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Teaching Practices and Parental Support: Predictors of Students' Learning Interest toward Mathematics

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ABSTRACT

This study investigated the relationship between teaching practices and parental support and their combined influence on students' interest in learning mathematics. Conducted among first-year college students enrolled in "Mathematics in the Modern World" at Monkayo College of Arts, Sciences, and Technology (MonCAST), the research employs a quantitative, non-experimental design using validated survey instruments. Results reveal that effective teaching practices, particularly those emphasizing facilitation and student autonomy, and strong parental involvement significantly enhance students' emotional engagement, perceived value, and understanding of mathematics. The findings underscore the importance of collaborative efforts between educators and parents in fostering mathematical interest and academic success. Recommendations include teacher training programs focusing on adaptive instructional strategies and community initiatives promoting parental involvement in education.

Keywords: education, mathematics, engagement

INTRODUCTION

Teaching practices and parental support are crucial elements that significantly influence students' interest and engagement in Mathematics. Research indicates that effective teaching strategies can enhance students' motivation and attitudes towards Mathematics, which is often perceived as challenging. For instance, a study by Mohamed et al. (2023) emphasizes the importance of teachers' awareness of effective teaching practices, revealing that high awareness among Mathematics teachers correlates with improved student engagement and interest in the subject. Similarly, Goos et al. (2021) highlight that teachers' mathematical and pedagogical content knowledge is essential for adapting teaching methods to meet the diverse needs of students, thereby fostering a more engaging learning environment.

Globally, research in Turkey highlights parental expectations and engagement in shaping students' mathematical development. A study conducted by Deringöl (2019) examined the expectations of elementary and secondary school parents regarding mathematics education, their level of engagement, and their children's mathematics homework habits. The findings revealed that Turkish parents generally hold high expectations for mathematics education and that children exhibit positive and consistent homework behaviors, mainly when supported adequately at home.

In the Philippines, the issue of low student interest in Mathematics persists across various regions. A study by Capuno et al. (2019) in Cebu highlighted that traditional teaching approaches, often focused on rote memorization and lecture-based instruction, fail to cater to students' diverse learning styles, resulting in

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disengagement and poor performance in Mathematics. This problem is particularly pronounced in rural areas like Mindanao, where limited resources and minimal parental involvement further exacerbate the issue. Parents in these regions often lack the parental support needed to assist their children with time management, and using educational tools leaves students without the necessary support at home to reinforce what they learn in school. The combined effect of traditional teaching methods and insufficient parental involvement makes it more difficult for students to develop a sustained interest in Mathematics, contributing to low motivation and academic performance.

Specifically, in Monkayo College of Arts, Sciences, and Technology (MonCAST) students struggle to stay engaged with Mathematics despite the best efforts of instructors to create interactive lessons. During interviews with both students and teachers, it became clear that these difficulties stem from ineffective teaching methods and insufficient parental involvement in students' academic lives. From the students' perspective, many experience difficulties with the traditional formula-focused approach to teaching Mathematics, which often emphasizes memorization over conceptual understanding. Additionally, limited support at home, particularly in households where parents cannot assist due to time constraints or lack of subject knowledge, further hinders students' learning. These challenges are more pronounced in rural areas with scarce educational resources and support systems. As a result, students may struggle to stay engaged and interested in Mathematics, leading to lower academic performance. Teachers at MonCAST also expressed concerns regarding their students' lack of interest in Mathematics. Despite implementing different teaching strategies, many teachers observed that students remain unmotivated, often struggling to see the real-world relevance of the subject. Additionally, teachers noted that students with active parental involvement generally perform better academically. However, such involvement is not consistently present among all families. These observations support existing research emphasizing the critical role of parental support in fostering students' motivation and engagement in Mathematics.

Review of Related Literature

Teaching practices. Teaching practices can be broadly categorized into several types, including the Expert, Formal Authority, Personal Model, Facilitator, and Delegator styles (Loveta, 2020). Each practice reflects different approaches to student engagement and knowledge transfer. For instance, the Expert style emphasizes the teacher's role as the primary source of knowledge, while the Facilitator style focuses on promoting student autonomy and collaborative learning (Loveta, 2020). The effectiveness of these styles is often contingent upon the specific learning environment and students' individual needs. Research indicates that a teacher's style significantly influences student engagement and learning outcomes. A dynamic and interactive teaching style can enhance cognitive abilities, such as critical thinking and problem-solving (Karim, 2023). Conversely, a mismatch between students' preferred learning styles and teachers' instructional methods can lead to frustration and hinder academic achievement (Alnujaidi, 2018; Kharb et al., 2013). This underscores the importance of aligning teaching strategies with students' learning preferences to foster a more effective educational experience. The experience level of teachers plays a crucial role in shaping their teaching practices. Studies have shown that more experienced educators adopt a wider range of teaching strategies and exhibit greater classroom management creativity than their less skilled counterparts (Sim & Matore, 2022). This suggests that professional development and experience can enhance a teacher's ability to effectively adapt their style to meet diverse student needs. Traditional teaching methods, often centered around teacher-directed lectures and rote memorization, are frequently inadequate for fostering more profound understanding and long-term retention of mathematical concepts. These methods often do not address students' diverse learning preferences, leading to disengagement and low performance in Mathematics (Azmidar, 2017). Recent studies emphasize the importance of dynamic, learner-centered teaching approaches, such as inquiry-based learning, collaborative learning, and competency-based teaching, which have proven effective in improving mathematical outcomes. Inquiry-based learning encourages active problem-solving and critical thinking, allowing students to understand better mathematical concepts (Lee & Paul, 2023). Collaborative learning promotes peer-to-peer engagement, fostering a supportive and interactive classroom environment (Mariñez-Báez, 2024). Teachers employing cooperative learning, deductive and inductive approaches, and integrative methods provide tailored education experiences, improving student engagement and performance. According to Cardino and Ortega-Dela Cruz (2020), adapting instructional styles to meet diverse learning needs significantly enhances academic performance in Mathematics. Teaching practices are pivotal in shaping students' understanding, attitudes, and performance in Mathematics. Research indicates that the teaching methods adopted by mathematics teachers can either alleviate or exacerbate students' anxiety about the subject. For instance, Atoyebi and Atoyebi (2022) highlight that student-centered teaching approaches can mitigate Mathematics anxiety, while traditional, teacher-centered methods often lead to increased anxiety among students. Negative classroom experiences stemming from poor teaching strategies contribute significantly to pre-service

teachers' anxiety regarding Mathematics (Bekdemir, 2010). The relationship between teaching styles and students' academic achievement in Mathematics is well-documented. Sim and Matore (2022) reveal that the Personal Model Teaching Style, emphasizing demonstration and modeling, correlates with the highest academic growth among students. Pizon and Ytoc (2022) assert that teaching strategies aligning with students' learning styles positively influence motivation and attitudes towards Mathematics, enhancing academic performance. The interplay between teaching styles and students' self-concept in Mathematics is significant. Alrajhi (2024) indicates that while social self-concept may not directly affect Mathematics achievement, a strong Mathematics self-concept plays a crucial role. This suggests that teaching styles that foster a positive self-concept can enhance students' performance. Additionally, Peker (2009) highlights that pre-service teachers' anxiety about teaching Mathematics is influenced by their learning styles, indicating that understanding students' preferences can help tailor teaching approaches to reduce anxiety and improve confidence. The educational background and beliefs of Mathematics teachers shape their instructional styles. Hart and Memnun (2015) emphasize the importance of metacognitive awareness in teachers, suggesting that those with a strong understanding of their teaching beliefs are likelier to adopt effective strategies that positively impact students' learning. Atasoy et al. (2018) discuss how teachers' educational philosophies influence their instructional styles, with implications for student engagement and learning outcomes.

Expert. The Expert Teaching Style in Mathematics is distinguished by the teacher's deep mastery of subject matter, which positions them as the primary source of knowledge in the classroom. This style effectively creates a structured learning environment, especially in fields requiring a solid foundational understanding, such as Mathematics. Studies, such as those by Sim and Matore (2022), emphasize that teachers with an Expert teaching style positively influence students' academic performance due to their ability to simplify complex concepts and provide clear explanations. The impact of this style is heightened in subjects like Mathematics, where abstract reasoning can often challenge students. Moreover, the Expert Teaching Style promotes confidence and engagement among students, especially when teachers effectively communicate their mastery of content. Research by Rampersad (2024) shows that teachers with this style inspire student motivation, encouraging active participation and a deeper understanding of mathematical concepts. Students tend to perform better when they perceive their teacher as knowledgeable and authoritative, which helps build trust in the learning process.

However, it's essential to recognize the limitations of relying solely on the Expert style. Studies indicate that overemphasizing teacher authority can lead to passive learning environments where students are less likely to engage critically or independently with the material (Karimnia & Mohammdi, 2019). Therefore, integrating interactive approaches, such as the Facilitator or Delegator teaching styles, alongside the Expert style can lead to more dynamic and engaged classrooms. Şen (2017) suggests that this blended approach encourages student participation, promoting active learning while maintaining the benefits of teacher expertise. Additionally, the effectiveness of the Expert style can vary based on classroom dynamics and individual student needs. Rampersad (2024) highlights that experienced teachers can adapt the Expert style to suit diverse student requirements, making their instruction more inclusive. Teachers who employ this adaptability are more likely to meet the varied learning preferences of their students, thereby ensuring broader access to complex mathematical content. While the Expert Teaching Style is a powerful tool in Mathematics education, its success lies in balancing teacher authority with interactive, student-centered methods. By incorporating collaborative approaches, teachers can foster critical thinking and deeper engagement, enriching student learning experiences.

Formal authority. The concept of formal authority in teaching plays a significant role in shaping classroom dynamics, student engagement, and overall learning outcomes. Formal authority refers to the power that educators hold to control and manage the classroom environment, including establishing rules, delivering instruction, and maintaining discipline. When applied effectively, formal authority can create a structured, supportive, and engaging learning space that facilitates student success. Research emphasizes the need for a balance between authority and autonomy in teaching. For example, Jang et al. (2010) suggest that when teachers combine autonomy support with structured guidance, they can significantly enhance student engagement. This balance helps students feel empowered while providing the necessary boundaries to keep learning focused and effective. The importance of this balance is echoed by Kitzmiller (2013), who highlights that teacher-student relationships are crucial in this process. When authority is exercised to foster trust and respect, it enhances meaningful interactions and makes students more receptive to learning. Additionally, studies underscore the impact of teacher engagement on students' learning outcomes. Klassen et al. (2013) argue that teachers who actively engage with students socially and academically can improve student performance. Teacher confidence and the ability to present material effectively are crucial aspects of formal authority, contributing to students'

perceptions of a teacher's effectiveness (Strong et al., 2011). In environments where teachers are deeply engaged with students, the authority structure becomes less rigid and more collaborative, fostering better student participation and academic achievement. Furthermore, pedagogical approaches also play a vital role in navigating formal authority. Teachers who incorporate formal and informal learning methods, as Huang and Lai (2020) discussed, tend to create more proactive learning environments. This adaptability allows teachers to maintain authority while being responsive to students' needs, which is particularly important for fostering engagement in diverse classrooms.

Personal Model. The personal model of teaching focuses on self-confidence and self-esteem among students. Hamzah et al. (2020) emphasize that an individual learning model fosters harmonious relationships and encourages students to take responsibility for their education, enhancing self-confidence and overall learning outcomes. This aligns with Korhonen et al.'s (2018) findings on the importance of scaffolding in personal learning environments. The integration of personalized teaching strategies significantly improves educational quality. Li (2023) discusses how optimizing classroom decision-making according to students' personalized learning needs can lead to better teaching outcomes. This personalization enhances academic performance and cultivates critical thinking and teamwork skills essential in today's educational landscape. The application of technology in personalized learning is another critical dimension of the personal model. Mao and Leny (2023) explore how cloud-based methods facilitate customized learning experiences, enhancing student engagement and autonomy. Zhao (2024) also discusses using big data and artificial intelligence to develop tailored learning experiences, supporting the shift towards student-centered education. Moreover, the personal model also addresses developing students' social and emotional skills. Rachim (2021) indicates that implementing social personal counseling models can strengthen student character education. Deng (2023) advocates for educational interventions considering cognitive, emotional, and personality traits for holistic student development. Cariaga's research from 2022 to 2024 presents a heartfelt and grounded view of education in the Philippines, focusing on the real experiences of students, teachers, and parents. During the pandemic, Cariaga (2022) explored how Mathematics was taught in senior high schools and emphasized the importance of adapting lessons to keep students learning despite the challenges. He proposed practical ways to improve learning continuity, especially in times of disruption. In another study, Cariaga (2023) shed light on how deeply parental involvement influences teenagers' ability to read, write, and work with numbers. His findings show that when parents are engaged, students feel more supported and motivated. In the same year, Cariaga (2023) also shared reflections on the current state of education in the country, offering thoughtful recommendations to make learning more relevant, inclusive, and forward-thinking. By 2024, his work took on an even more student-focused lens. In two separate studies, Cariaga (2024a, 2024b) emphasized the need to equip learners with essential 21st-century skills like critical thinking, teamwork, communication, and creativity—skills that not only boost academic performance but also prepare students for real-world challenges. Collaborating with ElHalaissi, Cariaga (2024c) also explored how culturally responsive education and design thinking can help students become more employable while making a positive impact in their communities. Meanwhile, a study with Pospos and Dagunan (2024) brought attention to rural learners, showing how the use of ICT tools, creative teaching strategies, and remedial programs can improve numeracy in underserved areas. Lastly, in collaboration with Sabidalas, Cariaga, and Dagunan (2024), he explored parents' stories and how their emotional and practical support helps shape students' academic success and personal growth. These works collectively call for an education system that listens, adapts, and puts people first—where both hearts and minds are nurtured.

Facilitator. Research indicates that the facilitator teaching style is closely associated with developing critical thinking skills among students. Şen (2017) notes that facilitators can stimulate critical thinking through creative questioning, which enhances students' cognitive engagement. This aligns with Armin's (2023) findings, which emphasize the role of the facilitator style in promoting communicative competence and interactive learning. The facilitator style is also linked to fostering learner autonomy, moving away from traditional didactic approaches and encouraging collaborative knowledge construction (Soleimani, 2020). This is particularly relevant in online learning, where facilitators guide students through self-directed learning experiences (Lattke et al., 2021). Facilitators play a crucial role in virtual environments, as their ability to guide discussions and encourage peer interactions is essential for maintaining student engagement. The facilitator's teaching style is pivotal in modern education by promoting active learning, critical thinking, and student engagement. Facilitators can significantly enhance the learning experience and support students in becoming autonomous learners by fostering an environment that encourages inquiry and collaboration. The emphasis on responsiveness and adaptability further highlights this teaching style's importance in meeting students' diverse needs across various educational contexts.

Delegator. The Delegator Teaching Style allows students to take responsibility for their learning by assigning tasks and encouraging autonomy. This style effectively promotes self-directed learning and develops students' decision-making skills. Research indicates that teachers who adopt this style can empower students to become more independent learners, which is essential for lifelong learning (Yoshida, 2023; Rampersad, 2024). However, it requires careful monitoring to ensure that students remain on task and receive adequate support when needed (Şen, 2017). The effectiveness of each teaching style can vary based on the context, subject matter, and individual student needs. A balanced approach incorporating elements from all five styles may be the most effective strategy for addressing diverse learning preferences and fostering a positive educational environment.

Parental Support. Active parental monitoring significantly enhances students' motivation and learning engagement. Research by Tan et al. (2022) emphasizes the importance of parental home monitoring during school suspensions, maintaining students' focus on online learning. Aladsani (2021) underscores the need for parents to adapt their roles in distance learning, serving as monitors and motivators. Such involvement creates a supportive learning environment crucial for academic success. The correlation between parental involvement and academic achievement is well-established. Increased parental engagement during distance learning leads to better educational outcomes, as highlighted by Al-Abdullatif and Aladsani (2022). Lawrence and Fakuade (2021) also argue that parental involvement is critical for enhancing adolescents' participation in learning. Active parental engagement fosters a structured and motivating environment vital for academic success. Furthermore, ongoing training and institutional support for parents in their mentoring roles are crucial. The need for continuous training to help parents navigate their roles effectively, especially in modular or distance learning contexts, is well-documented. When equipped with the proper resources, parents can enhance their effectiveness in monitoring their children's learning. Parental support is crucial in shaping students' learning interests, particularly in Mathematics, among first-year college students. This support can be categorized into three primary roles: motivator, resource provider, and monitor. Each of these roles significantly influences students' engagement and success in Mathematics.

Motivator. Parents can foster a positive attitude towards Mathematics by encouraging their children and helping them develop a sense of self-efficacy. Research indicates parental involvement positively correlates with students' mathematical performance and attitudes. For instance, Deringöl 2019) highlights that increased parental engagement in education correlates with improved student success in Mathematics, particularly noting cultural differences in parental influence between the United States and China (Deringöl, 2019). Furthermore, Jay et al. emphasize that parents recognize their role in developing their children's motivation and engagement in Mathematics, suggesting that parental enthusiasm can significantly impact students' attitudes towards the subject (Jay et al., 2018). Macmull and Ashkenazi further support this motivational aspect, finding that positive attitudes towards mathematics, influenced by parental support, can mitigate math anxiety and enhance self-efficacy among students (Macmull & Ashkenazi, 2019).

Resource Providers. Parents can supply necessary materials and create an enriching learning environment. Feng et al. demonstrate that parental autonomy support enhances students' motivation and effort in homework, which is crucial for academic success (Feng et al., 2019). Additionally, Muir's study reveals that parents who actively participate in their child's mathematical education can provide insights that bolster their child's understanding of contemporary mathematical practices (Muir, 2012). This resource provision is essential, as it includes physical materials and encompasses emotional and intellectual support, which can significantly affect students' academic outcomes (Morkoyunlu & Konyalıoğlu, 2020). As monitors, parents play a vital role in overseeing their children's educational activities and ensuring they stay engaged with their studies. Research by Thapa and Paudel indicates that parental involvement in monitoring students' academic activities can lead to improved attitudes and self-efficacy in Mathematics (Thapa & Paudel, 2021). Moreover, Neufeld et al. discuss teachers' challenges in engaging parents, emphasizing that effective communication between parents and educators is crucial for fostering a supportive learning environment (Neufeld et al., 2016). This monitoring role is vital during transitional periods, such as the shift from high school to college, where students may require additional guidance and support to navigate their academic responsibilities (Bascones, 2024). Parental support in the form of motivation, resource provision, and monitoring is essential for enhancing first-year college students' interest and performance in Mathematics. The interplay of these roles contributes to a supportive educational environment that fosters positive attitudes and academic success in Mathematics.

Monitoring. Parental involvement in monitoring children's learning plays a crucial role in shaping educational outcomes, especially in non-traditional learning contexts, such as during the COVID-19 pandemic. Parents often

serve as both monitors and motivators, helping to maintain engagement and supporting academic and socio-emotional development. This dual role highlights the importance of parental mentoring skills, which significantly impact students' academic performance. Research consistently shows active parental monitoring enhances students' motivation and learning engagement. Tan et al. (2022) emphasize the value of parental home monitoring during school suspensions, which helped students stay focused in online learning. Similarly, Aladsani (2021) underscores the evolving role of parents in distance learning as both monitors and motivators. Such involvement creates a supportive environment that fosters academic success. The link between parental involvement and academic achievement is well-documented. Al-Abdullatif and Aladsani (2022) demonstrate how increased parental engagement during distance learning leads to improved educational outcomes, echoing Lawrence and Fakuade (2021), who stress that parental involvement boosts adolescents' learning participation. Parents who take an active role create a structured and motivating environment essential for academic success. Effective communication is a crucial component of parental involvement. McDonald & Flint (2015) emphasize the importance of clear communication for building strong relationships, enhancing students' academic engagement and success. Strong mentoring relationships positively impact school attendance and academic competence (Rhodes et al., 2000). Institutional support and training for parents in their mentoring roles are also essential. Continuous training can help parents navigate their responsibilities more effectively, particularly in modular or distance learning settings ("Teacher-Parent Collaborative Mentoring Practices on Scholastic Success of Learners," 2024). Parental involvement in learning monitoring is multifaceted, involving active engagement, emotional support, adaptability, and effective communication. These elements foster academic success, strengthen parent-child relationships, and contribute to students' overall development, particularly in non-traditional learning environments.

Students' learning interest in Mathematics. Learning in Mathematics is influenced by multiple interrelated factors, including psychological, motivational, and pedagogical elements. Positive attitudes towards Mathematics are closely linked to increased motivation, engagement, and academic success. Studies show that students with a favorable outlook on Mathematics are more inclined to participate actively in Mathematics-related activities and achieve higher academic results (Darmiyati, 2017; Son, 2021; Idris et al., 2021). This finding underscores the importance of cultivating positive attitudes to enhance both interest and performance in Mathematics. Interest plays a crucial role in shaping students' attitudes towards the subject. Hashim et al. (2021) and Oyedeji (2017) emphasize that a student's interest significantly predicts their attitude, which then influences their learning outcomes. Hashim et al. demonstrated that fostering students' interest in Mathematics directly improves their attitudes, ultimately leading to better academic performance. Moreover, Chen et al. (2018) explain that interest-driven positive attitudes can enhance mathematical abilities through neurocognitive mechanisms, suggesting that learning environments that nurture interest are essential for academic success. However, a decline in positive attitudes toward Mathematics, particularly during adolescence, poses a challenge for educators. Mata et al. (2012) highlight that while younger students tend to exhibit enthusiasm and intrinsic motivation towards Mathematics, this interest often wanes in secondary school. Social influences and students' perceptions of the relevance of Mathematics to real life contribute to this decline (G.C., 2023; Hacıömeroğlu, 2017). Addressing this issue requires targeted strategies to maintain student interest throughout their academic careers. The role of teachers in shaping students' attitudes is another critical factor. Teachers with enthusiasm and positive attitudes towards Mathematics often inspire their students to develop similar feelings (Elçí, 2017; Alpacion et al., 2014). These reciprocal dynamics highlight the importance of teacher training and professional development in creating a learning environment that fosters student engagement and interest in Mathematics. Students' learning interest in Mathematics is closely tied to their attitudes. A supportive educational environment that nurtures positive attitudes, cultivates intrinsic motivation, and highlights the relevance of Mathematics in everyday life is essential for enhancing student interest and achievement. This review underscores the need for educational interventions focusing on teacher influence and student attitudes to improve Mathematics education outcomes.

Emotion. Emotional intelligence has been identified as a crucial element in enhancing students' mathematical representation abilities, which can improve problem-solving skills and overall academic performance (Coesamin et al., 2021). Students with high emotional intelligence are better equipped to express their ideas and navigate mathematical challenges, indicating that emotional factors are integral to cognitive processes in Mathematics education. Positive emotions, such as pride, gratitude, and happiness, are linked to improved academic outcomes, while negative emotions like anxiety can hinder motivation and engagement (Hera, 2023). The emotional climate fostered by teachers and parents plays a pivotal role; supportive environments can alleviate stress and enhance students' well-being, increasing their interest in Mathematics (Wijaya et al., 2022). This underscores the importance of nurturing educational atmospheres where emotional support is prioritized, as it directly correlates

with academic performance and interest in Mathematics. Students' perceptions of the relevance of Mathematics to their lives also shape their interest. A lack of connection between mathematical concepts and real-world applications often diminishes interest (Akbar et al., 2023). Innovative teaching approaches that integrate real-life contexts can help bridge this gap, fostering a more engaging learning experience. Additionally, students' emotional responses to Mathematics, including feelings of pleasure and involvement, are critical indicators of their interest levels (Pangadongan et al., 2022). These emotional dimensions are essential for cultivating a positive attitude toward Mathematics, which is necessary for sustained engagement and achievement. The concept of mathematical culture further supports the relationship between emotional experiences and students' interest in Mathematics. It encompasses students' emotional experiences, knowledge acquisition, and value recognition in Mathematics (Song, 2024). A rich mathematical culture enhances students' interest by providing a context in which they can relate emotionally to the subject matter. Moreover, the motivational climate established by teachers significantly influences students' emotional and cognitive engagement in Mathematics, emphasizing the need for teacher self-efficacy and emotional support in the classroom (Hettinger et al., 2022).

Students' emotional engagement in mathematics is critical to their interest and overall academic achievement. Tainio and Laine (2015) note that positive and negative attitudes toward Mathematics are cultivated through everyday classroom interactions, highlighting the importance of emotional work in learning. Emotional work encompasses teachers' and students' verbal and non-verbal practices, significantly impacting students' emotional responses to Mathematics. The emotional climate of the classroom, shaped by teacher-student interactions, is vital in fostering students' interest in Mathematics. Yang et al. (2021) indicate that positive emotional support from teachers can enhance students' engagement and performance in Mathematics. This support is particularly important for creating a safe learning environment where students feel confident to express their thoughts and questions about mathematical concepts. Furthermore, integrating social-emotional learning (SEL) strategies in Mathematics instruction has improved students' emotional responses and engagement (Durlak et al., 2011). Additionally, the impact of anxiety on students' emotional engagement in Mathematics is significant. Math anxiety is prevalent and can diminish students' interest and performance in Mathematics (Atoyebi, 2023). High levels of math anxiety correlate with lower achievement and reduced engagement in mathematical tasks (Dodongan, 2022). Therefore, addressing emotional barriers such as anxiety is essential for fostering a positive learning environment that encourages students to develop a genuine interest in Mathematics. Students' emotional engagement in Mathematics is influenced by a complex interplay of classroom interactions, self-concept, teacher support, and emotional barriers like anxiety. By fostering a supportive emotional climate and addressing negative emotional responses, educators can enhance students' interest and achievement in Mathematics, ultimately leading to more positive educational outcomes. This multifaceted approach underscores the necessity of addressing emotional dimensions in Mathematics education to cultivate a more enriching learning experience.

Value. Students' interest in Mathematics is significantly influenced by the perceived value they associate with the subject. This value can manifest in various forms, including the relevance of Mathematics to real-life situations, its applicability in future careers, and the intrinsic satisfaction derived from mastering mathematical concepts. Research indicates that when students perceive Mathematics as valuable, their motivation and engagement in the subject increase, leading to improved learning outcomes. One key aspect of the value students place on Mathematics is its relevance to their lives. Azis et al. (2022) found that students' perceptions of teaching methods positively influence their attitudes towards Mathematics, affecting their learning outcomes. When students understand how mathematical concepts apply to real-world scenarios, they are more likely to develop a positive interest in the subject. Wong and Wong (2019) further emphasize that stimulating curiosity through practical applications of Mathematics can enhance students' interest and performance, particularly for those with lower mastery levels. Moreover, prior mathematical knowledge is crucial in shaping students' interest in Mathematics. Adawiyah et al. (2022) highlight that students with a strong interest in Mathematics tend to demonstrate better understanding and retention of mathematical concepts. This suggests that fostering a sense of value in Mathematics can create a positive feedback loop, where increased interest leads to improved understanding, reinforcing the perceived value of the subject. A meta-analysis by Ili et al. (2021) supports the notion that learning interest is a significant predictor of Mathematics achievement. This relationship underscores the importance of cultivating an environment where students can recognize the value of Mathematics not only as an academic subject but also as a critical skill for their future endeavors. The findings suggest that educational strategies should focus on enhancing students' perceptions of the value of Mathematics to boost their interest and engagement.

Furthermore, teachers' role in conveying mathematics's value cannot be overstated. Research indicates that effective teaching practices highlighting mathematics's importance in various fields can significantly enhance

students' interest (Tambunan et al., 2021). Teachers who actively engage students in discussions about the relevance of Mathematics to their lives and future careers can foster a deeper appreciation for the subject. Negative emotions such as anxiety can hinder motivation, while supportive environments foster well-being and increase interest in Mathematics (Hera, 2023; Wijaya et al., 2022). This underscores the necessity of a nurturing educational atmosphere where emotional support is prioritized. Research by Beek et al. (2017) highlights the mediation role of self-concept in the relationship between achievement and emotions in Mathematics, suggesting that students' perceptions of their abilities influence their emotional experiences. Furthermore, the impact of anxiety on students' emotional engagement cannot be overlooked, as high levels of math anxiety correlate with lower achievement and reduced engagement (Atoyebi, 2023; Dodongan, 2022). Students' interest in Mathematics is profoundly affected by their emotional experiences, perceptions of value, and the support they receive from their educational environment. By emphasizing the relevance of Mathematics to real-life situations, leveraging prior knowledge, employing effective teaching strategies, and fostering emotional support, educators can enhance students' engagement and interest in Mathematics, ultimately leading to improved learning outcomes. The interplay of these factors illustrates the necessity of addressing both cognitive and emotional dimensions in Mathematics education to cultivate a more positive learning experience.

Knowledge. Students' learning in Mathematics, particularly regarding knowledge acquisition, is influenced by various interconnected factors, including teaching methodologies, prior knowledge, engagement levels, and the learning environment. A foundational understanding of mathematical concepts is essential for students to progress effectively in their mathematical education. Research indicates that effective teaching strategies, such as hands-on learning and contextualized instruction, significantly enhance students' understanding and retention of mathematical knowledge (Roseno et al., 2015). Integrating real-world applications into the curriculum not only makes Mathematics more relatable but also fosters deeper conceptual understanding among students (Watt et al., 2017). The role of prior mathematical knowledge is critical, as it serves as a cognitive scaffold that allows students to connect new concepts with previously learned material, facilitating better understanding and retention (Adawiyah et al., 2022). Studies have shown that students with a solid foundation in prior mathematical concepts tend to perform better in subsequent Mathematics learning (Adawiyah et al., 2022; Jie, 2020). Therefore, educators must assess students' prior knowledge and tailor their instruction to build upon this foundation effectively. Engagement in Mathematics learning is another crucial factor that affects students' knowledge acquisition. Engagement encompasses behavioral, cognitive, and emotional dimensions, which can significantly influence students' investment in their learning process (Joshi et al., 2022). Research suggests that higher levels of student engagement correlate with improved academic performance and a deeper understanding of mathematical concepts (Bright, 2024; Layco, 2019). Innovative teaching methods, such as technology and collaborative learning, have been shown to enhance student engagement and consequently improve learning outcomes in Mathematics (Attard & Holmes, 2020; Irvine, 2020). For instance, technology can provide interactive and dynamic learning experiences that capture students' interest and motivate them to explore mathematical concepts more deeply (Bright, 2024). The learning environment also plays a significant role in shaping students' mathematical knowledge. A supportive and inclusive classroom environment encourages students to participate actively in discussions and problem-solving activities, which are essential for developing a robust understanding of Mathematics (Hoon et al., 2021). Teachers' knowledge of effective pedagogical practices and their ability to create a positive learning atmosphere are critical in fostering student engagement and knowledge acquisition (Lambert & Sugita, 2016; Bakar et al., 2021). Research indicates that when teachers employ best practices in Mathematics instruction, students are more likely to engage meaningfully with the content and develop a deeper understanding of mathematical concepts (Watt et al., 2017; Hoon et al., 2021). Furthermore, students' attitudes towards Mathematics, motivations, and communication abilities significantly impact their learning experiences. Research consistently shows that students with positive attitudes towards Mathematics achieve better outcomes in their learning endeavors. Yaşar (2016) and Mata et al. (2012) demonstrate a direct correlation between students' attitudes and their academic success, highlighting the need for engaging teaching methods and supportive learning environments to cultivate positive mathematical dispositions (Putra et al., 2017).

Motivation also plays a crucial role in shaping students' attitudes towards Mathematics. Factors such as intrinsic motivation and social support significantly predict students' attitudes (Oyedeji, 2017; Mata et al., 2012). When students feel motivated and supported, they are more likely to develop a positive outlook on Mathematics, enhancing their learning outcomes (Noperta & Sari, 2023). Additionally, differentiated instruction can cater to diverse learning needs, improving students' mathematical literacy and appreciation for the subject (Nugraha, 2023; Zahra, 2023). Mathematical communication skills are essential for effective learning in Mathematics. Students with strong mathematical communication abilities can understand and articulate mathematical concepts,

impacting their learning outcomes directly (Argarini et al., 2020; Siregar, 2018). Interactive and culturally relevant teaching methods, such as ethnoMathematics, have shown to enhance students' mathematical dispositions and communication skills (Ardiansyah, 2023; Imswatama & Lukman, 2018). Furthermore, integrating technology in Mathematics education, particularly through platforms like Google Meet, facilitates better communication and engagement among students, especially in online learning contexts (Hutajulu, 2022). In conclusion, students' learning in Mathematics is intricately linked to their prior knowledge, engagement levels, attitudes, motivations, and the effectiveness of instructional strategies employed by educators. Educators can significantly enhance students' understanding and appreciation of Mathematics by focusing on building a solid foundation of mathematical knowledge, fostering student engagement through innovative teaching methods, and creating a supportive learning environment. Addressing these diverse factors is essential for promoting a positive learning experience that equips students for future success in Mathematics.

Engagement. Students' learning interest in Mathematics is significantly influenced by their engagement levels, encompassing emotional, behavioral, and cognitive dimensions. Engagement in Mathematics is crucial for fostering a positive attitude toward the subject and enhancing academic performance. Emotional engagement, characterized by enthusiasm and enjoyment in Mathematics, plays a vital role. Research shows that teachers who demonstrate enthusiasm and cultivate a favorable emotional climate can enhance students' emotional engagement, increasing persistence and effort in mathematical tasks (Watt et al., 2017). This emotional connection is essential, as it can foster greater motivation and interest in the subject. Behavioral engagement is another critical aspect that influences students' interest in mathematics. This dimension includes active participation in class activities, completion of assignments, and involvement in discussions. Studies indicate that behaviorally engaged students are likely to develop positive attitudes towards mathematics and perceive it as valuable (Skilling et al., 2020). For example, students with high behavioral engagement often report increased confidence in their mathematical abilities, reinforcing their interest in the subject (Beek et al., 2017). Conversely, disengagement can lead to negative outcomes, including lower academic performance and diminished interest in pursuing Mathematics further (Byiringiro, 2023). Cognitive engagement is equally important, referring to the investment of mental effort in learning tasks. Students who engage cognitively are more likely to employ effective learning strategies, seek to understand mathematical concepts deeply, and relate them to real-world applications (Joshi et al., 2022). This type of engagement is associated with higher achievement levels and a greater likelihood of pursuing advanced Mathematics courses (Fung et al., 2018). Furthermore, integrating technology in Mathematics education enhances cognitive engagement by providing interactive and dynamic learning experiences that capture students' interest (Attard & Holmes, 2020). The learning environment significantly shapes student engagement. A supportive and inclusive classroom atmosphere, where students feel valued and respected, can enhance engagement levels (Hettinger et al., 2022). Research highlights that students who perceive their learning environment as conducive to collaboration and support experience increased interest in Mathematics (Attard, 2011). Additionally, parental engagement in students' Mathematics learning has been shown to significantly impact their engagement and interest (Murphy et al., 2023). Parental involvement, including cognitive engagement, understanding mathematical concepts and emotional support, maintaining positive attitudes towards Mathematics, plays a pivotal role in shaping students' interests (Purnomo et al., 2022).

Moreover, the quality of parental involvement can directly affect students' engagement levels. According to Jehadus et al., parental support in guiding children's learning is linked to improved academic achievement in Mathematics (Jehadus et al., 2022). This support can take various forms, including assisting with homework, discussing mathematical concepts, and fostering a growth mindset. Cruz and Natividad identify distinct roles that parents play, such as motivators and resource providers, significantly enhancing students' attitudes toward Mathematics (Cruz & Natividad, 2022). Additionally, the emotional aspect of engagement is crucial. Purnomo et al (2021) note that emotional engagement, characterized by students' interest and reactions to learning activities, strongly correlates with cognitive engagement, which involves the quality of learning strategies (Purnomo et al., 2021). This interplay suggests that fostering a positive emotional connection to Mathematics can lead to deeper cognitive engagement, enhancing overall interest in the subject. The impact of teacher-student interactions on student engagement is also crucial. Research by Fung et al. indicates that effective teacher-student interactions significantly enhance students' engagement in Mathematics, positively influencing their academic performance (Fung et al., 2018). This suggests that a supportive classroom environment and active parental involvement can create a synergistic effect that boosts students' interest in Mathematics. Students' learning interest in Mathematics is intricately linked to their engagement levels, influenced by parental involvement, emotional connections, and teacher interactions. By fostering a supportive and engaging environment, both parents and educators can significantly enhance students' interest and success in Mathematics. Addressing these factors holistically is

essential for cultivating a positive attitude towards Mathematics and encouraging students to pursue the subject with enthusiasm and commitment.

Subramaniam Chetty et al. (2019) explored the interplay between learning and teaching styles and their impact on students' academic performance at Universiti Malaysia Pahang. Their study, which included 251 participants, found a notable preference for visual learning, indicating that teaching methodologies significantly affect academic outcomes. The researchers concluded that aligning teaching methods with students' learning preferences could enhance their educational experiences. This aligns with existing literature, emphasizing that adaptable teaching strategies can boost student motivation and engagement (Hattie, 2009; Brophy, 2010). Furthermore, parental involvement in education is vital; parents who actively engage in their children's learning significantly enhance their interest in Mathematics (Hill & Tyson, 2009; Fan & Chen, 2018). Thus, combining effective teaching styles and parental mentoring skills creates an optimal environment for fostering students' interest and success in Mathematics. Dela Cruz and Natividad Jr (2022) conducted a study that investigates how parental roles and learners' attitudes influence Mathematics performance among 328 Grade 6 learners and their parents in Laoag City. Using a descriptive-correlational research design, the study found that parents highly practiced roles as motivators, resource providers, monitors, content advisors, and learning counselors. Learners showed highly favorable attitudes toward Mathematics in confidence, enjoyment, and value, though moderately favorable in anxiety. Learners performed very satisfactorily in Mathematics. Key findings include that Family income does not influence parental roles, but the number of children does, particularly in motivation. Parental roles significantly impact learners' attitudes toward Mathematics. Learners' attitudes, especially enjoyment, anxiety, and confidence, alongside parental involvement as learning counselors, predict Mathematics performance with a 20.80% explained variance. The study highlights the importance of fostering parental engagement and positive learner attitudes to improve Mathematics performance. Educational programs promoting these factors are recommended. Snow (2011) explored the development of a Math Interest Inventory to identify gifted students from underrepresented and diverse populations within the context of Project GEMS. This initiative seeks to create validated assessment tools that address the challenges of recognizing giftedness among low-income and diverse students in the Science, Technology, Engineering, and Mathematics (STEM fields. By utilizing Hidi and Renninger's (2006) four-phase model of interest, which encompasses emotion, value, knowledge, and engagement, the study designed a 27-item self-report measure. The pilot testing involved a substantial sample of elementary students, revealing good internal consistency and a four-factor structure that aligns with the theoretical model. However, despite the inventory's reliability, the study found only small correlations with standardized math achievement scores, suggesting the need to explore further how interest in Mathematics can be more effectively linked to academic performance. This research highlights the significance of fostering interest in Mathematics among students, particularly in underrepresented groups. It underscores the potential role of parental mentoring in cultivating this interest, which is a focal point of the present study.

Theoretical Framework

The theoretical framework of this study is based on essential educational and psychological theories that elucidate how teachers' teaching styles and parents' mentoring skills influence students' interest in learning Mathematics. The Constructivist Learning Theory (Jean Piaget) is central to this framework, which posits that learners construct knowledge through their experiences and interactions with others. In this framework, the role of teachers as facilitators is crucial; whether they adopt an authoritative approach or a more student-centered style, they significantly impact how students engage with mathematical concepts. Effective teaching strategies that encourage exploration, critical thinking, and collaboration can enhance students' understanding and interest in Mathematics, making the subject more relatable and enjoyable. Additionally, parents play a pivotal role as mentors in their children's academic journeys. By providing a supportive learning environment, parents can foster their children's confidence and motivation in tackling mathematical challenges. This mentoring can take various forms, such as helping with homework, promoting effective study habits, and encouraging a positive attitude toward Mathematics. When parents are actively involved in their children's education, they contribute to creating a strong foundation that nurtures students' interest and enthusiasm for the subject.

Statement of the Problem

This study attempted to determine the effect of teacher teaching practices and parental support of Students' Learning Interest Towards Mathematics. Specifically, it sought to provide answer to the following questions:

1. What is the level of teacher teaching practices in terms of :
    1.1 expert;
    1.2 formal authority;

1.3 personal model;
1.4 facilitator; and
1.5 delegator?

2. What is the level of parental support of parents in terms of:
   2.1 motivator;
   2.2 resource provider; and
   2.3 monitor.
3. What is the level of Students' Learning Interest Towards Mathematics in terms of:
   3.1 emotions;
   3.2 value;
   3.3 knowledge, and
   3.4 engagement?
4. Is there a significant relationship between the teacher teaching practices and students' learning interest towards Mathematics?
5. Is there a significant relationship between parental support of parents and students' learning interest towards Mathematics?
6. Which domain of teacher teaching practices can significantly predict the students' learning interest towards Mathematics?
7. Which domain of parental support of parents can significantly predict the students' learning interest towards Mathematics?

Null Hypotheses

The following hypotheses is to be tested using the appropriate statistical toolset at 0.05 level of significance:

HO_1: There is no significant relationship between the teacher teaching practices and students' learning interest towards Mathematics.

HO_2: There is no significant relationship between the parental support of parents and students' learning interest towards Mathematics.

HO_3: There is no domain of teacher teaching practices, and parental support of parents can significantly predict the students' learning interest towards Mathematics?

Scope and Delimitation

This study focuses on the 317 first-year students enrolled in Mathematics in the Modern World at Monkayo College of Arts, Sciences, and Technology during the academic year 2023-2024. The scope of the research includes investigating teacher teaching practices categorized into expert, formal authority, personal model, facilitator, and delegator and parental support, encompassing motivator, resource provider and monitor. The study is delimited to the examination of how these variables impact students' learning interest in terms of emotions, value, and knowledge. It excludes other potential factors such as peer influence, personal motivation, and socioeconomic status. The respondents of the study will be selected using appropriate sampling techniques, focusing solely on first-year students in this general Mathematics subjects.

MATERIALS AND METHODS

Locale

The study will be conducted at Monkayo College of Arts, Sciences, and Technology (MonCAST) in Monkayo, Davao de Oro. The study focused on first-year students enrolled in the general subject Mathematics in the Modern World for the school year 2023-2024. MonCAST serves as the primary higher education institution in Monkayo, offering various programs and degrees to the local population. The college is situated within the town proper, making it easily accessible to students from different barangays in the municipality. For the purpose of this study, the respondents were first-year students enrolled in the Mathematics in the Modern World course. The study seeks to understand the influence of teaching practices and parental support on students' interest in Mathematics. MonCAST offers this subject as part of its general education curriculum, which is required for all first-year students. It provides a well-rounded sample for the research. The total enrollment for the first-year Mathematics course was approximately 1798 students, who come from different backgrounds and have varying levels of interest in Mathematics. Given the rural context of Monkayo, this study aims to explore how teaching practices and parental support affect students' motivation and learning experiences in Mathematics, which is often perceived as a challenging subject, especially in rural areas. The research setting in MonCAST provides a relevant environment for examining these dynamics, as the college serves students from both rural and urban areas within Davao de Oro.

Design

This study employed a quantitative descriptive-correlational research design. The quantitative approach was deemed appropriate as it allows the researcher to collect and analyze numerical data representing measurable variables relevant to the phenomenon under investigation. According to Rayos (2023), descriptive research systematically gathers data to answer the "what," "when," and "how" questions, thereby presenting a clear depiction of the existing conditions or relationships among variables within a specific population. The descriptive aspect of this design aimed to portray the current status of the identified variables as accurately as possible, without manipulating the research environment. In line with Streubert and Carpenter (1999), descriptive research seeks to investigate and analyze phenomena for an intuitive presentation that minimizes unexplained assumptions. Complementing the descriptive approach, the correlational component of the research design was used to assess the degree of relationship between two or more variables. This approach was essential in determining the extent to which factors such as parental support and teaching practices relate to students' interest in mathematics. As supported by Subia et al. (2019), correlational research enables the evaluation of relationships between variables without implying causation. Baluyos et al. (2019) emphasized that quantitative correlational research is appropriate when the goal is to describe and interpret existing conditions, behaviors, or opinions through statistical analysis. Similarly, Bohol and Baluyos (2023) noted that such a design is useful when researchers seek to understand how different variables influence one another in a natural setting, rather than through experimental manipulation. In this study, questionnaires were the primary tool for collecting participant data. This method was selected for its efficiency in gathering large amounts of standardized data. According to Bakar (2001), questionnaires are suitable for primary data collection as they facilitate direct observation and participant responses. Finally, the correlation between the variables was measured using appropriate statistical tools, such as Pearson's r, to quantify the strength and direction of the relationships. As Esteban et al. (2023) highlighted, such measures provide insights into how variables, though not causally linked, are associated within the context of the study. In summary, the quantitative descriptive-correlational research design provided a structured and reliable framework for examining the relationships among variables, offering valuable insights without manipulating the study environment.

Research Respondents

The respondents of this study were first-year college students enrolled in the general education subject Mathematics in the Modern World at Monkayo College of Arts, Sciences, and Technology (MonCAST) during the academic year 2024–2025. They came from various degree programs, including BS in Business Administration (BSBA), BS in Agriculture (BSA), Bachelor of Elementary Education (BEEd), and Bachelor of Secondary Education (BSEd). The study explored how teaching practices and parental support influence students' interest in Mathematics. A proportionate sampling technique was applied using the Raosoft sample size calculator to ensure fair representation from each program. A random sampling method was then used to select the respondents from a master list of enrolled students, giving each student an equal chance of being chosen. This sampling approach ensured a balanced and representative student population for the study

Table 1: Respondents of the Study

Degree Program	Total No. of first year students	Percentage	Respondents
BSBA	1173	65%	206
BEEd	163	9%	29
BSEd	280	16%	50
BSA	182	10%	32
Total	1798	100%	317

Research Instruments

The study utilized an adopted questionnaire checklist as its primary data-gathering tool, divided into four key sections. The first section collected the demographic profile of the student respondents, including age, gender,

and academic program. The second section assessed the teaching practices of teachers using dimensions from the Grasha-Riechmann Teaching Style Survey, categorizing items under the Expert, Formal Authority, Personal Model, Facilitator, and Delegator teaching styles. The third section measured the parental support of parents, based on the framework from the research of Jinfa Cai this section included dimensions such as Motivator, Resource provider and Monitor. The fourth section evaluated students' interest in learning Mathematics, drawing from the work of Gabrielle M. Snow, covering aspects related to Emotions, Value, and Knowledge. All items in the questionnaire were rated using a five-point Likert scale, ranging from 1 (Very Low) to 5 (Very High), to quantify how frequently each indicator was manifested.

Validation of Instrument

The questionnaire underwent a validation process to ensure the accuracy and relevance of the items to the research objectives. Three experts in the field of education reviewed the questionnaire to determine its content validity, ensuring that the questions were appropriate for assessing the variables being studied namely, teaching practices, parental support, and learning interest towards Mathematics. After the initial validation, the instrument was pilot-tested on a small sample of students and teachers who were not part of the main study. This pilot test aimed to evaluate the reliability and clarity of the questions. Feedback from the pilot testing was used to make necessary adjustments, ensuring that the final instrument was both reliable and understandable to the respondents. Additionally, the internal consistency of the instrument was measured using Cronbach's alpha, which ensured that the items within each section were measuring the same construct consistently across respondents.

Procedures

The researcher adhered to a systematic data collection procedure to ensure the integrity and reliability of the study findings. The researcher first submitted the survey questionnaire to the Ethics Review Committee (ERC) under the Graduate School to ensure the ethical conduct of the study. After obtaining the ERC certification, the Graduate School issued an endorsement letter to the College President. With these documents, the researcher wrote a formal letter of intent to conduct the study, which, along with the endorsement letter, was submitted to the MONCAST Research Office for acknowledgment and formal approval. Once the Research Office approved, the researcher presented the approved documents to the College President and personally explained the study's purpose and objectives in detail. The researcher administered the adopted questionnaire to the respondents, which included students enrolled in the Bachelor of Science in Business Administration (BSBA), Bachelor of Elementary Education (BEED), Bachelor of Secondary Education (BSED), and Agriculture programs. The participants were informed about the study's goals, emphasizing the confidentiality of their responses. To enhance accountability, the researcher personally distributed, collected, and encoded all completed questionnaires using a computer for data management.

Statistical Tool

To analyze and interpret the collected data, the researcher employed several statistical tools. The mean was used to determine the average levels of parental support, teaching practices, and students' learning interest in Mathematics, providing a general picture of these variables and their distribution. To examine relationships between variables, the Pearson r correlation coefficient was utilized, measuring the strength and direction of the association between teaching practices and parental support with students' learning interest in the subject. Finally, multiple regression analysis was conducted to assess the combined effect of teaching practices and parental support on students' learning interest. This approach helped identify which variables significantly predicted student engagement, offering deeper insight into the relative contribution of each factor in shaping students' attitudes and motivation toward Mathematics.

Ethical Considerations

This study adhered to strict ethical standards to protect participants and ensure the integrity of the research process. Informed consent was obtained from all participants, who were clearly informed about the study's purpose, procedures, potential risks, and benefits, as well as their right to withdraw at any time without consequences. The social value of the research lies in its potential to improve Mathematics education by uncovering strategies that enhance student engagement through effective teaching practices and parental support. Participants were treated with fairness and respect, with special care given to their vulnerability as students, ensuring they fully understood the process and felt safe throughout. Risks were minimal, limited to mild discomfort when recalling academic experiences, while benefits included the opportunity to contribute to improving teaching and learning practices. The researcher upheld privacy and confidentiality in line with the Data

Privacy Act of 2012, securing all data and anonymizing responses. Transparency was maintained by clearly explaining the research goals and procedures, and the researcher's qualifications ensured the study was conducted ethically and professionally.

RESULTS AND DISCUSSION

Level of Teaching Practices

Expert. Table 2 shows the level of expert in teaching practices *My teacher…*		**Mean**	**Descriptive Equivalent**
1	emphasizes the importance of understanding facts, concepts, and principles in this class.	4.35	High
2	sets high standards for me in this class.	3.87	High
3	provides clear examples of how to think about issues in the subject.	4.29	High
4	shares his/her knowledge and expertise with us regularly.	4.29	High
5	shows how various principles and concepts apply to our learning.	4.32	High
6	often resolves disagreements in the class using their expertise on the subject.	3.99	High
7	I would describe my teacher as a "storehouse of knowledge" who provides the information I need to understand the subject.	4.29	High
8	My teacher's insights on a topic help me gain a broader perspective on the subject.	4.36	High
	Weighted Mean	**4.22**	**High**

Table 2 highlights the level of expert teaching practices as perceived by students, with all eight items receiving "High" mean scores ranging from 3.87 to 4.36. The highest, at 4.36, was for the statement about gaining broader perspectives through teacher insights. Several items scored 4.29, showing consistent appreciation for teachers' knowledge and clarity. With an overall weighted mean of 4.22, the data suggest that expert teaching is a key strength. Students view their teachers as highly knowledgeable and effective in explaining complex concepts, contributing to a supportive and intellectually stimulating learning environment.

Table 3
Formal Authority

My teacher…		**Mean**	**Descriptive Equivalent**
1	clearly defines what I need to learn and how I should learn it.	4.38	High
2	My teacher's expectations for what I should do in this class are clearly outlined in the syllabus.	4.22	High
3	has strict and high expectations for student performance.	3.90	High
4	provides very clear guidelines for completing assignments and tasks.	4.35	High
5	sets very specific goals and objectives for the course.	4.25	High
6	Lecturing is a significant part of how my teacher teaches this class.	4.25	High
7	There is more material in this course than we have time to cover.	4.01	High

8	My teacher's standards and expectations help me develop the discipline needed to succeed in this course.	4.34	High
	Weighted Mean	**4.21**	**High**

Table 3 shows that the level of formal authority in teaching practices is consistently high, with mean scores ranging from 3.90 to 4.38. The highest score is 4.38 reflects clear guidance on what and how students should learn, while the lowest is 3.90 still indicates strong authority. The overall mean of 4.21 confirms that teachers maintain structured, goal-oriented classrooms with clear expectations. This suggests a traditional, organized approach where students view teachers as authoritative figures fostering discipline and focus.

Table 4
Personal Model

My teacher…		**Mean**	**Descriptive Equivalent**
1	often shows me how to master course content by demonstrating what to do.	4.16	High
2	uses personal experiences to illustrate key points about the subject.	4.18	High
3	guides my work by asking questions and suggesting alternative ways to complete projects.	4.16	High
4	provides feedback when my performance does not meet their expectations.	4.12	High
5	helps me develop the ability to think and work independently.	4.28	High
6	is available to provide help whenever I need it.	4.20	High
7	consults with me how to improve my work on individual or group projects.	4.13	High
8	Over time, I find that I begin to think like my teacher about the course material.	4.00	High
	Weighted Mean	**4.15**	**High**

Table 4 shows a high level of personal model in teaching practices, with mean scores ranging from 4.00 to 4.28. The highest score is 4.28 highlights teachers' efforts to develop students' independence. The overall mean of 4.15 indicates that teachers consistently model desired behaviors, provide guidance, and support student growth. These practices promote autonomy, critical thinking, and positive learning attitudes, showing that students view their teachers as strong role models in both academics and conduct.

Table 5
Facilitator

My teacher…		**Mean**	**Descriptive Equivalent**
1	allows me to choose activities to complete course requirements. My	3.95	High
2	teacher's teaching methods address different learning styles in the class.	4.11	High
3	uses small group discussions to help me think critically about the subject.	4.05	High
4	asks for my input on how and what we should learn in this class.	4.11	High

5	provides a lot of personal support and encouragement to help me do well.	4.13	High
6	The activities in this class encourage me to take responsibility for my own learning.	4.22	High
7	The activities in this class encourage me to develop my own ideas about the subject matter.	4.26	High
8	I have the responsibility to teach part of the class sessions as assigned by my teacher.	4.09	High
	Weighted Mean	**4.12**	**High**

Table 5 presents the level of facilitator in teaching practices, with all eight items receiving high descriptive equivalents and mean scores ranging from 3.95 to 4.26. The highest mean score of 4.26 reflects that classroom activities effectively encourage students to develop their own ideas about the subject matter, promoting critical thinking and creativity. Similarly, high scores were recorded for items emphasizing student responsibility for learning at 4.22 and receiving support and encouragement from the teacher at 4.13. The lowest score, 3.95, still falls within the high range, indicating consistent facilitative practices. The overall weighted mean of 4.12 confirms that teachers regularly adopt a facilitative approach, encouraging active participation, autonomy, and personalized learning. This suggests that students perceive their teachers as supportive guides who foster engagement, responsibility, and collaborative learning environments.

Table 6. Delegator

My teacher…		**Mean**	**Descriptive Equivalent**
1	I usually work on course projects independently with little supervision from my teacher.	4.11	High
2	I design self-directed learning experiences as part of this course.	4.14	High
3	I am allowed to set my own pace for completing independent and group projects.	4.09	High
4	My teacher's approach to teaching is similar to a manager who delegates tasks and responsibilities to us.	4.18	High
5	I take the initiative in course activities and am responsible for my own learning.	4.20	High
6	My teacher gives me personal support and encouragement to help me succeed.	4.11	High
7	My teacher frequently gives me verbal or written feedback on my performance.	3.97	High
8	My teacher's standards and expectations help me develop the discipline needed to succeed.	4.12	High
	Weighted Mean	**4.11**	**High**

The table 6 presented the mean scores for items 1 to 8 are 4.11, 4.14, 4.09, 4.18, 4.20, 4.11, 3.97, and 4.12, respectively. All items received a descriptive equivalent of High, showing that teachers consistently practice delegator-style teaching. The overall weighted mean is 4.11, which is likewise interpreted as High.

Table 7. Summary of the Level of Teaching Practices

Indicators	**Mean**	**SD**	**Descriptive Level**
Expert	4.22	1.237	High
Formal Authority	4.21	0.889	High
Personal Model	4.15	0.861	High

Facilitator	4.12	0.878	High
Delegator	4.11	1.039	High
Overall	**4.16**	**0.992**	**High**

Table 7 presents the summary of the level of teaching practices. The results show that the "Expert" indicator received the highest mean score of 4.22 with a standard deviation of 1.237, indicating a high level of expertise demonstrated by teachers. This is followed closely by "Formal Authority", which obtained a mean of 4.21 and a standard deviation of 0.889, also described as high.

The "Personal Model" indicator recorded a mean of 4.15 with a standard deviation of 0.861, while "Facilitator" had a mean of 4.12 and a standard deviation of 0.878. The "Delegator" indicator received the lowest mean among the five, at 4.11, but had the highest variability in responses with a standard deviation of 1.039. Despite this, all indicators were rated as High, reflecting consistently strong teaching practices across all domains. The computed average mean across all indicators was 4.16, with a standard deviation of 0.992, suggesting a general agreement among students that their instructors exhibit a high level of teaching practices. The relatively close range of standard deviations also indicates a consistent perception of teaching quality among the respondents.

Level of Parental Support

Table 8. Motivator

	My parent/guardian…..…	**Mean**	**Descriptive Equivalent**
1	believes mathematics is important for my future. When	4.16	High
2	encourages me to do well on my math assignments.	4.05	High
3	is usually able to encourage me to learn math effectively.	4.05	High
4	I have trouble understanding mathematics, my parent/guardian tells me not to worry because everyone finds it challenging sometimes.	4.12	High
5	At home, my parent/guardian encourages me to keep working on difficult math problems.	3.87	High
	Weighted Mean	**4.05**	**High**

Table 8 presents the level of motivator in parental support, with all five items receiving high descriptive equivalents and mean scores ranging from 3.87 to 4.16. The highest mean score of 4.16 shows that parents believe mathematics is important for their child's future. Encouragement to persevere through challenges is also evident, with a score of 4.12 reflecting reassurance when students struggle with math. Other items, such as support on assignments and motivation to learn effectively, scored consistently at 4.05, while the lowest score, 3.87, still falls within the high range. The overall weighted mean of 4.05 indicates that parents consistently serve as motivators, offering encouragement and support that positively influence students' attitudes toward learning mathematics.

Table 9. Resource Provider

	My parent/guardian…..…	**Mean**	**Descriptive Equivalent**
1	creates a good learning environment at home for me to study mathematics.	4.08	High
2	provides me with various math resources, such as books, worksheets, or other learning materials, to support my studies.	3.89	High
3	helps me choose relevant and helpful math-related books.	3.94	High

4	shows me how to use math tools like calculators and rulers.	4.04	High
5	At home, my parent/guardian plays games and puzzles with me to improve my math skills.	3.65	High
	Weighted Mean	**3.92**	**High**

Table 9 presents the level of resource provider in parental support, with all five items receiving high descriptive equivalents and mean scores ranging from 3.65 to 4.08. The highest score of 4.08 indicates that parents help create a good learning environment at home for studying mathematics. Other items, such as providing math tools at 4.04 and helping select useful books at 3.94, also show strong support. The lowest score of 3.65 still falls within the high range and reflects parental involvement in using games and puzzles to enhance math skills. With an overall weighted mean of 3.92, the data suggest that parents play an active role in supplying resources that support and enrich their child's learning in mathematics.

Table 10. Monitor

My parent/guardian…..…		**Mean**	**Descriptive Equivalent**
1	checks my homework regularly.	3.71	High
2	talks to me about how I am doing in math.	3.72	High
3	asks me to show them the results of all my math assignments.	3.70	High
4	keeps track of how much time I spend on math at home.	3.60	High
5	At home, my parent/guardian helps me balance my time between math and other subjects.	3.84	High
	Weighted Mean	**3.71**	**High**

Table 10 presents the level of monitor in parental support, with all five items receiving high descriptive equivalents and mean scores ranging from 3.60 to 3.84. The highest score of 3.84 indicates that parents help their children balance time between math and other subjects. Other items, such as talking about math progress and checking homework, also scored consistently around the 3.70 range. The lowest score, 3.60, reflects parental monitoring of time spent on math at home but still falls within the high category. With an overall weighted mean of 3.71, the results suggest that parents actively monitor their children's learning, showing involvement in tracking progress and encouraging time management.

Table 11. Summary of the Level of Parental support

Indicators	Mean	SD	Descriptive Level
Motivator	4.05	1.027	High
Resource Provider	3.92	0.889	High
Monitor	3.71	0.861	High
Overall	3.90	1.379	High

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The Motivator indicator received the highest mean score of 4.05, with a standard deviation of 1.027, indicating that students perceive their parents as strong sources of encouragement in their mathematics studies. This is followed by the Resource Provider indicator, with a mean of 3.92 and a standard deviation of 0.889, showing that parents generally support their children's academic needs by providing learning materials and tools. Lastly, the Monitor indicator recorded the lowest mean of 3.71 and the lowest standard deviation of 0.861, suggesting

slightly less emphasis on supervision and tracking of students' academic tasks compared to the other forms of support. Despite differences in the specific forms of support, all three indicators were rated as High. The overall mean score of 3.90 and standard deviation of 1.379 indicate a generally high perception of parental involvement, with moderate variability in how students experience this support.

Level of Learning Interest Towards Mathematics

Table 12. Emotion

I enjoy learning mathematics because I…		**Mean**	**Descriptive Equivalent**
1	find math interesting.	3.85	High
2	acquire new knowledge.	4.07	High
3	find Math fun.	3.75	High
4	get excited in solving Math problems.	3.65	High
5	find Math cool.	3.73	High
	Weighted Mean	**3.81**	**High**

Table 12 presents the level of emotion in learning interest towards Mathematics among students. The results reveal a high emotional interest, with a weighted mean of 3.81. Students indicated that they enjoy learning Mathematics because they acquire new knowledge with a mean score of 4.07, find the subject interesting with a mean of 3.85, and consider it fun with a mean of 3.75. Additionally, they reported feeling excited when solving math problems, reflected in a mean of 3.65, and described the subject as "cool" with a mean of 3.73. These findings suggest that students generally have a positive emotional attitude towards learning Mathematics.

Table 13. Engagement

I…		**Mean**	**Descriptive Equivalent**
1	talk to my family or friends about things I learned in math class.	3.69	High
2	watch television or videos shows about math.	3.59	High
3	look at websites about math.	3.63	High
4	play math computer games.	3.49	Moderately High
5	read books about math.	3.45	Moderately High
6	go to places to learn about math.	3.45	Moderately High
7	like to do math problems.	3.50	High
	Weighted Mean	**3.54**	**High**

Table 13 presents the level of engagement in learning interest towards Mathematics. The overall weighted mean is 3.54, which indicates a high level of engagement. Students reported that they talk to family or friends about what they learned in math class, with a mean of 3.69, and that they like doing math problems, scoring a mean of 3.50. They also watch television or video shows about math, with a mean of 3.59, and visit websites related to math, scoring 3.63. However, activities such as playing math computer games is 3.49, reading books about math is 3.45, and going to places to learn about math is 3.45 were rated as moderately high. These results show that while students are generally engaged with Mathematics, their involvement is stronger in discussions and problem-solving than in independent exploratory activities.

Table 14. Knowledge

I…		Mean	Descriptive Equivalent
1	possess a deep understanding of mathematical concepts.	3.67	High
2	demonstrate proficiency in mathematical skills.	3.68	High
3	encounter stimulating challenges in math.	3.79	High
4	consistently do well in math classes.	3.70	High
5	find math fascinating.	3.60	High
	Weighted Mean	3.71	High

Table 14 presents the level of knowledge in learning interest towards Mathematics. The overall weighted mean is 3.71, indicating a high level of perceived mathematical knowledge among students. Respondents reported encountering stimulating challenges in math, with a mean of 3.79, and consistently doing well in their math classes, with a mean of 3.70. They also indicated proficiency in mathematical skills (3.68), a deep understanding of mathematical concepts (3.67), and a sense of fascination with math (3.60). These results suggest that students feel confident and capable in their understanding and application of mathematical concepts, reflecting a strong cognitive engagement with the subject.

Table 15. Value

I value mathematics subject because I…		Mean	Descriptive Equivalent
1	find math important in thinking critically.	4.03	High
2	find math helpful in developing my sense of honesty.	3.90	High
3	find math useful in enhancing my creativity.	3.93	High
4	am confident that learning about it directly corresponds to my personal preferences.	3.86	High
5	gain learning from it.	4.05	High
	Weighted Mean	3.95	High

Table 15 presents the level of value in learning interest towards Mathematics. The weighted mean of 3.95 indicates a high level of appreciation for the subject among students. They strongly recognize the importance of math in critical thinking, as reflected by the highest mean of 4.03, and acknowledge its role in gaining learning, with a mean of 4.05. Students also value math for enhancing creativity (3.93), developing honesty (3.90), and aligning with their personal preferences (3.86). These findings highlight that students not only see mathematics as academically beneficial but also as a subject that contributes to their personal development and values.

Table 16. Summary Level of Learning Interest towards Mathematics

Indicators	Mean	SD	Descriptive Level
Emotion	3.81	1.141	High
Engagement	3.54	1.191	High
Knowledge	3.71	1.848	High
Value	3.96	1.034	High

Overall	3.81	1.137	High

Based on the data presented in Table 16, the level of learning interest towards Mathematics among first-year students was assessed through four indicators: Value, Emotion, Knowledge, and Engagement. All indicators yielded mean scores categorized as "High," indicating a strong overall interest in the subject. The Value indicator obtained the highest mean score of 3.96 with a standard deviation of 1.034, highlighting that student recognize the importance and relevance of Mathematics in developing critical thinking, creativity, and personal growth. This was followed by the Emotion indicator, which recorded a mean of 3.81 and a standard deviation of 1.141, showing that students associate positive feelings with learning Mathematics. The Knowledge indicator came next, with a mean of 3.71 and the highest variability in responses, as indicated by the standard deviation of 1.848. This suggests that while students generally perceive themselves as competent in Mathematics, individual levels of confidence and proficiency vary. Lastly, the Engagement indicator registered the lowest mean score of 3.54 and a standard deviation of 1.191, reflecting moderate yet consistent levels of participation in math-related activities outside the classroom. Overall, the general mean of 3.81 and standard deviation of 1.137 confirm that students exhibit a high level of interest in learning Mathematics across all evaluated aspects.

Table 17.Relationship between the Teacher Teaching Practices and Students' Learning Interest towards Mathematics

Independent Variable	Dependent Variable	r-value	r^2	p-value	Decision
Teacher Teaching Practices	Learning Interest Towards Mathematics	0.503*	0.253	<0.001	Reject H_o

Table 17 presents the statistical analysis of the relationship between teacher teaching practices and students' learning interest in Mathematics among first-year students. The computed Pearson correlation coefficient ($r = 0.503$) reveals a moderate positive correlation, indicating that higher levels of effective teaching practices are associated with increased levels of student interest in Mathematics. The r^2 value of 0.253 suggests that approximately 25.3% of the variance in students' learning interest can be explained by variations in teaching practices. Moreover, the p-value (< 0.001) indicates that the relationship is statistically significant, thereby justifying the rejection of the null hypothesis which assumed no correlation between the variables.

Table 18. Relationship between parental support of parents and students' learning interest towards Mathematics

Independent Variable	Dependent Variable	r-value	r^2	p-value	Decision
Parental Support of Parents	Learning Interest Towards Mathematics	0.738*	0.545	<0.001	Reject H_o

Table 18 presents the statistical analysis of the relationship between parental support and students' learning interest in Mathematics among first-year students. The Pearson correlation coefficient was found to be $r = 0.738$, indicating a strong positive correlation. This suggests that higher levels of parental support are strongly associated with increased student interest in learning Mathematics. The coefficient of determination ($r^2 = 0.545$) reveals that 54.5% of the variation in students' learning interest in Mathematics can be explained by differences in the level of parental support. Moreover, the p-value (< 0.001) indicates that the correlation is statistically significant, justifying the rejection of the null hypothesis (Ho), which proposed that no relationship exists between the two variables.

Table 19. Regression Analysis on the Domains of Teaching Practices that Significantly Predict Learning Interest Towards Mathematics

Indicators	Unstandardized Coefficients		Standardized Coefficients Beta	t-value	p-value	Decision
	B	SE				
(constant)	0.694	0.284				
Expert	-0.051	0.076	-0.040	-0.671	0.503	Do not Reject H_o
Formal	0.150	0.117	0.099	1.284	0.200	Do not Reject H_o
Personal	-0.110	0.122	-0.079	-.896	0.371	Do not Reject H_o
Facilitator	0.358	0.116	0.270	3.080	0.002	Reject H_o
Delegator	0.395	0.089	0.315	4.430	<0.001	Reject H_o

Dependent Variable: Learning Interest Towards Mathematics

Table 19 presents the regression analysis conducted to determine which domains of teacher teaching practices significantly predict students' learning interest towards Mathematics. The constant coefficient was 0.694, establishing the baseline level of student interest when all independent variables are held constant. The results of the regression analysis revealed that among the five domains of teaching practices examined as Expert, Formal Authority, Personal Model, Facilitator, and Delegator, only two domains significantly predicted students' learning interest towards Mathematics.

The Facilitator domain yielded an unstandardized coefficient (B) of 0.358 with a p-value of 0.002, while the Delegator domain had a slightly higher coefficient of 0.395 and a p-value of less than 0.001. These results indicate a statistically significant positive influence of the Facilitator and Delegator roles on students' interest in Mathematics, leading to the rejection of the null hypothesis for both variables. In contrast, the Expert role had a negative coefficient of -0.051 ($p = 0.503$), the Formal Authority role had a coefficient of 0.150 ($p = 0.200$), and the Personal Model role had a coefficient of -0.110 ($p = 0.371$). These three variables were not statistically significant, as indicated by their high p-values, resulting in a decision to not reject the null hypothesis. This suggests that these traditional teaching roles do not significantly predict students' interest in Mathematics. The constant value of the model was 0.694, indicating the baseline level of student interest in the absence of the predictor variables. Overall, the findings highlight that teaching practices emphasizing student autonomy and active participation specifically the Facilitator and Delegator roles are more effective in fostering learning interest in Mathematics compared to authoritative or expert-driven approaches.

Table 20. Regression Analysis on the Domains of Parental Support that Significantly Predict Learning Interest Towards Mathematics

Indicators	Unstandardized Coefficients		Standardized Coefficients Beta	t-value	p-value	Decision
	B	SE				
(constant)	0.694	0.148				
Motivator	0.344	0.148	0.332	6.780	<0.001	Reject H_o

Resource Provider	0.305	0.051	0.310	5.419	<0.001	Reject H_o
Monitor	0.149	0.149	0.212	4.712	<0.001	Reject H_o

Dependent Variable: Learning Interest Towards Mathematics

The analysis reveals a robust predictive relationship across all indicators of parental support, underscoring their essential role in shaping student attitudes and engagement with Mathematics. The constant coefficient of 0.694 serves as the expected level of learning interest when all independent variables are held constant. The regression analysis results reveal that all three domains of parental support as Motivator, Resource Provider, and Monitor, significantly predict students' learning interest in Mathematics. The Motivator domain has an unstandardized coefficient of 0.344, a standardized beta of 0.332, and a highly significant p-value of less than 0.001, indicating that parental motivation strongly influences students' interest in Mathematics. Similarly, the Resource Provider domain shows a coefficient of 0.305, a beta of 0.310, and a p-value below 0.001, demonstrating that the provision of educational resources and financial support by parents positively impacts students' engagement with Mathematics. The Monitor domain also significantly predicts learning interest, with an unstandardized coefficient of 0.149, a beta of 0.212, and a p-value less than 0.001, highlighting the importance of parental supervision in fostering students' responsibility and interest in the subject. Overall, these findings underscore the critical role of parental support in various forms in enhancing students' motivation and engagement toward learning Mathematics.

Level of Teaching Practices. The findings reveal that first-year students perceive a generally high level of teaching practices from their instructors in the subject Mathematics in the Modern World. The highest ratings were attributed to the "Expert" and "Formal Authority" roles, indicating that students value teachers who demonstrate deep subject knowledge and maintain structured, authoritative classroom environments. This observation is consistent with studies by Uysal and Sarier (2019), who emphasized the role of teacher leadership in positively influencing student achievement. The "High" ratings for the "Personal Model," "Facilitator," and "Delegator" roles suggest that students also recognize and appreciate varied instructional strategies that promote autonomy, support, and mentorship. This aligns with the findings of Blazar and Kraft (2016), who highlighted how effective teaching practices foster positive student attitudes and behaviors, which in turn enhance academic performance. Furthermore, the results affirm the importance of teacher-student relationships in academic success. As supported by Roorda et al. (2011), positive and engaging teacher-student interactions are key to improving student motivation and outcomes. The study also aligns with the theoretical framework of educational psychology, wherein the teacher's role is multifaceted as balancing authority, expertise, guidance, and collaboration.

Incorporating collaborative teaching approaches, as recommended by Saka (2021), may enhance the effectiveness of teaching even further, particularly in mathematically challenging contexts. Teachers who work together and model collaborative behavior can create a more engaging and supportive environment, fostering deeper learning and better student engagement. The consistently high ratings across all indicators support a comprehensive approach to teaching that blends expertise, structure, personal engagement, and shared responsibility. These findings underscore the need for educators and institutions to continuously develop and reinforce teaching practices that enhance both academic performance and student engagement.

Level of parental supports. The findings from this study emphasize the significant role of parental support in shaping students' academic experiences. The consistently high ratings across all indicators such as Motivator, Resource Provider, and Monitor, affirm the positive impact of parental involvement in fostering academic engagement among first-year students. This aligns with the synthesis by Jeynes (2016), whose meta-analysis confirmed that various forms of parental involvement are positively associated with academic achievement. Among the indicators, Motivator received the highest rating, indicating that students perceive motivational support as the most prominent and perhaps most influential form of parental involvement. This supports the assertion of Hill and Tyson (2009), who emphasize that parental encouragement is a key driver in promoting students' academic self-efficacy and intrinsic motivation. Emotional and verbal affirmations from parents appear to play a crucial role in maintaining students' focus and persistence in their studies. The moderately high score for Resource Provider suggests that while parents are providing necessary academic materials or financial support,

this role is slightly less emphasized than motivational efforts. Nonetheless, the role remains vital; as Fan and Chen (2001) argue, access to academic resources contributes meaningfully to student success by removing barriers to learning.

Meanwhile, the Monitor indicator, though still rated "High," registered the lowest among the three. This suggests that while parents are overseeing academic activities to some extent such as checking assignments or tracking performance, this role may be less visible or less frequently practiced compared to providing motivation or resources. Previous research (e.g., Huang & Wang, 2023) notes that consistent parental monitoring reinforces student accountability and discipline, which are essential to academic success. In conclusion, the study underscores the importance of a balanced approach to parental support. Emotional encouragement, provision of resources, and academic monitoring each play a critical role in enhancing student performance and engagement. Educational institutions should consider strategies to strengthen family-school partnerships, promote parental awareness, and create opportunities for more active parental involvement. By recognizing the diverse forms of parental support, schools can cultivate a supportive learning environment that optimizes student outcomes.

Level of Students' Learning Interest Towards Mathematics. The results indicate that first-year students exhibit a high level of interest in Mathematics, with all four indicators emotion, engagement, knowledge, and value, consistently rated at a high level. This reinforces the idea that learning interest in Mathematics is multi-dimensional and influenced by emotional experiences, perceived relevance, engagement, and self-evaluation of knowledge. The Emotion indicator, reflects students' generally positive emotional responses towards Mathematics. This finding aligns with Pekrun's (2006) research on the role of emotions in learning, which posits that positive emotions can significantly enhance motivation, attention, and persistence in academic tasks. These emotional responses are vital, particularly in subjects like Mathematics, which are often perceived as challenging. The high rating in Engagement suggests that students are meaningfully participating in mathematical tasks, though this was the lowest among the indicators. According to Fredricks, Blumenfeld, and Paris (2004), engagement is a strong predictor of academic achievement, indicating that even moderate increases in this area could yield substantial academic benefits. Therefore, instructional strategies that actively involve students such as collaborative problem-solving or project-based learning, can be crucial in further elevating engagement. The Knowledge indicator reveals that students feel confident in their understanding of mathematical concepts. As Hattie (2009) emphasizes, a student's perception of their knowledge base is directly related to their academic success and sustained interest in the subject. This suggests the need for continued support through scaffolded instruction and feedback to build deeper conceptual understanding. Notably, the highest score was seen in the Value indicator, indicating that students recognize the utility and importance of Mathematics in real-life contexts. This supports the theory of task value by Eccles and Wigfield (2002), who argue that students are more likely to be motivated when they perceive the subject matter as relevant and useful. This finding underscores the need for curriculum design that contextualizes Mathematics through real-world applications, such as financial literacy, data interpretation, or technology integration.

In summary, the findings highlight the essential role of emotional engagement, perceived knowledge, task relevance, and participation in shaping students' interest in Mathematics. To sustain and further enhance this interest, educators should implement teaching practices that foster positive emotional climates, encourage active participation, reinforce conceptual understanding, and connect mathematical learning to everyday life. These strategies will be instrumental in nurturing long-term interest and academic success in Mathematics among students.

Relationship between the teacher teaching practices and students' learning interest towards Mathematics. The findings of this study affirm that teacher teaching practices significantly influence students' learning interest towards Mathematics. The moderate positive correlation reveals that as instructional quality improves, so does student engagement and enthusiasm for Mathematics. This reinforces the crucial role of educators in shaping learners' attitudes and motivation through effective pedagogy. This relationship is well-supported by existing literature. Hattie (2009) emphasized that teacher effectiveness is one of the most influential factors in student academic success, especially in complex and skill-based subjects like Mathematics. Effective teaching strategies such as differentiated instruction, interactive learning, and formative feedback have been shown to improve not only cognitive understanding but also affective outcomes like motivation and interest. Similarly, Rakes et al. (2010) and Alzahrani et al. (2019) highlight that students' perceptions of teacher practices directly correlate with their engagement levels. When students view their teachers as supportive, well-prepared,

and adaptive, they are more inclined to invest effort and interest in the subject matter. This finding underscores the importance of fostering positive teacher-student dynamics and delivering lessons that resonate with diverse learning styles. Additionally, Blazar and Kraft (2016) argue that beyond cognitive benefits, strong teaching practices contribute to emotional and motivational gains. Their research indicates that emotionally engaging teaching strategies can foster deeper connections between students and the subject, making learning more meaningful and enjoyable. The 25.3% variance explained by teaching practices also signals that while teaching is a major factor, other variables such as parental support, peer influence, and individual student traits also play a role in shaping interest in Mathematics. Nonetheless, the teacher's role remains a pivotal element within the classroom context. The results strongly advocate for continued investment in teacher development programs, mentorship, and instructional innovation. Educational institutions must prioritize equipping teachers with evidence-based strategies that not only convey mathematical content effectively but also foster a learning environment that stimulates interest, curiosity, and emotional engagement. By doing so, students are more likely to view Mathematics not just as an academic requirement, but as a valuable and engaging discipline.

Relationship between parental support of parents and students' learning interest towards Mathematics. The results demonstrate a significant and strong relationship between parental support and students' learning interest in Mathematics. With a high correlation coefficient, the data suggest that as parental involvement increases, so does the level of student engagement and enthusiasm toward Mathematics. This finding underscores the critical role parents play in shaping not only students' academic performance but also their affective orientation toward subjects like Mathematics. Supporting this, Jeynes (2016) emphasized the multi-faceted impact of parental involvement—highlighting emotional encouragement, availability of learning resources, and consistent academic monitoring as key contributors to student motivation. Likewise, Fan and Chen (2001), through their meta-analysis, asserted that parental encouragement cultivates intrinsic motivation, an essential driver of student interest, particularly in mathematically demanding subjects. The theoretical framework developed by Eccles and Harold (1993) further supports these findings by suggesting that students' positive perceptions of parental support are strong predictors of academic engagement and interest. When students feel that their parents value and actively participate in their educational journey, they tend to develop more positive attitudes toward school subjects. Moreover, Hill and Tyson (2009) found that parental involvement positively affects students' motivation and perseverance, particularly in challenging academic areas. Their work reinforces the argument that parental support extends beyond academic help; it shapes students' emotional and motivational resilience, which are crucial in maintaining interest in subjects like Mathematics. Given these insights, it becomes imperative for educational institutions to develop systems and programs that foster meaningful parental engagement. Initiatives such as parental workshops, regular communication channels, and home-based learning support strategies can help equip parents with the tools needed to effectively support their children's education.

Regression Analysis on the Domains of Teaching Practices that Significantly Predict Learning Interest Towards Mathematics. The regression analysis results reveal critical insights regarding the teaching practices that effectively predict students' interest in Mathematics. Particularly, the findings suggest that the roles of "Facilitator" and "Delegator" are instrumental in fostering student engagement and interest. The significant coefficients associated with these roles highlight the necessity for educators to adopt methodologies that prioritize student agency, thereby enhancing their intrinsic motivation and interest in Mathematics. The findings support the notion articulated in self-determination theory, which asserts that fostering autonomy can significantly enhance student engagement and motivation in the learning process. In contrast, traditional teaching practices characterized by being an "Expert," exercising "Formal Authority," or employing "Personal Modeling" were found to be less impactful in promoting students' interest in Mathematics. The regression analysis indicates a notable absence of significant correlation between these traditional methods and increased student interest, which raises questions about the efficacy of rigid authoritative teaching structures in modern educational contexts. This suggests that educators may need to reconsider their reliance on these conventional practices in favor of strategies that genuinely promote student engagement. As a consequence, teacher training programs should place a strong emphasis on equipping educators with the skills needed to create engaging and empowering learning environments. Fostering an atmosphere where students have opportunities for autonomy, choice, and active participation will likely result in increased interest in Mathematics and, ultimately, improved academic performance. These insights underscore the transformational potential of adapting teaching practices to better align with students' needs and motivations, positioning educators as facilitators and delegators in the learning process. The findings of this regression analysis provide valuable implications for educational practice, suggesting that moving away from traditional teaching paradigms towards more interactive and participatory approaches can significantly enhance student interest in Mathematics. This evolution in teaching methodologies can lead to

the cultivation of a more engaged and motivated student body, ultimately improving educational outcomes in Mathematics education.

Regression Analysis on the Domains of Parental Support that Significantly Predict Learning Interest Towards Mathematics. The findings of this regression analysis underscore the critical importance of parental support in shaping students' interest in Mathematics. Each domain of parental involvement, motivational support, resource provision, and monitoring was shown to have a statistically significant effect on students' learning interest, highlighting the multifaceted role parents play in their children's educational experiences. The significant impact of the "Motivator" domain, reveals how parental encouragement and emotional backing are crucial in fostering student interest in Mathematics. This is reflective of research by Jeynes (2016), which emphasizes that emotional support from parents not only serves to enhance students' motivation but also contributes to their overall academic success. The results indicate that when parents actively work to motivate their children, their interest in the subject matter is likely to increase. Similarly, the significant effect of the "Resource Provider" domain, indicates that parental engagement in supplying necessary educational resources is a key factor in promoting students' interest in Mathematics. The findings align with the work of Fan and Chen (2001), which highlights that providing educational materials and financial support can significantly boost student engagement and performance. This suggests that educational policies and practices should encourage parents to facilitate access to learning materials and resources that enhance students' mathematical education. Moreover, the positive effect of the "Monitor" domain, exemplified by a coefficient of 0.149, illustrates that parental involvement in overseeing academic progress plays a vital role in sustaining student interest in Mathematics. This finding resonates with Jeynes' (2016) view regarding the importance of parental monitoring in educating students, as it instills a sense of accountability and encourages students to take their studies seriously. In light of these findings, it is evident that promoting active parental involvement in education is imperative. Educational programs and interventions should emphasize strategies that engage parents in their children's academic lives. By fostering a partnership between home and school, educational stakeholders can enhance students' interest and achievement in Mathematics, creating more favorable educational outcomes. The regression analysis reiterates the necessity of parental support in the educational process, indicating that initiatives to enhance parental engagement can significantly improve students' learning interest in Mathematics and their overall academic success.

Conclusion and Recommendations

This study looked into how teaching methods and parental support influence first-year students' interest in learning Mathematics. The findings clearly show that both effective teaching and involved parenting play a vital role in motivating students. Learners expressed appreciation for teachers who encouraged participation and gave them more responsibility in their learning—approaches known as facilitative and delegative teaching roles. These student-centered methods were shown to significantly boost interest in the subject, while more traditional, top-down approaches like being the "Expert" or "Formal Authority" didn't have the same positive impact. On the home front, students felt strongly supported by their parents in three ways: encouragement, providing learning resources, and monitoring their progress. Among these, motivational support—simple words of encouragement and belief in their abilities—proved to be the most powerful driver of student interest. These results highlight that when students feel supported both in the classroom and at home, their enthusiasm for Mathematics grows.

To turn these insights into action, several steps are recommended. First, schools should invest in regular professional development for teachers, focusing on strategies that promote active student involvement and foster a more engaging learning atmosphere. Training teachers to connect with students, collaborate, and create interactive learning experiences can make a big difference. Second, schools need to reach out to parents more intentionally—through workshops or parent education sessions—so they know how to better support their children's learning, especially in subjects like Math. Third, curriculum designers should ensure that lessons include real-life applications and hands-on tasks, helping students see the relevance of Math beyond the classroom. Lastly, building a classroom culture that values emotional connection and trust between teachers and students can spark deeper motivation and interest. When students feel understood, encouraged, and cared for, they are more likely to stay engaged and succeed in their studies.

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