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ACADEMIC MOTIVATION AND LEARNING STRATEGIES OF GRADE SIX STUDENTS IN MATHEMATICS

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ABSTRACT :

This quantitative-correlational study aims at identifying the academic motivation and learning strategies of Grade Six students in the Municipality of Mlang, Cotabato during the second semester of School Year 2022-2023. Results showed that their level of academic motivation in terms of intrinsic and extrinsic was high. Also, their level of learning strategies was also high. There was a significant relationship between academic motivation and learning strategies of grade six pupils. This rejected the hypothesis. Meanwhile, academic motivation significantly influenced learning strategies making all its dimensions as the best predictors. An intervention plan was developed based on the findings of the study. Based on the foregoing findings, this study concludes that the Grade Six pupils were intrinsically and extrinsically motivated in learning mathematics. As well, they employed learning strategies which enabled them to understand mathematical concepts. Indeed, the relationship between these two variables indicated the crucial role of motivation in identifying learners' progress in mathematics. It also indicates that pupils' quest towards learning mathematics can be associated by their motivation. Therefore, a highly motivated learner can make a difference in empowering themselves in understanding mathematical concepts.

INTRODUCTION:

Students can easily understand mathematical concepts when they are highly motivated. With focus and effort extended, it shows that they can employ unique learning strategies. They used it to make themselves involved in responding to different mathematical problems. However, their readiness is always the question as well as their academic motivation especially among the freshmen students.

Motivation triggers behavior that is measured by ones' readiness and preference. It encompasses a set of beliefs, interests, values, actions and perceptions. Individual motivation tends to vary across academic disciplines/subject areas, and this domain specificity may increase with age. This motivation can be intrinsic which is marked by personal enjoyment, interest or pleasure, and extrinsic motivation which is directed by reinforcement contingencies (Capinding, 2022). Extrinsic motivation includes outward factors such as rewards and punishment while intrinsic motivation is based on the internal factors such as self-effort, challenge self-determination and curiosity (Santrock, 2005).

At one hand, the pupils possessed variety of learning strategies. Each of them has their own ways to demystify the concepts of mathematics. As a matter of fact, the study of Berger et al. (2011) confirmed that students employed varied activities in order to internalize their lessons. On the other hand, findings revealed that there was no correlation between motivation and learning strategies. But further studies were recommended (Arnandiz et al., 2022).

Academic motivation is defined as production of the energy required for academic works (Bozanoğlu, 2004). Most of the recent studies of academic motivation are comprised of motivation structure of students and assessments on organizing the process and results of their achievement (Schuhk et al., 2008). Results revealed that reasons of dwindling of academic motivation can increase academic deferral (Bond & Feather, 1988; Senecal et al., 1995; Orpen, 1998; Lee, 2005; Balkıs et al., 2006; Lekich, 2006; Klassen, et al., 2007). No such studies were conducted on the direct association academic motivation and learning strategies of students learning mathematics.

Furthermore, knowing academic motivation of the pupils after the plague caused by COVID-19, it was observed that many of the students lacked the necessary skills (Pócsová et al., 2021; Schult et al., 2022). Some do not even have the learning strategies which should be crucial for their learning development. Indeed, it is a big challenge for the educational institutions to find solutions to the aforesaid predicaments (Pirrone et al., 2022). Hence, conducting this study among the elementary pupils is necessary.

Statement of the Problem

This study aims to determine the academic motivation and learning strategies of Grade Six students. Specifically, this provides answers to the following research questions:

1. What is the level of academic motivation of mathematics students in terms of intrinsic and extrinsic;
2. What is the level of learning strategies of mathematics students in the now normal environment in terms of cognitive and help-seeking, emotion control, elaboration and practical application, and motivation control;

3. Is there a significant relationship between the academic motivation and learning strategies of mathematics students in the now normal environment;
4. Which of the dimensions of academic motivation influenced the learning strategies of students in mathematics; and
5. What intervention plan can be proposed based on the findings of the study?

METHODOLOGY

Research Design

This study will employ descriptive-correlational. Descriptive is a type of research that is used to describe the characteristics of a population. The collected data will be used to answer a wide range of what, when, and how questions relative to particular population or group. It does not answer questions about why a certain phenomenon occurs or what the causes are. However, data from descriptive studies can be used to examine the correlations among variables (Mondal et al., 2022).

Conversely, correlational research is a type of non-experimental research method in which a researcher measures two variables and understands and assesses the statistical relationship between them with no influence from any extraneous variable. It can be strong or weak and positive or negative. However, sometimes, no correlation can be identified on the findings (Puth et al., 2014).

Therefore, this study is descriptive since it will determine the level of the responses of the respondents on the dimensions of the variables. Likewise, correlation will try to test whether there is a significant relationship between the academic motivation and learning strategies of students in mathematics. Also, this will test the influence of the independent variable with the dependent variable.

Locale of the Study

This study will be conducted in the Municipality of Mlang, Province of Cotabato. The municipality has a land area of 312.13 square kilometers or 120.51 square miles which constitutes 3.35% of Cotabato's total area. Its population as determined by the 2020 Census was 98,195. This represented 6.59% of the total population of Cotabato province, or 2.00% of the overall population of the SOCCSKSARGEN region. Based on these figures, the population density is computed at 315 inhabitants per square kilometer or 815 inhabitants per square mile.

Specifically, this study will be conducted in the following elementary school of Mlang Central District namely: Banawa ES, Bialong ES, Calunasan ES, Don Tomas Buenaflor ES, Dugong ES, Dungoan ES, Inas ES, Langkong ES, Mlang Pilot ES, and Sangat ES.

Research Instrument

A research questionnaire is the main source of the data. It is divided into two parts, where Part I contains the dimensions and its corresponding statements on academic motivation of the students. This was lifted from the study of Martins et al. (2018). Responses will be rated using the scale below:

Level	Mean	Descriptive Equivalent	Descriptive Interpretation
5	4.50 – 5.00	Very High	The students have very high level of academic motivation
4	3.49 – 4.49	High	The students have high level of academic motivation
3	2.50 – 3.49	Moderately High	The students have moderate level of academic motivation
2	1.50 – 2.49	Fairly Low	The students have low level of academic motivation
1	0,50 – 1.49	Very Low	The students have very low level of academic motivation

Part II seeks to answer the level of learning strategies of students in mathematics. The Academic Motivation Scale of Vallerand et al. (1993) will be the used. To fit into the contexts of the present study, the statements will be modified. The responses of the respondents will be treated using the scale below:

Level	Mean	Descriptive Equivalent	Descriptive Interpretation
5	4.50 – 5.00	Strongly Agree	The students strongly agree on the learning strategies
4	3.49 – 4.49	Agree	The students agree on the learning strategies
3	2.50 – 3.49	Moderately Agree	The students moderately agree on the learning strategies
2	1.50 – 2.49	Fairly Agree	The students disagree on the learning strategies
1	0.50 – 1.49	Strongly Agree	The students strongly disagree on the learning strategies

Sampling Procedure

The researcher will use the simple random sampling among the target respondents.

Data Gathering Procedure

The researcher will follow the following procedures in the conduct of this study. Readings of literatures will be done. This will help the researcher to have a strong foundation of the problem being investigated. In the same vein, this will be the basis for the formulation of the problem as well as the questionnaire.

Correspondingly, a letter of approval will be sought among the elementary schools in Mlang districts. This will be done by sending a letter to the Schools Division Superintendent of Cotabato Division in Amas, Kidapawan City. The approved letter will be sent to the District Supervisors of Mlang Districts. Then, this will be further sent to the respective school heads.

Furthermore, the questionnaire will undergo validation by the pool of experts. This will be followed by the conduct of the pilot testing. A process which will help to determine its validity and reliability using the Cronbach Alpha at 0.05 level of significance. After this, the questionnaire will be distributed to the randomly selected Grade 6 students. However, contents will be explained to them thoroughly.

Finally, the researcher will immediately retrieve the questionnaire. This will be tallied and analyzed statistically. By following the research questions, results will be presented in tabular forms. Implications will be drawn to further explain the findings.

Statistical Tools

The following statistical tools will be used in the analysis of the gathered data:

- **Weighted Mean**. This will be used to determine the level of respondents' academic motivation and learning strategies in mathematics
- **Pearson Product Moment Correlation**. This will be used to determine the significant relationship between the respondents' academic motivation and learning strategies in mathematics
- **Multiple Regression**. This will be used to determine the influence of academic motivation on learning strategies in mathematics.

RESULTS AND DISCUSSIONS

Academic Motivation

The first research question underscores the academic motivation of the pupils in mathematics in terms of intrinsic and extrinsic.

Intrinsic Motivation

Table 1 presents the level of academic motivation of mathematics pupils in terms of intrinsic motivation. This gains a weighted mean of 4.03 and describes as high. It shows that they have a high level of intrinsic motivation in learning mathematics.

This implies that the pupils are interested in sharing their knowledge and skills in mathematics to their classmates especially to those who are struggling in this regard. In the same manner, because of their interest in mathematics, they found it interesting to learn especially new mathematical concepts which are crucial for their learning growth. More importantly, they were happy in performing different mathematical problems which provided them the intense interest of discovering the different facets of numerical learning.

In line with this, intrinsic motivation in mathematic learning refers to the internal desire and interest that individuals have to engage in mathematical activities, solve problems and learn mathematical concepts and skills for their own satisfaction and personal growth. It is characterized by a genuine curiosity, enjoyment, and sense of accomplishment derived from the learning process itself, rather than external rewards or pressures (Zhang et al., 2023). Allowing students to make choices, set goals, and have a voice in their mathematical learning can enhance their motivation (Rubach & Bonanati, 2023).

Table 1. The level of academic motivation of mathematics pupils in terms of Intrinsic Motivation

My students…	**Mean**	**Description**
found pleasure for them when they discover new mathematical concepts that I never experienced before.	4.11	High
experienced pleasure and satisfaction while learning new mathematical concepts.	4.11	High
tried to broaden their knowledge on mathematical concepts which appeal to them.	3.96	High
surpassed themselves in one of their personal accomplishments in learning mathematics.	3.47	High
got the intense feelings of sharing their mathematical skills to others.	4.49	Very High
Weighted Mean	**4.03**	**High**

Extrinsic Motivation

The level of academic motivation of pupils in terms of extrinsic motivation revealed on Table 2. It is described as high with a weighted mean of 3.94. This means that the pupils have high level of extrinsic motivation in learning mathematics.

This connotes that they learning mathematics provided them a wide range of opportunities that would make them a better learner. More importantly, this enabled them to have the drive to achieve their goals especially in learning numbers. Conversely, the result indicates the need for parents to provide the necessary help for their children to become motivated in learning mathematical concepts. Indeed, their role is crucial for the optimal development of their children.

Correspondingly, Putwain and Wood (2023) stated that extrinsic motivation in mathematics learning refers to the external factors and incentives that drive individuals to engage in mathematical activities (Alt, 2023). While this can be effective in encouraging short-term performance or compliance, it is important to note that over-reliance on extrinsic rewards can sometimes undermine intrinsic motivation and hinder long-term engagement and deeper understanding of mathematics. Therefore, it is crucial to strike a balance between extrinsic and intrinsic motivators, emphasizing the value and enjoyment of mathematics as well as providing meaningful contexts for learning.

Table 2. The level of academic motivation of mathematics pupils in terms of Extrinsic Motivation

My students…	**Mean**	**Description**
thought that learning mathematics would help them to be a better learner.	4.23	Very High
experienced pleasure when reading mathematical problems and concepts.	4.12	High
showed themselves that they were knowledgeable in mathematics.	4.00	High
got the support of their parents in their quest to improve their mathematical skills.	3.00	Moderately High
got the praises of their mathematics teachers which led them to enhance their skills.	4.35	Very High
Weighted Mean	**3.94**	**High**

Learning Strategies

The second research question deals with the identification of the level of learning strategies of the pupils in mathematics in terms of cognitive and help-seeking, emotional control, elaboration and practical application, and motivational control.

Cognitive and Help-Seeking

It is presented on Table 3 the level of learning strategies of mathematics pupils in terms of cognitive and help seeking. It has a weighted mean of 3.93 and described as high. This means that the pupils have a high level of cognitive and help-seeking in learning mathematical concepts.

This implies that they the role of their classmates is fundamental in learning. To those who are struggling, they need those who can understand that would guide them in demystifying bodies of knowledge that are difficult for them. In other words, in a class students should not deal with competition but in helping classmates aside from the fact that teachers are integrating the concepts to the level of their students.

It corroborates with the findings that cognitive learning strategies are techniques or approaches that learners use to process and understand information effectively. These strategies enhance the cognitive processes involved in learning. Likewise, help-seeking strategies involve seeking assistance or support when encountering difficulties or challenges in the learning process (Fong et al., 2021).

Table 3. The level of learning strategies of mathematics pupils in terms of Cognitive and Help-Seeking

My students…	**Mean**	**Description**
asked their classmates for help when they did not fully understand the mathematical problems.	4.61	Very High
tried to understand something better by locating and studying mathematical activities.	4.00	High
read through mathematical activities several times as a method of learning it.	3.76	High
repeated in their mind things they wanted to learn.	3.59	High
revised their answer when they realized that they made mistakes.	3.69	High
Weighted Mean	**3.93**	**High**

Emotional Control

Table 4 portrays the level of learning strategies of mathematic pupils in terms of emotional control. This provides a weighted mean of 3.50 and described as high. It can be surmised that the pupils have a higher level of emotional control as a learning strategy.

The finding suggested that the pupils could be able to control their emotion not to worry in responding to difficult mathematical concepts. It is also important to note the essentialities of accepting the realities that mathematical learning could be tedious which needed time and focus. On the

contrary, sometimes they could not help themselves in understanding these which only implies that teachers need to explain it to the level of the learners.

As mentioned by Tze et al. (2023) that emotional control also known as emotional regulation, plays a significant role in mathematics learning. It refers to the ability to manage and regulate one's emotions effectively during the process of learning mathematics. By regulating their emotions, learners can maintain better concentration and attention during mathematical activities, allowing for deeper engagement and understanding (St Omer & Chen, 2023).

Table 4. The level of learning strategies of mathematics pupils in terms of Emotional Control

My students…	**Mean**	**Description**
told themselves not to worry when mathematic activities were difficult.	3.80	High
helped themselves to decipher mathematical concepts.	3.35	Moderately High
tried not to worry about the possibility of committing mistakes in answering mathematical activities.	3.59	High
persuaded themselves that it was okay to make mistakes in responding to mathematical problems.	3.59	High
accepted the mere fact that they have to challenge themselves in understanding mathematical concepts.	3.62	High
Weighted Mean	**3.59**	**High**

Elaboration and Practical Application

Table 5 indicates the level of learning strategies of mathematic pupils in terms of elaboration and practical application. This gains a weighted mean of 3.83 with a description of high. In the same vein, it shows that the pupils are highly applying this strategy in deciphering mathematical concepts.

This can be surmised that they tried to dig deeper into the contexts of the problem by elaborating each aspect of the activities. Through this, they could be able to come up with the correct answer since they followed the ways of how these things can be done. By doing so, the pupils are proving that they can make a difference to become independent learners.

Elaboration and practical application are two important aspects of mathematical learning that contribute to a deeper understanding of mathematical concepts and their real-world relevance. By incorporating elaboration and practical application in mathematical learning, learners develop a deeper understanding of mathematical concepts and their real-world significance. This approach promotes engagement, problem-solving skills, and a broader appreciation for the value of mathematics beyond the classroom (Herbst & Chazan, 2023).

Table 5. Level of learning strategies of mathematics pupils in terms of Elaboration and Practical Application

My students…	**Mean**	**Description**
learned the mathematical activities by doing them.	3.79	High
carried out mathematical activities to help themselves learn.	4.00	High
looked for connections between the mathematical activities in the book and what they already knew.	3.89	High
tried to develop an overall idea of how different bits of mathematical activities relate to each other.	3.76	High
thought around new mathematical activities and its implications to improving their skills	3.73	High
Weighted Mean	**3.83**	**High**

Motivational Control

Table 6 presents the level of learning strategies of mathematics pupils in terms of motivational control. It is described as high with a weighted mean of 3.53. This means that the pupils have high level of paying attention to different facets mathematical concepts.

This implies that they paid attention to the concepts. By forcing themselves to have the profound understanding this leads the pupils to motivate themselves to go further in learning. However, it can be noted from the result that sometimes pupils are not into it especially in concentration with the lessons and it facing the challenging mathematical problems. This only proves that there are instances that motivation cannot be sustained.

Motivation control in learning mathematics refers to the ability to regulate and sustain one's motivation and engagement in mathematical tasks and activities (Hassan et al.,2023). It involves managing and controlling one's motivational processes to maintain a positive and focused attitude towards learning mathematics. Further, this can be done by creating a supportive and inclusive learning environment where learners feel safe to take risks, ask questions, and make mistakes (Gaspard et al., 2023).

Table 6 Level of learning strategies of mathematics pupils in terms of Motivational Control

My students	Mean	Description
forced themselves to pay attention on mathematical concepts.	4.07	High
increased their effort when they began to lose interest.	3.43	High

pushed themselves to study.	3.46	High
pushed themselves even harder to concentrate in the learning lesson.	3.35	Moderately High
tried to give their best even in the most challenging mathematical problems.	3.35	Moderately High
Weighted Mean	3.53	High

Relationship between the academic motivation and learning

strategies of mathematics pupils

Table 7 presents the relationship between the academic motivation and learning strategies of mathematic pupils. In the same vein, this shows that there exists a significant relationship between intrinsic motivation and cognitive and help-seeking, emotional control, elaboration, and motivational control. This rejects the hypothesis.

In terms of intrinsic motivation and cognitive and help-seeking, the relationship between these two dimensions unveils the important role of motivation from within among the pupils in order to regulate their cognitive capabilities. This can be done by asking help from their classmates who have the first-hand experience or deeper knowledge of the lesson presented.

Likewise, the relationship between intrinsic motivation and emotional control justifies that drive within the learners to learn mathematical concepts enabled them to control their emotions. For example, they tend not to worry when things are too difficult for them. Instead, they looked into the other side of the story and move further in learning.

For intrinsic motivation and elaboration and practical application, when the former is present it is easy for the learners to widen their perspectives relative to the lesson. Through this, they know how to apply the practicality of the lesson which would help them to have the total understanding of mathematical concepts. In this regard, the learners could see the brighter side of learning and would not resort to mediocrity.

Lastly, between intrinsic motivation and motivation control, this suggests that if these dimensions are present among the pupils, they always have the drive to expand their horizon towards learning. Basically, when they are intrinsically motivated, they have the focus on the lessons even these may be too difficult for them to decipher.

Conversely, the relationship between extrinsic motivation and cognitive and help-seeking suggested that it is crucial for them to see the real value of identifying mathematical concepts. They are motivated to find ways especially in asking help from their classmates who can explain to them the lessons. This only implies that when they are extrinsically motivated, they are always findings ways to learn.

Similarly, there is a significant relationship between extrinsic motivation and emotional control which suggested that when pupils in mathematics are intrinsically motivated, they tend to experience positive emotions. These in turn can contribute to better emotional control and engagement in the learning process.

At one hand, a relationship between extrinsic motivation and elaboration and practical application implies that when pupils are highly motivated, they can actually explain the contexts of the lessons. Aside from that, they can apply the concepts into real life situations. Indeed, they can internalize all the necessary things crucial to mathematical learning.

On the other hand, a relationship between extrinsic motivation and motivational control indicates that students with level of motivation can perform mathematical problems and activities. Even in the midst of difficulties, they can find ways or push themselves to have the profound understanding of it. Nevertheless, this association enabled learners to focus on things that matter most.

The relationship between academic motivation and learning strategies of mathematics pupils is crucial for understanding how motivation influences the adoption and effectiveness of learning strategies in mathematics. In the same manner, motivation affects students' persistence and effort in using learning strategies. Motivated students are more likely to persist in their use of strategies when faced with challenges or setbacks. They are willing to invest the necessary effort and time to apply strategies consistently, which can lead to deeper understanding and improve performance in mathematics (Saadati & Celis, 2023).

Table 7. Relationship between the academic motivation and learning strategies of mathematics pupils

			Cognitive and Help-Seeking	Emotional Control	Elaboration and Practical Application	Motivational Control
Spearman's rho	Intrinsic Motivation	Correlation Coefficient	.588**	.692**	.273**	.484**
		Sig. (2-tailed)	.000	.000	.006	.000
	Extrinsic Motivation	Correlation Coefficient	.541**	.418**	.627**	.806**
		Sig. (2-tailed)	.000	.000	.000	.000

**Highly Significant

Influence of the dimensions of academic motivation on learning strategies of students in mathematics

Table 8 indicates that academic motivation significantly influenced with learning strategies of students in mathematics in terms of cognitive and help-seeking (F-value=204.551**, Probability=0.000). This rejects the hypothesis. When taken singly, 80.8% of the variation of academic motivation can be associated with cognitive and help-seeking. The remaining 19.20% can be attributed with other dimensions not present in the study. Both intrinsic and extrinsic motivation were found to be the best predictors of learning strategies.

This implies that motivated students are more likely to engage in tasks and actively employ their cognitive strategies to understand mathematical concepts and solve problems. Their intrinsic interests and curiosity drive them to explore various approaches, think critically, and apply problem-solving techniques to achieve a deeper understanding. In addition, motivated students often have a reduced fear of failure or negative evaluation which can positively impact their help-seeking behaviors. They are more likely to ask help without feeling embarrassed or stigmatized, recognizing that seeking help is an essential part of the learning process and can contribute to their growth and improvement in mathematics.

Generally, academic motivation plays a significant role in the adoption and utilization of cognitive strategies and help-seeking behaviors in mathematics (Soufi et al., 2014). Motivated students are more engaged in cognitive processing, demonstrate metacognitive awareness, and persist in their use of cognitive strategies. They are also more proactive in seeking help, adapting their strategies, and persevering in the face of challenges. Nurturing and sustaining students' academic motivation is essential for promoting effective learning strategies in mathematics (Halif et al., 2020).

Table 8. Influence of the dimensions of academic motivation on learning strategies of students in mathematics in terms of Cognitive and Help-Seeking

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-2.236	.337		-6.632	.000
	Intrinsic Motivation	.632	.086	.358	**7.341****	.000
	Extrinsic Motivation	.918	.065	.691	**14.185****	.000

R^2 = 0.808
F = 204.551**
Prob = 0.000

Table 9 presents that academic motivation significantly influenced learning strategies of students in mathematics in terms of emotional control (F-value=482.00**, Probability=0.000). The hypothesis of the study is rejected. In line with this, 90.9% of the variation of academic motivation can be associated with emotional control. The remaining 9.10% can be attributed with other dimensions not included in this study. More so, intrinsic and extrinsic motivation were the best predictors of emotional control of learning strategies in mathematics by the pupils.

This entails that motivated students often experience positive emotions when engaging in mathematics. These can enhance emotional control by promoting a positive and conducive learning environment. Students who are intrinsically motivated tend to approach mathematical challenges with optimism and a growth mindset, enabling them to regulate negative emotions and maintain a positive attitude towards learning.

More importantly, motivated students tend to exhibit better focus and attention in mathematics learning. Academic motivation drives students' engagement and committed to their learning tasks, enabling them to regulate their attention effectively. By maintaining focus on the task at hand, students can better manage distractions and emotional fluctuations, contributing to enhanced emotional control in mathematical activities (Hands & Limniou, 2023).

Table 9. Influence of the dimensions of academic motivation on learning strategies of students in mathematics in terms of Emotional Control

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-3.578	.243		-14.748	.000
	Intrinsic Motivation	.929	.062	.504	**14.983****	.000
	Extrinsic Motivation	.870	.047	.628	**18.668****	.000

R^2 = 0.909
F = 482.00**
Prob = 0.000

Table 10 reveals that academic motivation significantly influenced learning strategies of students in mathematics in terms of elaboration and practical application (F-value=126.551**, Probability=0.000). This rejects the hypothesis. Further, it indicates that 72.30% of the variation of academic motivation can be associated with elaboration and practical application. Meanwhile, 27.70% can be attributed to other dimensions not included in the model. Above all, extrinsic motivation is the best predictor of elaboration and practical application.

This implies that motivated students tend to have a genuine interest and curiosity in mathematics which drives them to explore and elaborate on the concepts and principles being taught. They actively seek to understand the underlying logic and make connections between different mathematical ideas, leading to deeper comprehension and engagement with the subject matter. In particular, they even recognize the relevance and practicality of mathematics in real-life situations.

In line with this, students are motivated to apply mathematical concepts and skills to solve authentic problems, as they understand the value and utility of their learning. Motivation promotes a mindset that encourages seeking practical applications and finding meaningful connections between mathematics and the world around them (Cayubit, 2022). Thus, fostering and sustaining academic motivation can enhance students' engagement with elaboration and practical application, leading to improved learning outcomes in mathematics.

Table 10. Influence of the dimensions of academic motivation on learning strategies of students in mathematics in terms of **Elaboration and Practical Application**

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-.427	.397		-1.075	.285
	Intrinsic Motivation	-.035	.101	-.020	-.347	.730
	Extrinsic Motivation	1.117	.076	.858	**14.651****	.000

R^2 = 0.723

F = 126.551**

Prob = 0.000

Table 11 shows that academic motivation significantly influenced learning strategies of students in mathematics in terms of motivational control (F-value=1,678.0335**, Probability=0.000). This means that the hypothesis is rejected. Taken singly, 97.20% of the variation of academic motivation can be attributed with motivational control. The rest can be associated with other dimensions not indicated in the model. Of course, both the intrinsic and extrinsic motivation are the best predictors of motivational control in learning strategies of students in mathematics.

This implies that academic motivation promotes a sense of self-determination, wherein students feel a sense of autonomy and ownership over their learning. Motivated students are more likely to engage into self-regulated learning, making decisions about their learning strategies and monitoring their own progress. In this manner, they take responsibility for their learning, which enhances their motivational control (Ng et al., 2016).

Table 11. Influence of the dimensions of academic motivation on learning strategies of students in mathematics in terms of Motivational Control

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	-2.827	.142		-19.947	.000
	Intrinsic Motivation	.262	.036	.135	**7.223****	.000
	Extrinsic Motivation	1.347	.027	.923	**49.474****	.000

R^2 = 0.972

F = 1,678.035**

Prob = 0.000

Intervention Plan

Rationale

Parental involvement can have a significant impact on a learners' motivation towards mathematical learning. It cannot be denied that parents can provide emotional support and encouragement to their children in their mathematical learning journey. By expression belief in their children's abilities and showing interest in their progress, parents can enhance their child's self-confidence and motivation. Positive reinforcement and progress can motivate children to persist in their mathematical learning.

Meanwhile, parents can help their children understand the importance and relevance of mathematics in everyday life and future careers. They have to discuss world applications of mathematical concepts and highlighting how mathematics is used in various fields. Nevertheless, parents can enhance it by showing the practical value of mathematical skills and knowledge.

Above all, they can actively engage in the mathematical homework and assignments. This involvement can include discussing concepts, helping solve problems, and providing guidance when needed. In addition, this can be done by demonstrating interest and actively participating in their children's mathematical learning, parents can indeed show the significance of mathematics and support them to excel in life.

Objective

Provide training to parents as partners of children's learning development in mathematics

Areas of Concern and Database	Objectives	Strategies	Activities	Time Frame	Persons' Involved	Performance Indicator
Parental involvement in mathematical learning	Provide training to parents as partners of children's learning development in mathematics	Training about learning development in mathematics by parents	Partnership with the stakeholders especially to parents	Second Semester 2020-2021	Student leaders Parents Teachers Students	95%

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This quantitative-correlational study aims at identifying the academic motivation and learning strategies of Grade Six students in the Municipality of Mlang, Cotabato during the second semester of School Year 2022-2023. Results showed that their level of academic motivation in terms of intrinsic and extrinsic was high. Also, their level of learning strategies was also high. There was a significant relationship between academic motivation and learning strategies of grade six pupils. This rejected the hypothesis. Meanwhile, academic motivation significantly influenced learning strategies making all its dimensions as the best predictors. An intervention plan was developed based on the findings of the study.

Conclusions

Based on the foregoing findings, this study concludes that the Grade Six pupils were intrinsically and extrinsically motivated in learning mathematics. As well, they employed learning strategies which enabled them to understand mathematical concepts. Indeed, the relationship between these two variables indicated the crucial role of motivation in identifying learners' progress in mathematics. It also indicates that pupils' quest towards learning mathematics can be associated by their motivation. Therefore, a highly motivated learner can make a difference in empowering themselves in understanding mathematical concepts.

Recommendations

The following aspects should be considered:

1. The pupils should continue their motivating themselves to have the capabilities in understanding mathematical concepts;
2. Parents should have to partner their children in learning mathematics;
3. The pupils should have to push themselves to concentrate in learning the lesson;
4. The pupils should have to give their best in understanding mathematical concepts; and
5. Future researchers should have to interview the pupils so that deeper understanding of the problem should be evaluated.
6. Finally, the modified framework indicated the crucial role of people behind the learning capabilities of children in mathematics. This can be done by establishing positive and supportive classroom climate that promotes a sense of belonging and encourages pupils to engage in mathematics. As well, a safe and inclusive learning environment, teachers can help pupils feel comfortable taking risks, asking questions, and participating actively in class, which enhances their motivation.

   As such, teachers can design and deliver mathematics lessons that are relevant, meaningful, and engaging. Hence, it highlights the practical applications by using varied instructional approaches. Therefore, it can capture pupils' interest and motivate them to explore and understand mathematical concepts.

   Finally, teachers can recognize and celebrate pupils' efforts, progress, and achievements in mathematics. They have to acknowledge their hard work, growth and perseverance, teachers reinforce a positive learning culture that values effort and continuous improvement. Celebrating milestones and accomplishments boosts pupils' confidence and motivation to excel in mathematics.

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