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Research Article

Mathematics Self-Efficacy as a Predictor of Students' Confidence Toward College Mathematics Preparedness

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Abstract

Self-efficacy plays a vital role in shaping students' attitudes towards learning mathematics. Preparing them to deal with a higher level of mathematics, which, later, can be useful in coping with problems in their careers. To provide insights, this research was conducted. The prevailing uncured disease of numeracy remains the top priority, not only for teachers, but for all involved contributors to students' learning. Even seniors in high school, who frequently finish their education without receiving math instruction, although receiving passing marks, are unsure whether their perceived ability matches their self-efficacy. This deviates from the criteria for measuring such things, even if the majority of research focuses on grades and actual performance. It seeks to understand the psychological aspects of their self-perception and level of preparedness. This study examined mathematics self-efficacy as a predictor of students' confidence in their college mathematics preparedness. Using a descriptive-correlational approach, 73 volunteers in one of the Senior High School in Bago City completed the adaptive surveys: Mathematics Self-Efficacy subscale (α=0.942) and self-report College Mathematics Preparedness questionnaire (α=0.975). Findings revealed average self-efficacy (M=2.71, SD=0.86) and somewhat preparedness (M=2.85, SD=0.82), with a strong positive correlation (r=0.726, p<0.001) and significant prediction ($R^2 = 0.531$). This study suggests that the transition to college mathematics is hindered by psychological barriers and foundational gaps rather than a lack of logical reasoning. The study recommends designing programs that balance content mastery and confidence-building strategies, provide mindset coaching, and consistently include reasoning and problem-solving skills in every lesson activity..

Keywords: Mathematics self-efficacy, college preparedness, confidence, correlation, Philippines.

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Introduction

Mathematics continues to be a major obstacle to success in today's technology-based economy (Woldemichael et al., P). Mathematics Self-Efficacy (MSE) is defined as an individual's belief regarding their own ability to successfully complete mathematics tasks and predict performance in a variety of contexts (Wang et al., 2024). There is evidence to suggest that high Self-Efficacy enhances noncognitive traits such as persistence, innovative problem solving, and resilience (Otermans et al., 2025; Wang et al., 2025). Low self-efficacy, on the other hand, causes "math anxiety," which diminishes college readiness no matter how much technical know-how a student has (Woldemichael et al., 2023). In

addition, building confidence is important for academic persistence during the university's critical period (Otermans et al., 2025). Since self-efficacy is associated with both positive and negative outcomes and with beliefs about college preparedness, it can be used by educators as a valuable instrument to identify unprepared students and provide them with psychological support tailored to their needs (Giani et al., 2023).

Higher education transitions in Asia tend to be characterized by a move from rigid and heavy examination-based instruction at the school level to more independent and flexible thinking in college mathematics. Even though achievement scores are so high, there continues to be a "confidence gap" among Asian students. Zhang and Somasundram (2026) demonstrated that for Chinese undergraduate students, mathematics self-efficacy serves as a key determinant of a student's perseverance in approaching complex and challenging problems in the form of difficult, non-routine math questions. Studies in Indonesia by Zou and Mustakim (2024) posit that self-efficacy serves as a mediator between student motivation and student readiness for undertaking university studies. Malaysian and Vietnamese research highlight that students who come to college with high self-perception would be more inclined to be engaged in "mathematical resilience" to help them close the gap between the theoretical aspect taught in secondary school and the practical aspect learned in university (Rohantizani et al., 2025; Nguyen et al., 2025).

In the Philippine context, the transition to college mathematics is often hindered by the "learning poverty" gap, where students may possess passing marks but lack the cognitive confidence for higher-level STEM or business curricula. Since the full implementation of the K-12 program, self-efficacy has been identified as a superior predictor of success in standardized assessments compared to traditional academic indicators, directly influencing how students perform during critical transitions like college entrance evaluations (Sosa & Casinillo, 2023; Magnate & Sulatra, 2023). The study of Bendol & Dalayap (2025) found that self-efficacy plays a significant mediating role, meaning that motivated students tend to develop stronger confidence in mathematics when they believe in their ability to succeed. Consequently, for Filipino students transitioning into higher education, fostering these internal drivers is as vital as the technical curriculum itself (Capuno et al., 2024).

The researchers observed that students who have no mathematics instruction in their last year of Senior High School face significant adversity. In 2016, the Department of Education started Grade 11 as part of the K-12 program, which includes General Mathematics and Statistics and Probability as core subjects. However, as these students were promoted to Grade 12, no mathematics subjects were offered aside from the strand with specialized subjects. Specifically in the researchers' locality, students were frequently asked whether mathematics subjects were still offered and how difficult they were before proceeding in higher education. This emerging concern, combined with the lack of existing studies, prompted the researchers to conduct this study.

Although the researchers acknowledged the challenges of mathematics and the importance of self-efficacy, they still do not know how these factors interact in particular situations. Most studies, such as Wang et al. (2024) and Sosa and Casinillo (2023) focus on how self-efficacy predicts actual grades or test scores. There is a lack of research on how self-efficacy predicts students' subjective confidence. The internal feeling of being ready for college often dictates whether a student persists or drops out. While Magnate and Sulatra (2024) examined skills in the academic landscape is still adjusting to the long-term effects of hybrid learning. There is a need for current data to see if the confidence gap has widened for students transitioning from high school to university/college in a post-recovery setting. This study fills these gaps by moving beyond grade as a measure of success. It specifically investigates Mathematics Self-Efficacy as a psychological predictor of perceived preparedness.

The purpose of this descriptive-correlational study is to examine how mathematics self-efficacy serves as a predictor of students' confidence in their college mathematics preparedness among Senior High School Students in Bago City, Philippines, during the School Year 2025-2026. The study aims to provide insights into the current state/level of both efficacy and preparedness of these students. Researchers often overlook the internal engine of academic success: "Mathematics Self-efficacy". A student's belief in their ability to perform is often a more accurate predictor of persistence than their actual test scores. By shifting the focus from what a student knows to how they feel about their capacity to learn, this study aims to redefine "preparedness". Ultimately, this study's goal is to provide local educators with a way to identify students who are statistically passing but psychologically at risk, ensuring they enter college with the genuine confidence required to succeed. By focusing on students with predominantly low economic means, this research will provide local educators with evidence-based insights into the psychological barriers that prevent students from feeling confident as they enter higher education.

Theoretical Framework

This study theoretically assumes that students' self-efficacy in mathematics is positively correlated with their confidence in college mathematics preparedness. The premise is grounded in Bandura's (1997) theory of self-efficacy, which involves assessing one's own competence in relation to effectively completing tasks. Social Cognitive Theory states that behavior, individual characteristics, and environmental effects all have a reciprocal causal cycle that affects learning (Bandura, 1986). He argued that those who have high self-efficacy for a task have a more positive perception of their abilities and so outperform those with low self-efficacy. Supporting studies (Pajares & Graham, 1999; Pajares & Kranzler, 1995; Zeldin, Britner & Pajares, 2008) suggest that self-efficacy is associated with motivation. It is well recognized that students with higher levels of self-efficacy tend to be more driven to study than their peers and are more likely to persist when faced with problems. Yet, self-efficacy was influenced by prior experience and physiological and affective states, influenced by prior experience and verbal persuasion. Given that most research concentrates on academic performance rather than the psychological aspect, this idea is therefore rooted in the context of students' readiness to pursue mathematics in higher education.

Methodology

Research Design

This study used a quantitative research design following descriptive-correlational methodology. The descriptive approach assessed the levels of the two variables. The researcher gathers data and describes a sample population (Coe et al., 2025), while the correlational approach was used to find the relationship between Mathematics Self-efficacy and Mathematics Preparedness. There are two or more variables, and the degree of correlation between them is assessed using a correlational design (Thomas & Zubkov, 2023). The strength of the relationship, whether positive or negative, between two or more variables is examined by the researcher. (Wilson & Joye, 2016) .

Respondents

The population of the study consisted of 321 Grade 12 students enrolled in the selected Senior High School during the 2nd Semester of School Year 2025-2026, composed of 11 sections – 5 (Academic Strand) and 6 (TVL Strand). Originally, in the planning phase, it should have used purposive then stratified sampling to get a sample from the different stands, obtaining an accurate representation. However, most of the TVL strand students still had their work immersion and skills assessment, hence, convenience and purposive sampling were employed. 73 students volunteered as respondents, and the criteria for selecting the appropriate respondents included the following: 1) currently enrolled in grade 12, 2nd semester; 2) had applied/prepared for college education; and 3) voluntarily agreed to participate in the study. Purposive sampling was included to ensure that the respondents had met the specific inclusion criteria necessary to examine the predictive relationship between mathematics self-efficacy and students' college preparedness. The selected sample size was considered sufficient for a quantitative predictive correlational study, as the focus was on analyzing relationships between variables rather than generalizing results of the entire population.

Research Instrument

The study adapted the Mathematics Self-Efficacy and Anxiety Questionnaire (MSEAQ) by May (2009). Although the original tool measures both self-efficacy and anxiety, the researcher particularly extracted the self-efficacy subscale, aligning with the main focus of the study. This selective approach preserved the integrity of the instrument, as these items are designed to independently measure students' perceived ability to succeed in mathematics. By focusing only on these indicators, the tool remains an accurate and valid measure of internal confidence without being affected by unrelated factors like anxiety. This standardized questionnaire consists of 15 items, and it includes a 5-point Likert scale ranging from "Usually" to "Never" and poses questions regarding students' confidence in their ability to complete learning tasks in mathematics. These tasks included several factors: 1. General Math SE 2. Future-oriented SE 3. In-Class SE and 4. Assignment SE. Then, the scales used to interpret were excellent confidence, strong confidence, Average confidence, Low confidence, and no confidence. This instrument obtained (a=0.942), verified that the internal consistency of this study remains high and persevered reliability within the local context.

To measure the college mathematics preparedness, the study adapted the Mathematical Readiness of Entering College Freshmen instrument by Corbishley and Truxaw (2010). While the original tool was designed for teachers to evaluate student performance, it has been reconfigured into a self-assessment evaluation format, retaining the main idea of each item, from a categorical assessment of mathematical ability into a self-report measure. Instead of assigning students to predefined ability levels, the revised questionnaire utilized statement-based items rated on a 5-point Likert scale (strongly disagree to

strongly agree). This approach captures students' perceived mathematical ability, aligning the instrument with constructs related to academic confidence. This standardized questionnaire has 30 items, consisting of 4 mathematical constructs: Subject Knowledge, Number Sense, Measurement Data, and Reasoning and Generalization. It includes a 5-point Likert scale ranging from "Strongly Agree" to "Strongly Disagree", then the scales used to interpret was Fully Prepared, Prepared, Somewhat Prepared, Underprepared, and Not prepared. The current study reported preparedness (α=0.975), showing strong internal consistency (Sinclair et al., 2010).

Data Collection Procedure.

The data collection followed a three-phase sequence to ensure accuracy and ethical standards. First, the researchers secured formal approval from the School Principal, TIC of the Senior High School Department, and the Grade leader. Once granted, coordination with the grade 12 class advisers for the availability of students followed to schedule the data gathering session. Next, during the scheduled sessions, the researchers explained the study's purpose and confirmed that participation was voluntary. By utilizing the Learner's Information System or Adviser's list, the researchers identified the respondents as their profiles are TAGGED by their adviser on their SHS exit, and selected only those students who intended to pursue higher education. This ensured the sample was composed of individuals for whom college preparedness was relevant. Finally, the selected respondents completed the standardized questionnaires for Mathematics Self-Efficacy and Perceived Preparedness. The researchers were present for clarifications on instructions and to ensure the accuracy of the self-evaluation. Once finished, the questionnaires were collected, checked for completeness, and labeled/coded for privacy before statistical analysis.

Data Analysis Procedure

Using SPSS, both descriptive and inferential statistics, the data were examined. The degree of mathematics self-efficacy and students' readiness for college mathematics were assessed using descriptive statistics such as frequency, percentage, mean, and standard deviation. The researchers, with the aid of a statistician, checked the normality of both variables. The Shapiro-Wilk test for self-efficacy had a test statistic of 0.982 and a significance of 0.376; at the same time, the college mathematics preparedness variable obtained a test statistic of 0.991 and a significance of 0.886. This means that both variables had obtained significant values greater than 0.05. Also, the collinearity statistics obtained VIF=1.00 and tolerance=1.00, which means there is no multicollinearity problem. As to test of heteroskedasticity, all p-values are greater than 0.005; therefore, the assumption falls within a normal distribution. The relationship between the two variables was analyzed for inferential analysis using Pearson's product-moment correlation coefficient. In order to ascertain whether mathematics self-efficacy significantly impacts students' confidence in college mathematics preparedness, a simple linear regression analysis was further performed.

Ethical Considerations

The researcher obtained Informed Consent, and students were told that the study is voluntary, that they can withdraw at any time, and that their withdrawal will have no adverse consequences. Also, the researchers made sure all forms used clear language. Each survey received a code so that no survey can be traced to an individual. Their responses remained anonymous and confidential. The final report did not include their name or any other information that could identify them. Data files were stored in locked filing cabinets and a password-protected computer. Once the study has concluded, the files will be disposed of properly.

Results and Discussion

The level of Mathematics Self-Efficacy of the Respondents

A self-efficacy questionnaire was used to assess students' confidence in their overall mathematical competence.

Table 1. Descriptive Statistics of Self-Efficacy in Mathematics by Factor (n = 73)

Factor	Sampled Item	Mean (M)	Standard Deviation (SD)	Interpretation
General Mathematics	I believe I am the kind of person who is good at mathematics.	2.62	0.83	Average Confidence
Future-Oriented	I believe I will be able to use mathematics in my future career when needed.	2.85	0.88	Average Confidence
In-Class	I feel confident enough to ask questions in my mathematics class.	2.61	0.82	Average Confidence
Assignment	I believe I can complete all of the assignments in a mathematics course.	2.77	1.01	Average Confidence

The researcher solely chose self-efficacy statements based on the mathematics self-efficacy measures used. It has 15 items rated on a 5-point Likert scale from 1 (never) to 5 (usually), and each items are group into 4 factors these are: General Mathematics, Future-oriented, In-Class, and Assignment.

Table 1 presents the descriptive statistics across four factors. The mean scores indicated an overall average level of self-efficacy among the respondents (M=2.71, SD =1.06). This average confidence signifies grade 12 students have a foundational belief in their mathematics skills, they do not yet feel confident in their subject-matter expertise. This average status can be considered as psychologically at risk because their confidence is unstable. It is vital to recognize that these students have fragile confidence and are at risk, needing for psychological support. They can do basic tasks but likely to experience collapse in their confidence when faced complex or involve unfamiliar mathematics related task. As mathematical concepts become harder, they frequently struggle to remember and apply prior knowledge, even though they can comprehend and masters some areas.

These students are highly susceptible to math anxiety and may drop out when they find it difficult. Several studies revealed that this average level of self-confidence is driven by a conflict between future career aspirations and low classroom performance (Oclarit et al., 2025), while students who have engaged in a practical or relatable task possess stronger confidence, but when faced with more abstract and complex mathematical problems, it lowers their self-confidence (Mijason, 2025).

Among the four factors, future-oriented self-efficacy obtained the highest mean (M=2.85, SD=0.88). These findings suggest that students demonstrate the greatest confidence when considering the practical application of mathematics in their prospective careers. Mathematical self-efficacy is typically higher when students perceive mathematics as relevant to their future academic and professional objectives. Recent studies suggest that performance in advanced mathematics is strongly predicted by students' mathematics self-efficacy at the secondary level (Yang et al., 2024), and that this is also linked to students' academic choices and career expectations (Street Et al., 2024).

The lowest mean score was observed for In-Class self-efficacy (M=2.61, SD=0.82), This could be attributed to Bandura's Physiological/Affective State (anxiety), which explained why students shut down during in a classroom instruction. Additionally, fear of making mistakes and limited classroom participation were also contributing factors. As also mentioned by Zivkovic et al. (2023), mathematics anxiety negatively affects students' willingness to engage during classroom activities, reducing confidence in asking questions, participating in discussions, and weak teacher-student interaction (Appiah et al., 2023). Additionally, findings of Ablian and Parangat (2022) suggest that students' inability to answer math problems can be attributed to a number of factors, including their lack of effort, reluctance to ask for assistance from others, inattention in class, and lack of motivation.

The level of College Mathematics Preparedness of the Respondents

To assess the ability level of the respondents, an adaptation of the Standardized Mathematical Preparedness Questionnaire was employed, based on Corbishley and Truxaws (2010) assessment. The instrument has 30 items with ratings on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The instrument assessed various mathematical constructs such as Subject Knowledge, Reasoning and Generalization, Number Sense, and Measurement and Data.

Table 2. *Descriptive Statistics of College Mathematical Preparedness by Mathematical Construct (n = 73)*

Mathematical Construct	Students Skill		
	Mean (M)	Standard Deviation (SD)	Interpretation
Subject Knowledge	2.51	0.69	Not Prepared
Reasoning and Generalization	3.35	0.96	Somewhat Prepared
Number Sense	2.82	0.81	Somewhat Prepared
Measurement and Data	2.71	0.81	Somewhat Prepared
Overall	2.85	0.82	Somewhat Prepared

The descriptive statistics for students' mathematical readiness for college across four mathematical constructs are shown in Table 2. The overall mean score for mathematical preparedness was 2.85 (SD=0.82), indicating that these students are "Somewhat Ready" and possess uneven preparedness while students trust their logic, they feel a significant lack of mastery over the actual mathematical curriculum. They are more likely to struggle in the early in college without bridging support. The specific weakness in subject matter could

pose a major challenge as they transition into more complex, content-heavy college courses. Heavy content is more affected by anxiety and conceptual gaps, while reasoning tasks are less impacted, contributing to overall preparedness that is moderate rather than high (Yarkwah et al., 2024) . Additionally, the report of the Office for Standards in Education, Children's Services and Skills (2023), revealed that students across many systems demonstrate stronger reasoning and application skills than mastery of mathematical content.

Among the constructs, Reasoning and Generalization obtained the highest mean (M=3.35, SD=0.96), suggesting that students feel most capable in their logical thinking and general problem-solving strategies. Students often demonstrate higher preparedness in reasoning and generalization due to exposure to higher-order thinking tasks across subjects. Applied and specialized subjects might foster their logical reasoning, as they are required to create essays, conduct research, participate in debates, and find solutions to cope with numerous tasks. Generalization develops as a core component of mathematical reasoning across subjects (Ellis et al., 2022), and is best performed if tasks require logical reasoning and conclusion (Kodirun et al., 2025). Furthermore, the study of Loyens et al., (2023) found that reasoning and higher-order thinking skills are enhanced through repeated exposure to complex tasks across disciplines, especially in problem-based and project-based learning environments where knowledge is analyzed, evaluated, and transferred.

Subject Knowledge recorded the lowest mean 2.51 (SD=0.69). This finding highlights a significant gap, indicating that students perceive a lack of specific academic content and components necessary for college success, and consistently report feeling underprepared in subject knowledge. These outcomes suggest that low preparedness in subject knowledge is largely due to weak mastery of foundational mathematical concepts. According to Saha et al. (2024) lack of mastery in subject matter is the major factor why students struggle to cope with the mathematics subject in higher education. Furthermore, Gradini et al. (2025) although students already have confidence in their reasoning skills, they somewhat feel unprepared when dealing with the mathematics subjects.

Correlation between Mathematics Self-Efficacy and College Mathematics Preparedness of the Respondents

Table 3. *Correlation between Self-Efficacy and College Mathematics Preparedness*

Variables	Mean	SD	Pearson's r	p-value	Interpretation
Self-Efficacy	2.67	0.78			
College Mathematics Preparedness	2.61	0.71	0.726	<0.001	Strong Positive Correlation

Referring to Table 3 above, we obtained the Pearson Product-Moment Correlation Coefficient (r) using the students' self-efficacy ratings and their college mathematics preparedness evaluations in order to determine the degree to which students' ability in mathematics and self-efficacy are related. The statistical analysis resulted a correlation coefficient r = 0.726 with a p-value of less than 0.001 (p-value <0.001). This indicates that the relationship is unlikely to be due by chance and is statistically significant at 1% level. Referring to Evans (1996) classification of magnitude for interpreting correlation coefficients, the value obtained is considered to represent a strong positive correlation.

This study finding suggests that students who have a stronger belief in their ability in mathematics are considerably more confident in their ability to manage mathematics at the college level. Preparedness is not solely dependent on mathematical knowledge but is strongly influenced by students' beliefs and confidence in their capacity to succeed. Consequently, increasing students' confidence in their mathematical skills is one of the most effective ways to improve their overall sense of preparedness for higher education. Self-efficacy enhances motivation, persistence, and engagement, which are essential for preparedness (Zakariya, 2022). They also feel better prepared for higher mathematics regardless of their prior experience dealing with difficult tasks (Edmiston, 2024) .

Regression Analysis of Mathematics Self-Efficacy as Predictor of College Mathematics Preparedness

The results in Table 4 show that the R-value of 0.726 was obtained, resulting in an R-squared value of 0.531. This means that the variation of Mathematics Self-efficacy accounted for about 53.1% of the total variation in students' College Mathematics Preparedness. The p-value of less than 0.001 (p <0.001) associated with the computed F-value (80.34) was less than 0.05. This study's result means that students' perceived preparedness is determined by self-belief rather than just their academic ability. Students who possess higher confidence in their mathematical abilities are significantly more likely to feel prepared for the mathematical demands in college. With over half of the variance in preparedness explained

Table 4. *Regression Analysis of Mathematics Self-Efficacy as Predictor of College Mathematics Preparedness*

Variables		**Mean**		**SD**	
Mathematics Self-Efficacy		2.67		0.78	
College Mathematics Preparedness		2.61		0.71	
	R	**R-squared**	**Adjusted r-squared**	**Std. Error of the Estimate**	
	0.726[a]	0.531	0.524	0.48764	
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Regression	19.10	1	19.10	80.34	<0.001[b]
Residual	16.88	71	0.238		
Total	35.99	72			
	Unstandardized B	**Coefficients Std. Error**	**Standardized Coefficient Beta**	**T**	**Sig.**
(Constant)	0.852	0.204		4.18	<0.001
Self-efficacy	0.657	0.073	0.729	8.96	<0.001

by self-belief, the study suggests that the transition to higher education math is as much a psychological challenge as it is an academic one. The regression coefficient further shows that mathematics self-efficacy had a significant positive effect on college mathematics preparedness (B=0.657, β=0.729, t=8.96, p<0.001).

This aligns with the findings of Tanami and Truziel (2026), who established that mathematics self-efficacy (MSE) is a critical predictor of math achievement and readiness. However, it contradicts the findings of Vergara (2024), noting in his study that mathematical performance was not significantly predicted by self-efficacy.

The study provides strong empirical support for Albert Bandura's Social Cognitive Theory, which explains that individuals' beliefs about their abilities influence how they approach tasks, persist through challenges, and perform academically. Students with higher self-efficacy are more likely to engage confidently with difficult tasks, while those with lower self-efficacy tend to avoid them. The findings support the theory's claim that psychological perception frequently predicts academic success more accurately than objective ability. The disconnect between students' high appreciation for mathematics future use and their low In-Class confidence further confirms the theoretical distinction between outcome expectations and efficacy belief. The result supports the notion that students' preparedness for higher education is significantly mediated by their affected states, where anxiety brought on by the classroom directly undermines the confidence required to apply their strong logical reasoning skills to technical tasks.

Conclusion

This study examined the relationship between Mathematics Self-Efficacy and College Mathematics Preparedness among grade 12 students in their final year of Senior High School in Bago City, Negros Occidental. The findings indicated an average level of confidence in mathematics among the respondents, with students feeling that the subject is important but do not believe that they are good at it. Among the self-efficacy factors, future-oriented emerged as the highest, while there is a distinct weakness In-Class Self-efficacy. Indicating that they are comfortable valuing math for their future, but experience a significant confidence collapse during active classroom participation, and fear of negative social evaluation remains the largest psychological barrier for them.

In terms of College Mathematics Preparedness, students are mostly ready in reasoning and generalization, yet have most deficiencies in Subject Knowledge This can be attributed to students' exposure that requires higher-order thinking tasks across different disciplines during their senior high school. This exposure strengthened their reasoning skills and their ability to adapt or transfer knowledge across contexts. Conversely, the low level of preparedness in subject knowledge in students' mastery of fundamental mathematics concepts, formulas, and procedures required for higher education. This can be attributed to limited exposure, learning gap due to the pandemic, congested competencies, and disruptions in learning continuity. Overall, there is a clear contrast between respondents' higher-order thinking skills, logic, and their mastery of mathematics content.

The correlation analysis indicates a strong positive relationship between mathematics self-efficacy and college preparedness. When students possess confidence in their mathematical abilities, they report feeling more prepared for college-level mathematics tasks. These findings suggest that confidence and motivation are as significant as technical skills, since self-efficacy directly influences the effort students invest in mathematics-related activities. Furthermore, since the regression analysis yielded a p-value of <0.001, the study

confirmed that mathematics self-efficacy is a significant predictor of college mathematics preparedness. These results show that self-efficacy plays an active role in shaping preparedness, not just alongside it. Students with higher self-efficacy are more likely to persevere, apply reasoning strategies, and approach mathematics with confidence, which strengthens their readiness for college endeavors.

Limitation of the Findings

The study has several limitations that should be taken into consideration when interpreting the findings. First, it relies on self-reported data, which captures perceptions rather than actual math skills. Although confidence is a strong predictor, it does not always perfectly align with students' math performance. They may also have overestimated their skills or provided answers they felt were correct rather than honest. Second, the sample includes only 73 Grade 12 students from one of the Senior high Schools in Bago City, restricting the applicability to other schools or regions. Findings may not apply to other populations, which might have variation in mathematics exposure contributing to their self-confidence. Despite the limited numbers, this was still valid, while it might not broadly generalizable, it still serves as a critical case study for students in locality. Third, factors like anxiety and study habits were not measured, which could affect students' preparedness. Lastly, the study was cross-sectional; it only provided a snapshot of students' emotions at the time they took the survey. It does not take into account how their self-efficacy may vary throughout the semester or possibly change when entering college.

Practical Value of the Paper

The study is useful in bridging the gap between knowing math and doing math. Provides a guide for educators on addressing the psychological barriers that prevent students from succeeding, even though they have the intellectual capability to do so. The findings may help guidance counselors identify students who are passing but unconfident for interventions, and provide them with mindset coaching. For mathematics teachers to consistently include reasoning & problem-solving skills in their every activity and implement low-pressured learning activities to encourage active participation. The school administrator informed them that it is still essential for Grade 12 students to have a Mathematics Refresher Module/Program for all strands, preventing confidence collapse. To the researchers and curriculum planners, they should design programs that balance content mastery and confidence-building strategies. To the parents, this helps them to understand that students' struggle with mathematics might be a lack of confidence rather than of intelligence, encouraging them to have a supportive home environment. Students can benefit by understanding the value of self-efficacy in improving preparedness and academic performance.

Direction for Future Research

Future researchers can replicate this study with larger, stratified groups from various schools, academic tracks, and regions in order to widen its limitations beyond small samples. Might consider exploring using a longitudinal design to track changes from Senior High School to their early days in college years. The inclusion of a diagnostic test or actual college mathematics performance should be looked into to complement the self-reported data. Additionally, future studies could examine other factors excluded from the study that may influence preparedness, such as teaching strategies, curriculum alignment, learning resources, study habits, and anxiety. Lastly, consider experimental or intervention-based research that focuses on strengthening foundational mathematics skills and self-efficacy; this might be valuable in identifying effective practices and improving their readiness.

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