

# Assessing the Motivation in Learning Mathematics among Senior High School Students at Sulu National High School in Patikul, Sulu

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**ABSTRACT.** This study assessed the level of motivation in learning mathematics among senior high school students at Sulu National High School. Specifically, it examined students' motivation in terms of intrinsic motivation, extrinsic motivation, and self-efficacy with goal orientation, and determined the relationships among these motivational components. A quantitative descriptive–correlational research design was employed. The study involved 100 senior high school students selected through purposive sampling. Data were collected using a structured questionnaire adapted from a validated instrument and analyzed using weighted mean, standard deviation, and Pearson product-moment correlation. The findings revealed that students demonstrate a positive level of motivation in learning mathematics across all dimensions. Intrinsic motivation, extrinsic motivation, and self-efficacy with goal orientation were all rated as “Agree,” indicating that students are both internally and externally motivated and possess confidence in their ability to succeed. Furthermore, significant relationships were found among the motivational components, showing that these variables are interconnected and collectively influence students' learning behavior. The study concludes that motivation in mathematics is multidimensional, where internal interest, external influences, and self-belief work together to support students' engagement and performance. Strengthening these components through appropriate instructional strategies and supportive learning environments can further enhance students' motivation and academic outcomes in mathematics.

**KEYWORDS:** *mathematics motivation, intrinsic motivation, extrinsic motivation, self-efficacy, senior high school*

## ARTICLE DETAILS

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## 1. INTRODUCTION

Mathematics is a fundamental subject that supports the development of critical thinking, problem-solving skills, and logical reasoning, which are essential in science, technology, engineering, and everyday life. In the context of learning mathematics, students' motivation plays a crucial role in shaping how they engage with tasks, persist in solving problems, and achieve

academic success. Research has shown that motivated learners are more likely to participate actively in learning activities and demonstrate higher levels of achievement (Schukajlow, Rakoczy, & Pekrun, 2023). Studies further indicate that both intrinsic and extrinsic forms of motivation are positively associated with mathematics performance, emphasizing the importance of understanding what drives students to learn (Zhou, 2025; Phan Bora, 2025).

Globally, motivation in mathematics has been widely studied and is considered a key predictor of academic outcomes. Learners who possess higher levels of motivation tend to develop better problem-solving skills and perform more effectively in mathematical tasks (Malinao et al., 2025; Avġin et al., 2025; Zhou et al., 2024). With the rapid advancement of technology and the emergence of new instructional approaches, maintaining students' motivation has become both an opportunity and a challenge in modern education. Innovative teaching strategies, such as technology integration, collaborative learning, and real-world applications, have been found to enhance students' engagement and interest in mathematics.

In the Philippine context, improving students' motivation in mathematics remains a significant concern. Despite the implementation of various instructional strategies and interventions, many students continue to experience low interest, lack of confidence, and difficulty in understanding mathematical concepts (Vankúš, 2021; Anggoro et al., 2025; Szilágyi et al., 2025; Ortiz Rojas et al., 2025). These challenges can negatively affect students' participation and performance, making it essential to examine motivational factors more closely.

At the local level, particularly in Sulu, students' motivation in mathematics is often influenced by classroom experiences, including teaching strategies, teacher support, and the overall learning environment (Hidayatullah et al., 2024; Radišić & Baucal, 2024). Many students encounter difficulties in understanding mathematical concepts, which may reduce their confidence and interest in the subject. Understanding the level of students' motivation in this context is important in identifying areas that require improvement and in designing strategies that enhance engagement and academic performance.

Motivation in mathematics learning is commonly understood through key components such as intrinsic motivation, extrinsic motivation, self-efficacy, and goal orientation. Intrinsic motivation refers to learning driven by personal interest and enjoyment, while extrinsic motivation involves external factors such as rewards and recognition (Schukajlow, Rakoczy, & Pekrun, 2023). Self-efficacy, or students' belief in their ability to succeed, has been found to significantly influence both motivation and academic performance (Hidayatullah et al., 2024). Goal orientation further explains how students approach learning tasks, whether they aim to master the subject or simply perform well compared to others. Studies have shown that students with high motivation and confidence tend to use more effective learning strategies and achieve better outcomes (Balolong et al., 2025; Wild & Neef, 2023).

Although numerous studies have explored motivation in mathematics at global and national levels, there is limited research focusing on the specific context of Sulu. Most existing studies are concentrated in urban or well-resourced settings, leaving a gap in understanding how motivation operates in less explored regions. This lack of localized evidence makes it difficult to develop interventions that are responsive to the unique needs of students in this area.

In response to this gap, this study aims to assess the level of motivation in learning mathematics among senior high school students at Sulu National High School. Specifically, it focuses on intrinsic motivation, extrinsic motivation, self-efficacy, and goal orientation, and examines the relationship among these motivational components. The findings of this study are expected to

provide insights that can guide educators and school administrators in developing strategies that enhance students' motivation, engagement, and overall performance in mathematics.

## 2. METHODS

### 2.1. Research Design

This study employed a quantitative descriptive–correlational research design to assess the motivation in learning mathematics among senior high school students at Sulu National High School in Patikul, Sulu. This design was appropriate as it allowed the researcher to collect numerical data through a structured survey, describe the level of students' motivation, and examine the relationships among its components.

The descriptive aspect focused on determining the level of motivation in terms of intrinsic motivation, extrinsic motivation, and self-efficacy with goal orientation. On the other hand, the correlational component aimed to identify whether significant relationships exist among these motivational variables.

### 2.2. Research Locale

The study was conducted at Sulu National High School, located in Patikul, Sulu, under the Department of Education – Division of Sulu. The school was selected due to its accessibility and its representation of the educational context in the province, particularly in understanding students' motivation in learning mathematics.

### 2.3. Participants of the Study

The respondents consisted of 100 senior high school students enrolled at Sulu National High School during the School Year 2025–2026. The participants included students from both Grade 11 and Grade 12 across different academic strands such as STEM, HUMSS, GAS, ABM, and Arts and Design. These students were considered appropriate respondents as they are actively engaged in mathematics subjects and can provide relevant insights into their motivation.

**Table 1. Distribution of Respondents**

Grade Level	Strand	Section	Frequency
Grade 11	STEM	1	10
Grade 11	GAS	1	10
Grade 11	HUMSS	1	10
Grade 11	ABM	1	10
Grade 11	Arts and Design	1	10
Grade 12	STEM	1	10
Grade 12	GAS	1	11
Grade 12	HUMSS	1	9
Grade 12	ABM	1	10
Grade 12	Arts and Design	1	10
Total			100

### 2.4. Sampling Procedure

The study utilized a purposive sampling technique, where respondents were selected based on specific criteria relevant to the study. According to Kassiani (2023), purposive sampling allows researchers to deliberately choose participants who possess the necessary characteristics to provide meaningful data.

In this study, participants were selected based on their enrollment in senior high school, their engagement in mathematics subjects, and their willingness to participate. This ensured that the data collected were relevant to the objectives of assessing motivation in mathematics learning.

### 2.5. Research Instrument

The research instrument used in this study was a structured survey questionnaire adapted from the Mathematics Motivation Questionnaire (MMQ) developed by Fiorella et al. (2021).

The questionnaire consisted of one main section measuring students' motivation in learning mathematics, divided into three components:

- Intrinsic Motivation
- Extrinsic Motivation
- Self-Efficacy and Goal Orientation

Each component contained ten statements rated using a five-point Likert scale, ranging from Strongly Agree to Strongly Disagree. The use of this validated instrument ensured consistency and reliability in measuring students' motivation levels.

### 2.6 Data Gathering Procedure

The data collection process followed a systematic and ethical procedure. Permission was first secured from the School of Graduate Studies, the school principal, and the Department of Education – Division of Sulu. Coordination was also made with class advisers and subject teachers to schedule the administration of the questionnaire.

The researcher explained the purpose and procedures of the study to the respondents before distributing the questionnaire. Students were given sufficient time to answer all items, and completed questionnaires were collected immediately to ensure data accuracy and completeness.

### 2.7 Ethical Considerations

Ethical standards were strictly observed throughout the study. Participation was voluntary, and respondents were fully informed about the purpose of the research. Confidentiality and anonymity were ensured by not disclosing any personal information.

The researcher ensured accuracy and honesty in data collection and analysis, avoided any form of data manipulation, and adhered to the ethical guidelines set by the School of Graduate Studies and relevant educational institutions.

## 3. RESULTS

**Table 2.** Level of Motivation in Learning Mathematics in terms of Intrinsic Motivation

Statements	Mean	S.D	Rating
I enjoy learning math.	4.00	.739	Agree
I value math more than grades.	3.81	.800	Agree
I find math interesting.	4.04	.816	Agree
I like challenging math.	3.75	.936	Agree
Math gives me accomplishment.	3.95	.809	Agree
Math applies to my future.	4.19	.720	Agree
I feel confident understanding math.	4.09	.854	Agree

Math makes me curious.	3.71	.856	Agree
I look forward to math class.	3.71	.820	Agree
Math helps me think creatively.	4.13	.761	Agree
Total Weighted Mean	3.9380	.39868	Agree

The results indicate that students demonstrate a generally positive level of intrinsic motivation in learning mathematics, as reflected by the overall mean of 3.9380 (Agree). This suggests that students are internally driven by interest, enjoyment, and personal satisfaction in learning mathematics.

Notably, students strongly recognize the relevance of mathematics to their future ( $M = 4.19$ ) and its role in enhancing creativity and confidence. These findings imply that intrinsic motivation is evident and plays a meaningful role in students' engagement with mathematics learning.

**Table 3.** Level of Motivation in Learning Mathematics in terms of Extrinsic Motivation

Statements	Mean	S.D	Rating
I want to outperform others.	3.67	.853	Agree
I care about grades.	4.35	.642	Agree
I want rewards from parents.	3.85	1.077	Agree
Math helps future job.	4.13	.720	Agree
I want recognition.	3.96	.751	Agree
Grades bring respect.	3.76	.955	Agree
Grades impress colleges.	3.75	.880	Agree
Family expects me to do well.	3.79	.902	Agree
Scholarships motivate me.	4.03	.948	Agree
Teacher praise motivates me.	4.07	.820	Agree
Total Weighted Mean	3.9360	.49554	Agree

The findings show that students also exhibit a positive level of extrinsic motivation ( $M = 3.9360$ , Agree). This indicates that external factors such as grades, rewards, recognition, and expectations significantly influence students' motivation in mathematics.

Among the indicators, obtaining good grades ( $M = 4.35$ ) emerged as the strongest motivating factor. This suggests that while students value internal satisfaction, external rewards and expectations remain strong drivers of their academic behavior.

**Table 4.** Level of Motivation in Learning Mathematics in terms of Self-Efficacy and Goal Orientation

Statements	Mean	S.D	Rating
I try to understand difficulties.	4.01	1.010	Agree
I exert effort.	3.94	.827	Agree
I use learning strategies.	4.08	.787	Agree
I take responsibility.	4.07	.728	Agree
I prepare for tests.	4.02	.804	Agree
I aim for best performance.	3.81	.873	Agree
I am confident in tasks.	3.89	.863	Agree
I can master math skills.	3.53	.846	Agree
I can perform well in tests.	3.75	.869	Agree
I can get high grades.	3.58	.781	Agree
Total Weighted Mean	3.8680	.50229	Agree

The results reveal that students possess a positive level of self-efficacy and goal orientation ( $M = 3.8680$ , Agree). This indicates that students generally believe in their ability to succeed in mathematics and are willing to put effort into achieving their academic goals.

Students show strong agreement in taking responsibility for their learning and applying strategies to understand lessons. This suggests that self-belief and goal-setting behaviors contribute significantly to their motivation in mathematics.

**Table 5.** Correlation Among Motivation Variables

Variables	Pearson r	Sig.	N	Description
Intrinsic Motivation – Extrinsic Motivation	.415**	.000	100	Moderate
Intrinsic Motivation – Self-Efficacy	.509**	.000	100	High
Extrinsic Motivation – Self-Efficacy	.578**	.000	100	High

The results show that all motivational components are significantly correlated at the 0.05 level.

A high correlation exists between intrinsic motivation and self-efficacy ( $r = .509$ ), indicating that students who are internally motivated tend to have stronger confidence and goal orientation.

A moderate correlation is found between intrinsic and extrinsic motivation ( $r = .415$ ), suggesting that both internal and external factors work together in influencing student motivation.

A high correlation is also observed between extrinsic motivation and self-efficacy ( $r = .578$ ), implying that external factors such as rewards and recognition can enhance students' confidence and goal-directed behaviors.

Overall, the findings indicate that motivation in mathematics is multidimensional and interconnected, where intrinsic, extrinsic, and self-efficacy components collectively influence students' learning.

Thus, the null hypothesis stating that there is no significant relationship among the motivational components is rejected.

#### 4. DISCUSSION

The findings of the study reveal that senior high school students at Sulu National High School demonstrate a generally positive level of motivation in learning mathematics across all dimensions—*intrinsic motivation, extrinsic motivation, and self-efficacy with goal orientation*. The results indicate that students are not only internally driven by interest and personal satisfaction but are also influenced by external factors such as grades, recognition, and expectations.

In terms of intrinsic motivation, students showed agreement in enjoying mathematics, valuing its relevance to their future, and finding satisfaction in understanding concepts. This suggests that students possess a meaningful level of internal engagement with mathematics. This finding supports the work of Schukajlow, Rakoczy, and Pekrun (2023), who emphasized that intrinsic motivation enhances students' engagement and persistence in learning tasks. When students find personal value and enjoyment in mathematics, they are more likely to actively participate and sustain effort in solving problems.

Similarly, the results show that extrinsic motivation is also evident among students. Factors such as achieving high grades, gaining recognition, meeting family expectations, and preparing for future career opportunities serve as strong motivators. This aligns with findings by Zhou (2025) and Phan Bora (2025), who highlighted that external rewards and expectations can significantly influence students' academic behavior. These findings indicate that while students

are internally motivated, external reinforcement continues to play an important role in shaping their learning efforts.

Moreover, the study reveals that students demonstrate a positive level of self-efficacy and goal orientation. They believe in their ability to succeed in mathematics, take responsibility for their learning, and apply strategies to overcome difficulties. This finding supports the perspective of Bandura (1997), who emphasized that self-efficacy influences individuals' confidence, persistence, and performance in tasks. Students with higher self-efficacy are more likely to engage in challenging tasks and maintain effort despite difficulties. Thus, the presence of self-efficacy and goal orientation among students indicates a readiness to succeed in mathematics learning.

The correlation analysis shows that intrinsic motivation, extrinsic motivation, and self-efficacy with goal orientation are significantly related to one another. The presence of moderate to high correlations suggests that these components function as an interconnected system rather than as independent factors.

A high correlation between intrinsic motivation and self-efficacy indicates that students who are internally motivated tend to develop stronger confidence in their abilities and clearer academic goals. This implies that personal interest in learning mathematics contributes to the development of self-belief and goal-directed behavior. In addition, the moderate relationship between intrinsic and extrinsic motivation suggests that students are influenced by both internal satisfaction and external rewards simultaneously.

Furthermore, the strong relationship between extrinsic motivation and self-efficacy indicates that external factors such as recognition, rewards, and expectations can reinforce students' confidence and goal orientation. This supports the view that motivation is not limited to a single dimension but is a combination of internal and external influences that collectively shape learning behavior.

These findings are consistent with the expectancy-value theory proposed by Eccles and Wigfield (2000), which explains that students' achievement-related choices are influenced by both their expectations of success and the value they assign to a task. In this context, intrinsic motivation reflects the value component, while self-efficacy represents expectations of success, and extrinsic motivation reflects external incentives.

Overall, the findings suggest that motivation in learning mathematics among senior high school students is multifaceted and dynamic. Students demonstrate a balance of intrinsic interest, external motivation, and self-belief, all of which contribute to their engagement in mathematics learning.

The interconnected nature of these motivational components implies that improving one aspect of motivation can positively influence others. For instance, enhancing students' intrinsic interest in mathematics may strengthen their self-efficacy, while providing appropriate external support and recognition may further reinforce their motivation and goal orientation.

Therefore, it is essential for educators to adopt instructional strategies that promote both intrinsic and extrinsic motivation while strengthening students' confidence in their abilities. Creating a supportive learning environment, providing meaningful learning experiences, and

encouraging goal-setting behaviors can help sustain students' motivation and improve their overall performance in mathematics.

## 5. CONCLUSION

This study concludes that senior high school students at Sulu National High School demonstrate a generally positive level of motivation in learning mathematics across intrinsic motivation, extrinsic motivation, and self-efficacy with goal orientation. Students show interest and enjoyment in learning mathematics, recognize its relevance to their future, and are influenced by external factors such as grades, recognition, and expectations. Additionally, students exhibit confidence in their ability to succeed and demonstrate goal-directed behaviors in their learning.

The findings further reveal that the components of motivation are significantly related to one another. Intrinsic motivation, extrinsic motivation, and self-efficacy with goal orientation function as interconnected factors that collectively influence students' engagement in mathematics. Students who are internally motivated tend to have stronger confidence and clearer goals, while external factors also contribute to strengthening their motivation and performance.

Overall, the results indicate that motivation in mathematics is multidimensional and dynamic. Enhancing students' motivation requires a balanced approach that supports both internal interest and external reinforcement while strengthening students' confidence in their abilities. Creating meaningful learning experiences and supportive classroom environments can further promote sustained motivation and improved learning outcomes in mathematics.

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