MATHEMATICS SELF- EFFICACY AND ACADEMIC PERFORMANCE OF GRADE 10 STUDENTS

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ABSTRACT

This study investigates the relationship between mathematics self-efficacy and academic performance among Magcagong National High School tenth-grade students. Self-efficacy is a concept that has its origins in social cognitive theory. It is defined as the belief that an individual can do particular tasks and achieve their desired outcomes. Additionally, it explores how mathematics academic performance correlates with four sources of self-efficacy: mastery experience, vicarious experience, social persuasion, and emotional and physiological state. Employing a descriptive quantitative approach within a correlational research design, this study examines the interrelationships among these variables. The research utilized adapted instruments, including a 24-item Likert scale questionnaire to assess mathematics self-efficacy and a 40-item multiple-choice mathematics test questionnaire. These instruments were rigorously evaluated and validated by five experts in the field. Results indicate a significant positive relationship between mathematics self-efficacy and academic performance. Furthermore, academic performance levels were associated with mastery experience, vicarious experience, social persuasion, and emotional and physiological states. The findings highlight the influential role of self-efficacy on students' mathematics performance, demonstrating that students with higher levels of self-efficacy tend to perform better than those with lower self-efficacy levels. In conclusion, this study underscores the importance of developing students' self-efficacy in mathematics education, as it positively impacts academic performance. It recommends targeted interventions to enhance students' self-efficacy, fostering improved mathematics learning outcomes.

Keyword: *mathematics self-efficacy, academic performance, correlational research design*

1. INTRODUCTION

Mathematics is one of the most important subjects in education that equips students with problem-solving approaches, critical reasoning abilities, and a strong foundation for various academic and professional endeavors. Students' mathematics performance was consistently given attention as they struggled the most in this subject (Capuno et al., 2019). Results of studies and performance tests over the years have shown that students do poorly in mathematics (Bernardo et al., 2022). As the foundation of scientific and technological progress, exploring the factors influencing the students' Mathematics performance is critical. Predictors like self-efficacy have been getting much attention recently (Flores, 2020). The concept of mathematics self-efficacy, first presented by renowned psychologist Albert Bandura, concerns a person's confidence in their ability to comprehend, perform exceptionally well in, achieve, and ultimately complete particular mathematical assignments (Sert, 2021).

In a global gauge, students' performance in Mathematics reveals an overwhelming downturn, which is alarming (Nyroos et al., 2015). In the United States, according to Hossain (2012), Mathematics performance among American students was declining while reading and science skills stayed the same. Most experts predicted that the educational and psychological changes caused by the pandemic would negatively influence school success (Rohman et al., 2020). Similarly, students' diminished motivation and other psychological issues caused by pandemic limitations were predictors of academic achievement (Alemany-Arrebola et al., 2020).

In the Philippine context, it was concerning to see students performing so poorly, particularly in the field of Mathematics. The Philippines received the lowest ranking of 58 countries on the international assessment for Mathematics and Science for grade 4, as the International Association for the Evaluation of Educational Achievement (IAEE) reported in their Trend in International Mathematics and Science Study (TIMSS 2019). One of the nations with worries about mathematics proficiency, particularly in high school, is the Philippines (Capuno et al., 2019).

Locally, the researcher observed that students refused the possibility that they could do Mathematics. Students felt afraid upon just hearing the word Mathematics, which caused them to be unable to think even in simple Mathematics work. The teachers observed that some of the difficulties students had when learning Mathematics were attributable to their attitude and preconceptions about the topic (Ezenweani, 2006). Due to their poor self-efficacy, they perceive mathematics as a highly challenging subject, believing that only brilliant pupils can excel (Odiri, 2022).

The significant challenges in Mathematics performance should be addressed carefully. Self-efficacy was considered an avenue to achieve better academically and develop social and personal responsibility. This study examined how mathematics self-efficacy affects Grade 10 math performance at Magcagong National High School, Maragusan, Davao de Oro. Furthermore, the study aimed to propose strategies to tackle the identified problems and improve the situation.

1.1 Statement of the Problem

The study's main goal was to find out how students' self-efficacy affected their academic performance in Mathematics in grade 10 at Magcagong National High School in Maragusan, Davao de Oro. To be more specific, the research endeavored to provide answers to the following questions:
1.   What is the level of Mathematics Self- Efficacy among Grade 10 students of Magcagong National High School, Maragusan, Davao de Oro in terms of:
    1.1   Mastery Experience;
    1.2   Vicarious Experience;
    1.3   Social Persuasion; and,
    1.4   Emotional and Physiological State?
2.   What is the level of Mathematics Performance among Grade 10 students of Magcagong National High School, Maragusan, Davao de Oro?
3.   Is the level of students' mathematics performance associated with the level of self-efficacy in terms of:
    3.1   Mastery Experience;
    3.2   Vicarious Experience;
    3.3   Social Persuasion; and,
    3.4   Emotional and Physiological State?

1.2 Null Hypothesis

To treat the problems extensively and answer objectively, the researcher formulated the following hypotheses:

Ho1. There is no significant relationship between the level of Mathematics Self-efficacy and Academic Performance among Grade 10 Students of Magcagong National High School, Maragusan, Davao de Oro.

Ho2: The level of students' mathematics performance is not associated with the level of self-efficacy in terms of:
1.   Mastery Experience;
2.   Vicarious Experience;
3.   Social Persuasion; and,
4.   Emotional and Physiological State.

2. METHODOLOGY

2.1 Research Design

The study utilized descriptive quantitative research, which applied a correlational research design. According to Creswell (2014), a descriptive correlational research strategy seeks to explore and describe the relationship between variables without seeking to change or control those components. Information was gathered to address queries about the current state of the study (Flores, 2020). On the other hand, the correlation method was used to investigate the correlation between two variables (Fraenkel & Wallen, 2009).

Furthermore, a correlational statistical test is also utilized in correlational study design to determine whether two or more variables are related and how strong that relationship is (Creswell, 2012). This strategy was used because the researcher showed a link between self-efficacy and students' performance in Mathematics.

2.2 Research Locale

The research was conducted at Magcagong National High School in Maragusan, Davao de Oro. Due to its temperate climate and mountainous surroundings, the municipality is called the "Summer Capital of Davao de Oro." Maragusan is a first-class municipality in the Davao de Oro province. It is located on the island of Mindanao at roughly 7o 19' North, 126o 8' East. Many natural features in Maragusan entice tourists and visitors. The Marangig Falls, a stunning cascading waterfall hidden in the forest; the Mainit Hot Spring, a well-known geothermal hot spring where people can unwind and bathe in warm waters; and the Tagbibinta Falls, another stunning waterfall known for its clear waters and tranquil surroundings.

On the other hand, barangay Magcagong is one of the 24 barangays of the municipality, which became an official barangay on October 26, 1988. Magcagong is a derivative of the Mansaka word "Kugong," which means dry or absence of water. Later, the native word Kugong evolved into what we know as Magcagong. The place then was a vast wilderness inhabited by the indigenous people, the Mansakas. Presently, agriculture significantly contributes to the economy of the barangay. Planting and producing corn and vegetables like sayote, squash, and tomato are the primary sources of income for the people in the barangay.

On top of that, one source of pride for the barangay is the presence of Magcagong National High School, a recently built secondary school in the municipality. Providing a high-quality education and improving the community's quality of life via education are the fundamental aims of the school. It was established in June 2019 and was nationalized in September 2020. Moreover, the school has been operating for four years after being an extension school of Maragusan National High School for one year. For the duration of the study, Magcagong National High School was composed of grades 7, 8, 9, and 10. Most importantly, the school upholds its vision, mission, and tagline, "A Well-grounded and Evolving School that Optimizes Meaningful Education" (AWESOME).

2.3 Research Respondents

The study participants comprised 40 Grade 10 students currently enrolled at Magcagong National High School for the School Year 2022-2023. All 40 students in the Grade 10 section were included as responders in the survey, given that only one section of Grade 10 existed. In addition, 40 Tupaz National High School students underwent testing to ensure that the participants were evenly dispersed, corroborating this research study's findings. Specific information regarding the outcomes can be located in Appendix O.

2.4 Research Instrument

The study employed a questionnaire to evaluate the participants' self-efficacy, considering various sources from which it emanated. The Sources of Self-Efficacy in Mathematics Scale (SSEMS), consisting of 24 questions, was derived from Usher and Pajares' (2008) work.

The study employed a questionnaire to evaluate the participants' self-efficacy, considering various sources from which it emanated. The Sources of Self-Efficacy in Mathematics Scale (SSEMS) questionnaire includes 24 items. It was developed based on research conducted by Usher and Pajares in 2008. Items 1 to 6 focused on mastery experience, with item 3 being a negative statement. Items 7 to 12 focused on vicarious experience, while items 13 to 18 and 19 to 24 focused on social persuasion and emotional state, respectively. The study employed a Likert scale, which consisted of a range of choices from 1 to 4. A rating of 1 indicated a strong disagreement, 2 indicated disagreement, three indicated agreement, and 4 indicated strong agreement.

Furthermore, the researcher adopted a 40-item multiple choice questionnaire to measure the level of academic performance of the students in mathematics from Fuertes (2022) from her thesis completed in partial fulfillment of her master's degree in Assumption College of Nabunturan- Graduate School Department. A Table of Specifications (TOS) was also created to assign the test items to the various competencies.

2.5 Research Procedure

Before starting the study, the following steps were observed: Initially, the researcher composed a formal correspondence addressed to the Schools Division Superintendent, seeking authorization and consent to carry out the investigation. After the approval, the researcher sent a letter to the head of Magcagong National High School informing him of the planned activity and requesting permission. After that, the researcher asked for consent from

the class adviser of the respondents, and the next step was introducing the students to what to do and their role during the implementation.

The study was partitioned into two distinct sections. During the initial stage, the students were given a questionnaire to evaluate their perceptions regarding their confidence level in mathematics. During this stage, students responded to a set of 24 questions, with six questions for each of the four categories (mastery experience, vicarious experience, social persuasion, and emotional state), using a Likert scale. Students' mathematical proficiency was assessed during the second phase by completing a 40-item exam questionnaire.

Once all the instruments had been administered, the findings were calculated accordingly. The pupils' level of mathematics self-efficacy was categorized as high, moderate, or poor. In addition, the students' mathematics academic performance data was analyzed according to the characteristics of class proficiency, which were characterized as Outstanding, Very Satisfactory, Satisfactory, Fairly Satisfactory, and Did not meet expectations.

2.4 Statistical Treatment of Data

Through the utilization of statistical methods, the researcher was able to put the hypotheses that were developed to the test and conduct an analysis of the statistical data. Additionally, the mean was applied in order to determine the level of student performance as well as the quantity of self-efficacy that was present in mathematics. Calculating the mean, also called the average, involves adding up all values inside the data set and dividing that total by the total number of values or frequency. Furthermore, the degree of connection between the dependent variable (academic accomplishment in mathematics) and the independent variable (self-efficacy) was determined using the Pearson r product-moment correlation. The software SPSS and JASP were utilized to calculate the mean and Pearson r product-moment correlation values.

3. RESULTS

3.1 Mastery Experience

Table 1 presents the level of students' mathematics self-efficacy in terms of mastery experience.

Table 1: **The Level of Students' Mathematics Self-Efficacy in terms of Mastery Experience**

Indicator	Mean	Descriptive Level
1. I make excellent grades on math tests	2.60	Moderate
2. I have always been successful with math	2.75	Moderate
3. Even when I study very hard, I do poorly in math.	2.63	Moderate
4. I got good grades in math on my last report card.	2.73	Moderate
5. I do well on math assignments	2.75	Moderate
6. I do well on even the most difficult math assignments	2.58	Moderate
	2.67	Moderate

The average degree of students' self-efficacy, specifically in mastery experience, was 2.67, indicating a moderate level. This demonstrates that students generally perceive themselves to possess a moderate proficiency in Mathematics, but their self-assurance may fluctuate in specific circumstances, particularly when confronted with more challenging assignments.

The indicators "I have consistently achieved success in mathematics" and "I consistently perform well on math assignments" obtained the highest mean score of 2.75. Concerning mastery experience, these indicators were considered factors that could impact the students' self-efficacy. Students who consistently achieve success in mathematics and who perform well on assignments related to mathematics develop a greater sense of self-efficacy. Students who feel they have always excelled in Mathematics are probably quite confident in their mathematical skills. This conviction may benefit how they approach mathematical problems, encouraging more tenacity and effort and, eventually, improved results.

On the other hand, "I do well on even the most difficult Math assignments" got the lowest mean at 2.57. This may be because kids struggle with challenging tasks. Overall, students' self-efficacy regarding their mastering experience had an average score of 2.67, indicating a moderate degree.

3.2 Vicarious Experience

Table 2 displays the research results on students' vicarious experience-based mathematical self-efficacy.

Indicator	Mean	Descriptive Level
My math teachers told me that I am good at learning math.	2.60	Moderate
People told me that I have a talent for math.	2.50	Moderate
Adults in my family told me what a good math student I am	2.63	Moderate
I am praised for my math ability.	2.63	Moderate
Other students told me that I am good at learning math	2.60	Moderate
My classmates like to work with me in mathematics because they think I am good at it.	2.63	Moderate
Total	2.60	Moderate

Table 2: Level of Students' Mathematics Self-Efficacy in terms of Vicarious Experience

A mean of 2.66 was found for students' vicarious experience self-efficacy, where vicarious experience is defined as gaining confidence by observing the actions of others, showing a moderate level of self-efficacy to do math-related tasks based on observing others.   When students see their role models or peers successfully navigate Mathematics problems or demonstrate competency in Mathematical ideas, they are more likely to absorb these observations and believe in their skills to attain comparable results.

The highest scored indicator out of the maximum mean of 2. 90, which is moderate, was on the statement, "I imagine myself working with math problems successfully." This indicates that the comfort is felt when solving arithmetic problems. Thus, this optimistic vision can significantly enhance self-efficiency as it enables practicing achievement in one's mind, which can be followed by performance. Students who believed in internal attribution, in the sense that they attributed their success to hard effort and aptitude towards the subject, were likely to perform more. This implies that students usually apply positive self-imagery to depict a positive picture of their abilities to solve mathematical problems. Using this type of visualization, they can erase fear and doubt that may arise when faced with similar challenges in the real world since they can visualize success and bring positive changes to their mindset.

On the other hand, the least mean value of 2.50 was recorded in the indicator "Seeing kids do better than me in math pushes me to do better." Even though seeing others doing well in mathematics makes some students more focused on their math success, it has a lesser motivating effect than pleasant mental pictures. Perhaps students need to perceive friends as competitors who perform higher or lower than them on tasks requiring math skills, or they have other mathematics-related goals. A collection of my views on this subject is that self-belief and intrinsic motivation matter more in students' performance than extrinsic factors.

3.3 Social Persuasion

The data on students' mathematics self-efficacy about social persuasion is displayed in Table 3.

Indicator	Mean	Descriptive Level
Seeing adults do well in math pushes me to do better.	2.63	Moderate
When I see how my math teacher solves a problem, I can picture myself solving the problem in my way.	2.58	Moderate
Seeing kids do better than me in math pushes me to do better	2.50	Moderate
When I see how another student solves a math problem, I can see myself solving the problem in the same way.	2.55	Moderate
I imagine myself working with math problems successfully.	2.90	Moderate
I compete with myself in math	2.85	Moderate
Total	2.66	Moderate

Table 3: Level of Students' Mathematics Self-Efficacy in terms of Social Persuasion

The self-efficacy test's findings for social persuasion are presented in the table with an average rate equal to 2. 60. The results found that social effects played a role in pupils' perception of their mathematical skills. Reinforcement by peers and family members positively impacts pupils' performance in arithmetic by increasing their self-confidence. Nonetheless, specific comments like being praised for ability and appreciated for work may be more motivating than general statements about talent.

Out of all the indicators, the three that made a strong statement toward the independent variable received a mean score of 2.60: "My classmates like to work with me in mathematics because they think I am good at it." "I am praised for my math ability." "Adults in my family told me what a good math student I am." This means peer and family feedback and support enhance the self-efficacy of students in Mathematics. Students' self-confidence may be improved when peers prefer to work with a student in Mathematics due to assumed proficiency, recognition of students' arithmetic ability by peers, and recognition of adults in the family of these students in Mathematics ability.

Furthermore, the indicator "People told me that I have a talent for math" had the lowest mean, which was 2. 50. While maintaining a positive sign, this suggests that knowing that one is talented in Mathematics may have a slightly weaker people positively affecting students' self-belief in their capabilities relative to other forms of social persuasion. Presumably, children cannot internalize its meaning; thus, they do not buy the idea of natural ability; instead, they want feedback and appreciation of their endeavors and achievements.

3.4 Emotional and Physiological State
The students' mathematics self-efficacy about Emotional and Physiological State is detailed in Table 4.

Indicator	Mean	Descriptive Level
Just being in math class makes me feel stressed and nervous	2.25	Moderate
Doing math work takes all of my energy.	2.20	Moderate
I start to feel stressed out as soon as I begin my math work	2.76	Moderate
My mind goes blank and I am unable to think clearly when doing math work	2.30	Moderate
I get depressed when I think about learning math	2.33	Moderate
My whole body becomes tense when I have to do math	2.40	Moderate
Total	2.29	Moderate

Table 4: Level of Students' Mathematics Self-Efficacy in terms of Emotional and Physiological State

The students' self-efficacy, regarding their emotional and physiological state, was moderately rated with a mean score of 2.29; this implies that improving this indicator will help build the self-efficacy of students per se performance in Mathematics will improve. Having students adopt a growth attitude, teaching them stress management skills, and providing a stress-free learning environment are all methods that should be included in coping with stress to increase their math self-confidence. Other principles that should be embraced as essential in teaching mathematics include properly considering the student's health and well-being and regular procedural arithmetic learning.

The statements "I start to feel stressed out as soon as I begin my math work" and "My body gets tense when I have to do some math" received the highest mean of 2.76 and 2.40, respectively, which were mentioned in the moderate level. The figures self-assessed at a moderate level were data scarcity. Students felt stressed and even afraid just by hearing the word Mathematics, which caused them to no longer think as soon as they started having their Mathematics assignment. This means that more students experience tension or anxiety when carrying out mathematics assignments at some point. This may be due to their perceived self-efficacy regarding Mathematics, wherein low feelings of control or ability may cause negative emotions like worry or anxiousness.

However, during this, the statement, "Doing math works takes all of my energy," scored the lowest mean of 2. 20, which was considered relatively moderate. Some student participants described the experience of doing Mathematics work as mentally demanding and enervating. Although it is above a particular figure indicating continued stress and anxiousness, it is a bit lower than the previous score. As such, the study suggests that for some learners, anxiety and uneasiness are not only triggered by their presence in a math class but also by the need to start solving the arithmetic.

3.5 The Level of Students' Mathematics Self-Efficacy
Table 5 presents the level of students;' Mathematics Self-efficacy from different indicators.

Indicators	Rating	Description	Interpretation
Mastery Experience	2.67	Agree	Moderate level of self-efficacy
Vicarious Experience	2.66	Agree	Moderate level of self-efficacy
Social Persuasion	2.60	Agree	Moderate level of self-efficacy
Emotional and Physiological State	2.29	Disagree	Moderate level of self-efficacy
Average	2.55	Agree	Moderate level of self-efficacy

Table 5: **The Level of Students' Mathematics Self-Efficacy**

The average degree of students' self-efficacy, specifically in mastery experience, was 2.67, indicating a moderate level. This demonstrates that students generally perceive themselves to possess a moderate proficiency in Mathematics, but their self-assurance may fluctuate in specific circumstances, particularly when confronted with more challenging assignments.

The indicators "I have consistently achieved success in mathematics" and "I consistently perform well on math assignments" obtained the highest mean score of 2.75. Concerning mastery experience, these indicators were considered factors that could impact the students' self-efficacy. Students who consistently achieve success in mathematics and who perform well on assignments related to mathematics develop a greater sense of self-efficacy. Students who feel they have always excelled in Mathematics are probably quite confident in their mathematical skills. This conviction may benefit how they approach mathematical problems, encouraging more tenacity and effort and, eventually, improved results.

On the other hand, "I do well on even the most difficult Math assignments" got the lowest mean at 2.57. This may be because kids struggle with challenging tasks. Overall, students' self-efficacy regarding their mastering experience had an average score of 2.67, indicating a moderate degree.

3.6 The level of Students' Academic Performance in Mathematics

Table 6 provides an overview of the degree of academic performance that students have demonstrated in mathematics, as determined by their scores on a test.

Factor	N	Mean	Std. Dev	Transmuted Class Proficiency	Rating
Academic Performance	40	16.25	4.137	70%	Did not meet Expectations

Table 6: **The level of Students' Academic Performance in Mathematics**

The Mathematics results of the students in Grade 10 are provided in Table 6. The average score of the students was 16.25, which, in turn, translated into a class proficiency of 70 %. The general provisions for classroom assessment are laid down in the Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Curriculum or DepEd Order No. 08 s. 2015, and the performance standard for students' mathematical proficiency did not meet expectations. The result was a cause of concern for the students and the school administration, and even worse, knowing that it was way below the level the Department of Education expected.

3.7 Results of Null Hypotheses

The association between the level of self-efficacy in mathematics and academic achievement in mathematics is presented in Table 7.

Factors	N	Mean	Std. Dev	Degree of Correlation	P-value	Finding/Conclusion
Self-Efficacy	40	2.55	0.244	0.780 High Correlation; Marked Relationship	0.000	Reject Ho Significant
Academic Performance	40	16.25	4.137			

Table 7: **Level of Mathematics Self-Efficacy and Academic Performance**

Data presented in Table7 indicates a significant correlation between students' perceptions of their mathematics capabilities and academic performance. For this type of relationship, the value of the correlation coefficient is equal to 0. With a coefficient of 0.780, it is revealed that it has a high association level. Additionally, the p-value of 0.000 was obtained from the test carried out, and this is an indication of a statistically significant result, which is below the threshold $p< .01$, which means that the decision made was statistically significant. Thus, it can be concluded that the null hypothesis is rejected and establishes that mathematics self-efficacy is significantly correlated to academic performance.

3.8 Results of Null Hypotheses

Table 8 presents the association between academic performance and level of self-efficacy from different indicators.

Factors	Academic Performance		
	Correlation	Significance	Findings/ Conclusion
Mastery Experience	0.594 Moderate Correlation/ Substantial Relationship	0.000	Reject Ho/ Significant
Vicarious Experience	0.477 Moderate Correlation/ Substantial Relationship	0.002	Reject Ho/ Significant
Social Persuasion	0.392 Low Correlation/ Definite but Small Relationship	0.012	Reject Ho/ Significant
Emotional and Physiological State	0.383 Low Correlation/ Definite but Small Relationship	0.015	Reject Ho/ Significant

Table 8: **Academic Performance and Level of Self-Efficacy**

The findings demonstrated a significant correlation between academic achievement and every indicator of self-efficacy. Relating to the hypothesis, a moderate positive correlation between students' mastery experience and their Mathematics academic performance was found with a correlation coefficient of 0. 594. Secondly, the p-value we got was < 0. 01, which is 0.000, which means that the decision made was statistically significant. Consequently, the null hypothesis was rejected, implying a substantial relationship between mastery experience and academic performance in mathematics.

Moreover, the data presented revealed a moderate relationship between the vicarious experience described and the development of the student in mathematics, particularly in terms of academic performance, where the correlation coefficient was found to be 0. 477. Furthermore, it has been obtained that the p-value was equal to 0. 002, less than 0. 05, which may suggest that the overall accomplishment of the set goals and objectives valued the decision. Therefore, the null hypothesis was contradicted and confirmed that the vicarious experience was associated with academic performance in mathematics.

Also, it examined the association between social persuasion and mathematics academic performance, emotional and physiological state, and their academic performance; it had a slight correlation with the mathematics academic performance, with the correlation coefficient values of 0. 392 and 0. 383, respectively. Further, the p-values derived showed 0. 012 and 0. 015, which were less than 0.05, which means that the decisions were significant. Consequently, the null hypotheses were rejected, and it was affirmed that social persuasion positively correlated with performance in mathematics academics and that emotional and physiological states likewise impacted mathematics academic performance.

4. CONCLUSIONS

After careful analysis, the research revealed that the students have a moderate level of self-efficacy, and their competency level regarding their academic performance did not meet expectations. Conclusively, the results obtained from the data analyses demonstrate a statistically significant relationship between the four dimensions of self-efficacy and academic performance.

The research found that the four most influential sources on one's self–efficacy include the sense of mastery, vicarious experience, social persuasion, and the individual's emotional and physiological state, with mastery experience taking the lead over the other three sources. In this case, it is asserted that the students with a higher level of self-efficacy perform better than those with a lower level of self-efficacy. Therefore, fostering self-efficacy in students has effectively raised performance levels among students in mathematics.

Following are some recommendations that have been formulated based on the conclusions that were drawn from the findings of the study:

1. The students should adopt the belief that everyone is learnable, particularly Mathematics, and accept the transformative idea that skills can be enhanced through effort and education. Students should have self-efficacy and set their sights on achieving success. That is why it is important to surround themselves with good role models, use their mistakes wisely, and celebrate achievements.

2. The parents must set a positive atmosphere by encouraging the students to answer questions with a positive attitude towards mathematics.

3. Teachers should nurture how they conduct their classes with learners, thereby respecting all people's dignity. An environment that effectively supports their needs in terms of confidence in the ability to ask questions and take risks academically. Combining innovations in teaching technologies to enhance students' perceived control.

4. The school administrator should cultivate a spirit of hard work, knowledge-seeking, and development in the classroom and the school. Create a company culture regarding the students, instructors, and staff that recognize their ability to learn and develop when they work hard, invest their time and effort, and provide themselves with the compassion they deserve. The positive values are achieving a solid obligation to be responsible and engage in relevant activities and understanding that one can accomplish the set goals.

5. The findings will be helpful in future research that tries to enhance students' self-efficacy and determine the factors that affect this facet most significantly.

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