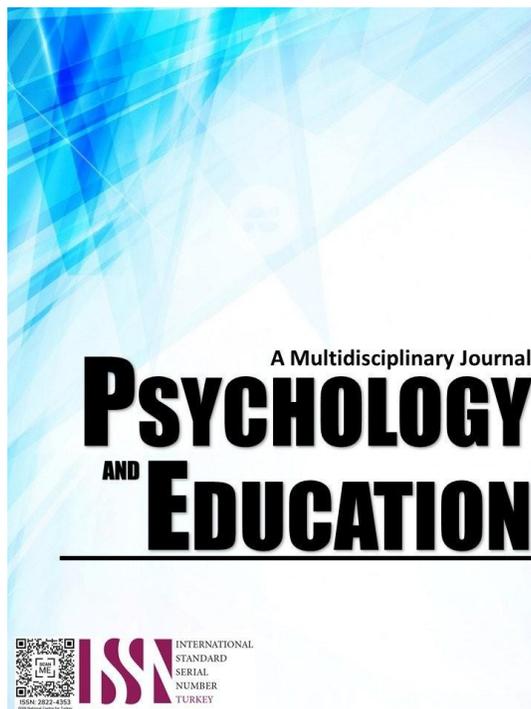


**MATHEMATICS SELF-PERCEPTION AS A PREDICTOR OF MATHEMATICS
ACHIEVEMENT AMONG GRADE 6 LEARNERS IN BISLIG CENTRAL
ELEMENTARY SCHOOL, BISIG CITY DIVISION:
A PREDICTIVE-CORRELATIONAL DESIGN**



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Mathematics Self-Perception as a Predictor of Mathematics Achievement Among Grade 6 Learners in Bislig Central Elementary School, Bislig City Division: A Predictive-Correlational Design

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Abstract

This study examined the Mathematics self-perception of Grade 6 learners at Bislig Central Elementary School during School Year 2025–2026 and its predictive relationship with academic achievement. Utilizing a predictive-correlational research design, the study integrated correlation analysis and regression modeling to determine whether self-perception significantly predicts mathematics achievement. A stratified random sample of 86 learners from a population of 170 across five heterogeneous sections participated. Data were collected using a validated Mathematics Self-Perception Questionnaire and learners' final mathematics grades from official records. Descriptive statistics revealed consistently high levels of self-perception across four dimensions. Pearson's correlation indicated a positive and significant relationship between self-perception and achievement, while regression analysis confirmed that mathematics self-perception is a significant predictor of learners' academic achievement. Findings highlight that Grade 6 learners exhibit strong motivation, enjoyment, and recognition of mathematics' academic value, alongside developing confidence and situational anxiety in public performance contexts. The study concludes that fostering self-efficacy, emotional resilience, and supportive classroom environments is essential to translate learners' positive motivational foundations into sustained mathematical proficiency and long-term academic success.

Keywords: *mathematics self-perception, mathematics achievement, self-efficacy, Grade 6 learners, predictive-correlational study*

Introduction

Mathematics serves as a foundational pillar for intellectual growth and future academic success, especially in elementary education. It supports learning across subject areas while strengthening cognitive skills such as reasoning, problem-solving, and analytical thinking (Partridge, 2023). Early exposure to algebra enhances abstract thinking and logical reasoning, helping learners build essential foundations that support later academic demands (Menezes & Huanca, 2025). Likewise, problem-solving experiences allow students to apply mathematical knowledge to real-life situations, fostering meaningful learning (Ormonoy, 2022). To strengthen mathematical literacy, effective instruction must emphasize conceptual understanding alongside procedural fluency, supported by active learning, hands-on tools, and visual representations (Bognar et al., 2025). These approaches nurture deeper comprehension and help learners become adaptable and confident in mathematics.

Despite these benefits, national and international assessments reveal persistent challenges in Filipino learners' mathematics performance. The 2022 PISA results showed that 81% of Filipino students scored below the minimum proficiency level, placing the Philippines among the least proficient of 81 participating countries (Acido & Caballes, 2024). Contributing factors include low motivation, math anxiety, and persistent underachievement, with anxiety consistently linked to poorer performance (Cullano, 2024). Learning gaps were further exacerbated by pandemic-related challenges, including financial strain, limited resources, and inadequate support for remote learning (Layar et al., 2024). Systemic issues, including socioeconomic inequality and reading difficulties, continue to hinder student outcomes (Alinsunurin & Alinsunurin, 2021). To address these concerns, scholars recommend improving teacher training, promoting a growth mindset, and adopting engaging teaching strategies that enhance participation and deepen appreciation for mathematics (Amanda et al., 2024; Salsabila et al., 2024).

Given these challenges, learners' self-perceptions—specifically their self-concept, self-efficacy, and confidence in mathematics—have become increasingly important in understanding learning outcomes. Self-concept refers to learners' views of their own mathematical abilities, while self-efficacy pertains to their belief in their capacity to perform math tasks effectively (Chan et al., 2022). High self-efficacy promotes persistence, achievement, and positive learning cycles (Yousuf & Rajeswari, 2024). Together, perceptions of mathematics and self-efficacy account for a substantial proportion of performance differences among learners (Shone et al., 2023). These perceptions are shaped by factors such as gender, socioeconomic background, and prior learning experiences, underscoring their complexity in educational contexts (Filiz & Gür, 2020).

International evidence further demonstrates the powerful connection between self-perceptions and mathematics achievement. Globally, self-efficacy and math perception account for up to 75.4% of performance variance (Shone et al., 2023). Positive associations between self-assessment and achievement have been consistently observed, such as the moderate correlation ($r = 0.295$) reported by Hadi et al. (2023). PISA findings highlight that self-beliefs not only influence achievement but also mediate the effects of socioeconomic status (Hofer et al., 2024). Research also suggests nonlinear patterns, where low-performing students often exhibit weaker self-concept, making the perception–performance relationship more complex (Keller et al., 2021). These insights demonstrate that fostering strong self-perceptions is critical to improving math outcomes.

The Philippine Department of Education recognizes the significance of positive self-concept and self-regulatory skills, as reflected in DepEd Order No. 21, s. 2019, which emphasizes holistic learner development (DepEd, 2019). Studies affirm that academic self-concept strongly predicts persistence, course selection, and achievement (Basarkod & Marsh, 2023; Marsh et al., 2024). The reciprocal effects model shows that improvements in self-concept can directly enhance academic outcomes (Lee, 2022). Supportive practices such as constructive feedback, peer collaboration, and nurturing learning environments have been shown to reduce dropout risks associated with negative self-perceptions (Pendeza, 2024). These findings highlight the importance of integrating psychological development within instructional and policy frameworks.

At the national level, studies consistently show that self-efficacy and self-regulated learning are significant predictors of mathematics achievement among Filipino learners. Among first-year college students, skills such as goal setting and time management were strongly associated with math performance (Lumoto et al., 2024). PISA 2022 data further reveal that students with a growth mindset performed better in mathematics, reinforcing the role of self-perception as a key cognitive and motivational factor (Chavez, 2025). These findings align with international evidence emphasizing the importance of learners' beliefs in their own mathematical abilities (Alipio, 2020; Shone et al., 2023).

Despite extensive research on mathematics self-perception, gaps remain—particularly concerning Grade 6 learners in the Caraga Region. Although self-efficacy has been shown to account for a large proportion of performance variance (Shone et al., 2023), most studies focus on older students or international contexts (Rahmah et al., 2024; Suciati et al., 2020). Grade 6 serves as a critical transition period before high school, shaping students' academic, social, and emotional development (Garner & Bagnall, 2024). For learners from disadvantaged backgrounds, this transition presents additional challenges, underscoring the importance of psychological factors such as self-perception. Higher academic self-concept is consistently linked to improved academic outcomes (Dalal & Riya, 2023) and is often a stronger predictor of achievement than other motivational variables (Basarkod & Marsh, 2023).

Given the limited research on younger Filipino learners—particularly those in Grade 6—the need to explore mathematics self-perception in local contexts is clear. While DepEd promotes holistic development, many school-level interventions prioritize content mastery over mindset formation and self-belief. This study addresses these gaps by examining whether mathematics self-perception significantly predicts academic performance among Grade 6 learners at Bislig Central Elementary School. By investigating this relationship, the study aims to generate insights that can guide teachers, school leaders, and policymakers in supporting confident, motivated, and high-performing young mathematics learners.

Research Questions

This study aimed to determine whether mathematics self-perception significantly predicts mathematics achievement among Grade 6 learners in Bislig Central Elementary School. The study specifically sought to answer the following questions:

1. What is the level of mathematics self-perception among Grade 6 learners?
2. What is the level of mathematics achievement among Grade 6 learners?
3. Is there a significant relationship between mathematics self-perception and mathematics achievement?
4. To what extent does mathematics self-perception predict mathematics achievement?

Methodology

Research Design

The quantitative research approach was a systematic methodology that emphasized the collection and analysis of numerical data to understand social phenomena (Alford & Teater, 2025; Bell et al., 2022; Branaghan et al., 2021; Emon, 2024; Sapkota, 2024; Sekar & Bhuvanewari, 2024). It was characterized by its reliance on statistical analysis, allowing researchers to make large-scale generalizations and identify correlations or causal relationships among variables (Alford & Teater, 2025; Sciberras & Dingli, 2023). Standard techniques included survey studies, experimental designs, and descriptive research (Alford & Teater, 2025; Nwabuko, 2024; Pandey et al., 2023; Sekar & Bhuvanewari, 2024; Slater & Hasson, 2024). While quantitative research was grounded in the positivist paradigm, which promoted objectivity and generalizability, it faced limitations, such as potential sampling bias and the inability to capture the complexities of human experience (Rauteda, 2025). The integration of qualitative methods was increasingly recommended to address these limitations and enrich the understanding of diverse social realities (Emon, 2024; Rauteda, 2025).

The study employed a predictive-correlational research design, integrating correlation analysis with predictive modeling to examine relationships among variables and forecast outcomes. This approach was exemplified in studies that used statistical methods, such as multiple linear regression, to assess how various factors, such as core self-evaluations and grit, predicted success expectancy (Scott, 2024). Additionally, predictive-correlational designs could address complexities in data, such as multicollinearity among predictors, which could obscure authentic relationships and affect model accuracy (Puhazholi & Francis, 2024). Techniques such as support vector regression enhanced predictive capabilities by managing data characteristics, including delays in text data (Ma et al., 2021).

On the one hand, the predictive component aimed to forecast outcomes based on one or more predictor variables. Predictive models were widely used across industries such as manufacturing, healthcare, and finance to forecast outcomes and improve decision-making

processes (Abdi, 2022; Puhazholi & Francis, 2024; Scott, 2024; Yang, 2023). On the other hand, the correlational component examined the relationships among variables to understand how they were associated. This was employed in various research studies to identify relationships (Bozdağ & Aktan, 2024), quantify the strength and direction of relationships (Ughasoro & Anyamane, 2023), inform educational interventions (Byiringiro, 2024), and explore demographic influences (Salih et al., 2024).

In practice, the data were collected using a validated mathematics self-perception questionnaire and learners' final math grades from official records. This process ensured accurate measurement of the predictor (self-perception) and the outcome (achievement). Using statistical software, descriptive statistics summarized levels of both variables, while Pearson's correlation and simple linear regression assessed their relationship and predictive strength. This aligned with the study's predictive-correlational design, which aimed to determine whether mathematics self-perception significantly predicted Grade 6 learners' academic performance.

Respondents

The respondents in this study were Grade 6 learners enrolled at Bislig Central Elementary School during School Year 2025–2026. The total population was 170 learners distributed across five heterogeneous sections. Because it was essential to secure a sample that was both manageable and statistically representative, the study employed stratified random sampling with proportional allocation. This method is widely recommended in educational research when the population contains naturally occurring subgroups, as it ensures that each stratum is represented in the sample according to its actual size (Beck, 2024; Pratama et al., 2023).

In this study, each Grade 6 section—Matulungin, Matapat, Masipag, Mabait, and Galaxy—served as a stratum. The total sample size of 86 learners was determined using standard sample-size calculation procedures suitable for school-based quantitative research. Proportional allocation was then applied to identify how many respondents should come from each section, preventing overrepresentation of larger groups and underrepresentation of smaller ones. Random selection within each section was conducted to uphold the integrity of the sampling frame (Das et al., 2023; Lin et al., 2024).

The use of stratified random sampling strengthened the methodological rigor of the study by ensuring: Balanced representation of all sections regardless of class size; Reduced sampling bias, since each learner had an equal probability of being selected within their stratum; Enhanced precision of findings because population heterogeneity was controlled through stratification; and Improved generalizability of results to the entire Grade 6 population of the school (Shah, 2023; Lee et al., 2025). This proportional distribution confirms that the sample of 86 accurately mirrors the profile of the 170 Grade 6 learners. Overall, the sampling design contributed to the credibility, accuracy, and robustness of the study's findings.

Instrument

The primary instrument for data collection in this study was a researcher-developed Mathematics Self-Perception Questionnaire, crafted to assess learners' beliefs, attitudes, and confidence in their mathematical abilities. The questionnaire underwent content validation by a panel of experts in educational psychology and assessment to ensure its relevance, clarity, and alignment with the study's objectives. It consisted of 15 to 20 carefully constructed items, each designed to capture various dimensions of self-perception in mathematics, such as self-efficacy, perceived competence, and motivation.

Responses were measured using a four-point Likert scale ranging from 1 (Strongly Disagree) to 4 (Strongly Agree) to eliminate neutral responses and encourage clear self-assessment. To determine actual academic performance, the study utilized learners' final mathematics grades for the academic year, as officially documented by the school. These grades were based on the standards and assessment guidelines outlined in DepEd Order No. 8, s. 2015, also known as the Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Program (Department of Education [DepEd], 2015). This dual-measure approach—self-perception and actual achievement—allowed for a meaningful correlation between learners' internal beliefs and their academic outcomes.

Procedure

Before the actual data collection began, formal permission was sought from the Schools Division Superintendent and the school principal to ensure compliance with institutional protocols. Upon approval, informed consent letters were distributed to the parents or guardians of the selected Grade 6 learners, explaining the purpose of the study, its procedures, and the voluntary nature of their child's participation. The Mathematics Self-Perception Questionnaire was administered during a class period arranged in close coordination with the learners' class advisers to minimize disruption to regular instruction. Before administration, the researcher provided a clear, age-appropriate explanation of the questionnaire to help learners understand each item and how to respond accurately. Support was available throughout the process, particularly for learners with varying levels of reading proficiency, ensuring that every learner had a fair and respectful opportunity to express their perceptions.

To measure academic performance, the learners' final mathematics grades for the academic year were obtained from official class records with the approval of the class adviser and school administration. Each respondent was assigned a unique code to ensure confidentiality and anonymity. All collected data were handled in accordance with the highest ethical standards, stored securely, and used exclusively for research purposes in accordance with data privacy protocols.



Data Analysis

To gain a clear understanding of the respondents' mathematics self-perception and academic achievement, the researchers employed descriptive statistics, specifically the mean and standard deviation, to summarize and interpret the overall levels and variability of the gathered data. These measures helped provide a snapshot of how learners generally perceived their mathematical abilities and how they performed academically in the subject. To explore the connection between self-perception and achievement, the Pearson Product-Moment Correlation Coefficient (Pearson's *r*) was used. This statistical test determined both the strength and direction of the relationship between the two variables—whether learners who perceived themselves more positively in mathematics also tended to achieve higher grades. In addition, simple linear regression analysis was conducted to assess the predictive power of mathematics self-perception on learners' academic achievement. This allowed the researchers to examine whether self-perception could meaningfully forecast a learner's achievement in mathematics. All data were processed and analyzed using reliable statistical software, ensuring accurate, consistent, and valid interpretation of the results. The insights drawn from these analyses aimed to meaningfully inform educators and stakeholders on the role of self-perception in shaping learners' academic outcomes.

Results and Discussion

This section presents the responses of Grade 6 learners to the Mathematics Self-Perception Scale, which assesses their feelings, beliefs, and confidence in mathematics. The instrument consisted of 20 statements; each was rated on a 4-point Likert scale: 1 – Strongly Disagree, 2 – Disagree, 3 – Agree, 4 – Strongly Agree.

Table 1. *Learners' Interest in Mathematics*

Item	Statement	SD	D	A	SA	WM	VD
1	I enjoy learning new topics in mathematics.	6	12	46	22	2.98	High
6	I look forward to my mathematics class.	7	16	38	25	2.94	High
12	like practicing math at home.	6	20	35	25	2.92	High
19	I am excited to learn new ways to solve math problems.	5	6	46	29	3.15	High

Interpretation Scale: 3.25-4.00= Very High, 2.50-3.24= High, 1.75- 2.49= Moderate, 1.00- 1.74= Low

The data reveal that Grade 6 learners exhibit a consistently high level of interest and enjoyment in mathematics, as reflected in the weighted means for Items 1, 6, 12, and 19, which range from 2.92 to 3.15. These values indicate that learners engage positively with mathematics both in and out of the classroom. Specifically, learners enjoy math lessons, suggesting that classroom activities, teaching strategies, and teacher-student interactions are stimulating and aligned with their learning needs. They look forward to attending math classes, a strong manifestation of positive academic disposition and readiness to learn. They voluntarily practice math at home, an indicator of intrinsic motivation, which is widely recognized as a predictor of improved mathematical proficiency. A notably higher weighted mean in Item 19 (3.15) demonstrates that learners are excited to explore new strategies for solving mathematical problems, showing openness to challenge, creativity, and cognitive engagement.

From a theoretical standpoint, these results align with Bandura's (1997) concept of self-efficacy, in which positive emotions and enjoyment increase one's belief in one's capability to succeed. When learners enjoy what they are doing, they are more likely to persevere, show resilience when faced with difficulty, and apply sustained effort in learning tasks. Similarly, Zimmerman (2013) highlights that intrinsic interest is a critical component of self-regulated learning. Learners who enjoy mathematics tend to set personal goals, monitor their progress, and adapt strategies to improve their understanding. The consistently high ratings suggest that the mathematics learning environment is supportive, engaging, and conducive to curiosity—key elements necessary for fostering long-term mathematical competence. This atmosphere likely includes interactive teaching approaches, teachers' feedback, and a classroom climate where learners feel safe to explore ideas and make mistakes.

Overall, the findings indicate that Grade 6 learners exhibit strong intrinsic motivation and enthusiasm for mathematics, reflecting a healthy classroom learning environment. Such positive attitudes are essential foundations for higher academic achievement, better problem-solving skills, and greater willingness to tackle challenging mathematical tasks in the future.

Table 2. *Confidence and Mathematics Self-Efficacy*

Item	Statement	SD	D	A	SA	WM	VD
2	I believe I can solve difficult math problems.	7	26	36	17	2.73	High
3	I feel confident answering math questions in class.	10	20	46	10	2.65	High
4	I understand math lessons easily.	7	38	33	8	2.49	Moderate
7	I can do well even if the problems are challenging.	9	44	28	5	2.34	Moderate
8	believe I am good at math.	16	43	25	2	2.15	Moderate
11	I am not afraid to make mistakes because I learn from them.	9	25	32	20	2.73	High
18	I think I am better at math now than before.	1	33	33	9	2.66	High
20	I feel happy when I get correct answers in math.	2	3	20	61	3.63	Very High

Interpretation Scale: 3.25-4.00= Very High, 2.50-3.24= High, 1.75- 2.49= Moderate, 1.00- 1.74= Low

The results indicate a generally positive and developing level of confidence and mathematics self-efficacy among Grade 6 learners, reflecting an encouraging foundation for mathematical growth. Several items fall under the High interpretation, such as learners' belief



in their ability to solve complex problems (WM = 2.73), confidence in answering math questions (WM = 2.65), and their willingness to learn from mistakes (WM = 2.73). These ratings reveal that learners perceive themselves as capable, resilient, and ready to face academic challenges. This aligns with Bandura's (1997) self-efficacy theory, which emphasizes that students who believe in their capability are more likely to attempt challenging tasks, persist longer, and recover more quickly from setbacks.

The data also show Moderate self-efficacy in areas such as easily understanding math lessons (WM = 2.49), performing well in challenging problems (WM = 2.34), and perceiving oneself as "good" in mathematics (WM = 2.15). These moderate scores highlight areas where learners demonstrate emerging but not yet stable confidence, suggesting variability in their conceptual mastery, foundational skills, or previous learning experiences. This pattern is typical in upper-elementary learners, as noted by Schunk and Pajares (2009), who argue that self-efficacy at this stage remains highly influenced by recent academic successes or failures, teacher feedback, and peer comparisons. Thus, continued reinforcement, scaffolded instruction, and positive teacher modeling remain essential.

A particularly significant finding is Item 20, which yielded a Very High weighted mean (3.63), indicating that learners experience intense happiness, satisfaction, and emotional reward when they arrive at correct answers. Such emotional responses serve as powerful intrinsic motivators, reinforcing persistence and strengthening learners' self-perceptions of competence. Research by Dweck (2006) and Zimmerman (2013) supports this, emphasizing that positive emotions tied to mastery experiences are among the strongest predictors of increased academic self-efficacy and long-term engagement. Taken together, the results reveal a nuanced picture: Learners already possess a solid foundation of confidence and self-belief, especially in problem-solving and classroom participation. Next, they are becoming more comfortable with mathematical challenges, but still exhibit developing confidence in more complex areas. Another is that they experience strong positive emotions associated with success, indicating a healthy motivational climate and supportive learning environment.

Overall, the findings suggest that while pockets of moderate confidence exist, the dominant trend is a positive strengthening of mathematics self-efficacy. This reflects a learning environment that fosters encouragement, resilience, and mastery—conditions that, according to Bandura (1997), significantly enhance future academic achievement. Strengthening these emerging areas through continuous feedback, scaffolded instruction, and confidence-building tasks can help solidify learners' self-efficacy as they transition to higher levels of mathematical learning.

The findings reveal that Grade 6 learners display strong motivation and a deeply rooted sense of academic value toward mathematics, suggesting they recognize the subject's significance in their current learning and future aspirations. Notably, Item 16 ("Math is important for my future") obtained a Very High weighted mean of 3.41, signifying that the majority of learners understand the long-term relevance of mathematical skills in careers, daily decision-making, and academic pathways.

Table 3. *Motivation And Academic Value of Mathematics*

Item	Statement	SD	D	A	SA	WM	VD
5	I think I can get high grades in math.	18	35	29	4	2.22	Moderate
10	I feel proud when I solve problems on my own.	7	16	26	37	3.08	High
13	I believe I can improve my skills with more practice.	4	10	36	36	3.21	High
15	I prefer math over other subjects.	10	36	32	8	2.44	Moderate
16	I believe that math is important for my future.	2	5	35	44	3.41	Very High

Interpretation Scale: 3.25-4.00= Very High, 2.50-3.24= High, 1.75- 2.49= Moderate, 1.00- 1.74= Low

The findings reveal that Grade 6 learners display strong motivation and a deeply rooted sense of academic value toward mathematics, suggesting that they recognize the subject's significance both in their present learning and in their future aspirations. Notably, Item 16 ("Math is important for my future") obtained a Very High weighted mean of 3.41, signifying that the majority of learners understand the long-term relevance of mathematical skills in careers, daily decision-making, and academic pathways. This future-oriented mindset is crucial, as expectancy-value theory (Eccles & Wigfield, 2002) highlights that students who perceive a subject as valuable are more likely to invest effort, persist in challenges, and achieve higher performance. Items 10 and 13, which registered High verbal interpretations, reinforce this positive orientation. Learners express pride in solving mathematics problems independently and believe that mathematical improvement is achievable through regular practice. This reflects a growth mindset, as conceptualized by Dweck (2006), where students view intelligence and ability as malleable. A growth mindset fosters resilience, enhances tolerance for problem-solving, and sustains motivation even when tasks become difficult. Such dispositions are strongly linked to improved achievement, as learners with growth-oriented beliefs tend to embrace challenges rather than avoid them.

Despite these strengths, Items 5 and 15 reported Moderate levels of motivation. While learners believe they can work hard for high grades, their preference for mathematics compared to other subjects is not consistently strong. This is developmentally typical for Grade 6 learners, who often navigate a variety of subject interests influenced by teaching approaches, task difficulty, peer interactions, and prior learning experiences. According to Pintrich and De Groot (1990), variations in intrinsic interest across subjects are normal and do not necessarily indicate a lack of motivation; instead, they reflect the diverse academic identities learners are developing at this stage.

Overall, the results show that learners possess positive academic values, strong future-oriented beliefs, and a healthy motivational framework toward mathematics. Their recognition of the subject's importance, combined with a willingness to exert effort and pride in



independent work, illustrates a motivational climate conducive to academic success. These findings align closely with Bandura's (1997) view that motivation and self-beliefs directly shape academic performance, and with Zimmerman's (2013) emphasis on self-regulation, in which valuing a subject enhances goal-setting, persistence, and self-directed learning behaviors.

Lastly, Grade 6 learners demonstrate high motivation, firm academic valuation, and constructive beliefs about effort and improvement in mathematics. These factors collectively contribute to a learning environment where students are more likely to engage deeply, persevere through challenges, and achieve stronger academic outcomes.

Table 4. *Emotional Responses and Mathematics Anxiety*

Item	Statement	SD	D	A	SA	WM	VD
14	I feel nervous solving math problems in front of others	7	16	49	14	2.81	High
9	I can explain math solutions to classmates.	17	41	23	5	2.19	Moderate Confidence

Interpretation Scale: 3.25-4.00= Very High, 2.50-3.24= High, 1.75- 2.49= Moderate, 1.00- 1.74= Low

Although Grade 6 learners exhibit positive attitudes and motivation toward mathematics in earlier indicators, the data reveal a distinct emotional dimension that requires careful attention. Almost half of the respondents (49%) reported feeling nervous when solving math problems in front of their peers (Item 14), indicating the presence of performance-based mathematics anxiety. This form of anxiety typically arises in evaluative or public performance situations and may occur even among learners who possess adequate skills. This aligns with Ashcraft & Krause (2007), who found that mathematics anxiety does not necessarily reflect low ability; rather, it often stems from fear of judgment, pressure to perform, or past negative experiences during mathematics tasks.

Performance anxiety can interfere with working memory—the mental space needed for problem-solving—making it harder for learners to think clearly when under pressure. As Ashcraft (2002) explains, even mild anxiety can consume cognitive resources, impairing accuracy and slowing down students' ability to perform calculations or articulate reasoning. Thus, the observed nervousness may not only affect emotional comfort but may also limit learners' mathematical performance in real time.

In contrast, Item 9 yielded a moderate weighted mean of 2.19, indicating that learners' confidence in explaining math solutions to classmates is developing but not yet robust. Mathematical communication requires not only conceptual understanding but also verbal fluency, self-assurance, and social confidence—skills that typically evolve gradually. Research by Webb (2009) notes that peer explanation is a higher-order cognitive task that demands learners to organize ideas, justify reasoning, and anticipate questions, all of which can be intimidating for children still gaining mastery in mathematics.

The moderate score in communication and the significant presence of performance anxiety suggest a relationship between emotional factors and academic behaviors. Learners who fear making mistakes publicly may hesitate to participate, ask questions, or volunteer explanations, even if they understand the concept. This is consistent with Ramirez et al. (2018), who argue that math anxiety can lead to avoidance behaviors, reduced participation, and reluctance to take academic risks—behaviors that can hinder long-term mathematics development.

Despite these challenges, the findings do not indicate debilitating anxiety; instead, they point to early and manageable forms of nervousness and communication hesitancy. These emotional responses are common among upper-elementary learners transitioning to more complex mathematics tasks, more frequent assessments, and greater peer comparison. The presence of moderate communication confidence further highlights the need for supportive teaching strategies, such as guided peer discussions, confidence-building feedback, and structured opportunities for students to explain their reasoning in low-pressure contexts.

Overall, the results suggest that Grade 6 learners maintain a generally positive outlook toward mathematics but experience situational anxiety and develop communication confidence, which are critical factors to address. Managing these emotional components is essential, as numerous studies (e.g., Dowker, Sarkar, & Looi, 2016) emphasize that reducing math anxiety and strengthening communication skills can significantly enhance learners' performance, engagement, and long-term achievement in mathematics.

Conclusions

In light of the findings, this study concludes that Grade 6 learners at Bislig Central Elementary School possess a generally positive and encouraging perception of their mathematical abilities. Their consistently high levels of interest and enjoyment indicate that current mathematics instruction effectively nurtures engagement, curiosity, and intrinsic motivation—qualities associated with long-term academic persistence and deeper learning (Bandura, 1997; Zimmerman, 2013). The learners' strong academic values and recognition of mathematics as essential for their future further reflect a developing growth mindset aligned with Dweck's (2006) framework, suggesting that many students are willing to invest effort and take pride in their learning achievements.

However, the findings also reveal a nuanced profile of emerging confidence and self-efficacy. While many learners feel capable of solving mathematical tasks and improving through practice, a substantial number still demonstrate moderate self-beliefs, especially when confronted with complex problem-solving, higher-order reasoning, or opportunities that require public explanation of mathematical thinking. These disparities in self-efficacy reflect the developmental stage of upper-elementary learners, who often experience fluctuating confidence as academic demands increase. Furthermore, the presence of performance-related mathematics

anxiety, particularly during public demonstrations or evaluative situations, indicates an emotional barrier that may hinder optimal performance. Consistent with Ashcraft and Krause (2007), even learners who possess adequate skills may underperform when anxiety disrupts working memory and cognitive processing. Such emotional responses highlight the need to address not only cognitive but also affective dimensions of mathematics learning.

Overall, the study concludes that while Grade 6 learners demonstrate favorable self-perceptions, strong motivation, and positive attitudes toward mathematics, noticeable variations in confidence, communication skills, and emotional readiness suggest areas requiring continued support. Without targeted intervention, these affective challenges may limit learners' ability to benefit from their high interest and motivation fully.

Consequently, the findings underscore the importance of adopting instructional practices that go beyond content delivery. Effective mathematics teaching must also foster emotional resilience, build self-efficacy through mastery experiences, encourage safe environments for communication, and implement strategies that reduce anxiety. Strengthening these areas will help ensure that learners' promising motivational foundations are translated into enhanced mathematical proficiency, sustained engagement, and long-term academic success.

Based on these conclusions, several recommendations are proposed for teachers, school administrators, parents, and future researchers. Teachers are encouraged to strengthen students' confidence through scaffolded instruction, guided practice, and clear modeling of problem-solving processes. Creating a supportive classroom environment that normalizes mistakes and reduces performance pressure can help lessen mathematics anxiety. Communication-focused approaches such as math talks, pair-sharing, and group problem-solving can also enhance students' ability to express and justify their ideas.

School administrators are encouraged to provide professional development that equips teachers with strategies to build self-efficacy, manage anxiety, and differentiate instruction. School-wide initiatives such as math clubs, enrichment activities, and hands-on learning events can further strengthen learners' motivation and positive experiences with mathematics. Parents and guardians can support learning at home by encouraging effort, praising persistence, and communicating regularly with teachers about their child's needs. Future researchers may explore specific interventions to reduce anxiety and develop self-efficacy, as well as conduct long-term studies to understand how mathematics self-perception evolves across grade levels. These recommendations aim to strengthen the cognitive, emotional, and social dimensions of mathematics learning, ensuring that learners are equipped to thrive academically.

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