental Health and Mental Health Services Research, 42(5), 533–544.
Lincoln, Y.S., & Guba, E.G. (1985). Naturalistic inquiry. SAGE Publications.
Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101.
Patrick, B.C., Hisley, J., & Kempler, T. (2000). "What's everybody so excited about?": The effects of teacher enthusiasm on student intrinsic motivation and vitality. The Journal of Experimental Education, 68(3), 217–236.
Dweck, C.S. (2006). Mindset: The new psychology of success. Random House.
Johnson, D.W., & Johnson, R.T. (2009). An educational psychology success story: Social interdependence theory and cooperative learning. Educational Researcher, 38(5), 365–379.
Keller, M.M., Hoy, A.W., Goetz, T., & Frenzel, A.C. (2006). Teacher enthusiasm: Exploring the link with students' interest. Contemporary Educational Psychology, 31(2), 123–140.
Geary, D.C. (2011). Cognitive predictors of achievement growth in mathematics: A five-year longitudinal study. Developmental Psychology, 47(6), 1539–1552.
Kikas, E., & Mägi, K. (2017). Effects of teacher's teaching practices and student learning motivation on student achievement and interest in mathematics. European Journal of Psychology of Education, 33(3), 325–340.
National Council of Teachers of Mathematics (NCTM). (2014). Principles to actions: Ensuring mathematical success for all. NCTM.
Wentzel, K.R. (1997). Student motivation in middle school: The role of perceived pedagogical caring. Journal of Educational Psychology, 89(3), 411–419.
Cornelius-White, J. (2007). Learner-centered teacher-student relationships are effective: A meta-analysis. Review of Educational Research, 77(1), 113–143.
Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. American Psychologist, 56(3), 218–226.