



## ANALYZING THE PREDICTIVE ROLE OF ACADEMIC BEHAVIORS ON STUDENTS' MATHEMATICS ACHIEVEMENT

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### Abstract:

This study aimed to analyze the predictive role of academic behaviors on the mathematics achievement of Grade 8 students at a public secondary school in Cebu, Philippines using a descriptive-correlational design. There were 188 randomly selected Grade 8 students who answered the survey questionnaires and took a 40-item multiple-choice mathematics achievement test. The data gathered were analyzed using frequency count, percentage, weighted mean, standard deviation, and multiple regression analysis. Results revealed that the respondents had high social media exposure and engagement while having moderate peer influence and study habits. On one hand, the respondents had fairly satisfactory mathematics achievement. Regression analysis showed that academic behaviors did not significantly predict students' mathematics achievement.

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Individual assessment on the predictive role of each academic behavior showed not statistically significant results. Hence, it is recommended to explore on the other factors that might be affecting the mathematics performance of the students.

**Keywords:** social media exposure, peer influence, student engagement, study habits, mathematics performance

## 1. Introduction

Mathematics is among the most fundamental subjects that shape many disciplines, such as science, engineering, economics, and technology, among others. Its significance is immense, as it develops students' critical thinking, problem-solving, and data analysis skills applicable in everyday life and various career fields (Belbase *et al.*, 2022; Fajrina *et al.*, 2020; Peteros *et al.*, 2025). Mathematics in real life is beneficial in areas like accounting, cooking, construction, and in planning a route to be taken. Despite its practical importance in everyday life, many students perceive mathematics as a difficult subject, which hinders their learning and appreciation of it (Cabilan & Peteros, 2024; Saha *et al.*, 2024; Silangan *et al.*, 2023). This negative perception can hinder students' learning and appreciation of mathematics, leading to poor performance and a negative attitude towards the subject.

Difficulties in learning mathematics are often linked to academic behaviors such as social media exposure, peer influence, student engagement in class, and study habits. Social media exposure, one of the many aspects of students' experiences in the present digital environment, can at times interfere with the academic process (Backer, 2024; Purnama & Asdlori, 2023). Peer influence also contributes highly to this aspect; students grouped with peers who do not value books and uncultivated learning may tend to acquire the same attitudes. Student engagement in classroom and school activities is important in improving academic achievement; high participation among students enhances learning effectiveness and enables them to achieve better results in math (Ali *et al.*, 2023). Insufficient participation can lead to decreased motivation and interest, ultimately reducing academic performance. Research has shown that affective and behavioral engagement are significant predictors of students' mathematical achievement (Maamin *et al.*, 2022). A lack of proper study habits, such as delaying study time and poor time management, increases these problems and, as a result, leads to poor math scores. Additionally, poor study habits may result in a poor understanding of mathematical concepts and contribute to the students' low performance. However, when used appropriately, social media and peers can enhance learning. The potential use of social media leads to collaborative learning environments, which allow students to share education-related materials and content (Fisher & Baird, 2006). Students' engagement is enhanced when interacting with peers and teachers in the same direction, sharing ideas and resources, and reflecting on the different perspectives their fellow students bring to

class (Chickering & Gamson, [1987](#)). According to Vygotsky's social development theory, working with peers can promote better comprehension and recall of material (Vygotsky, 1978). This theory was supported by the idea that peer interaction can lead to significant cognitive gains. Students working in small groups often explain concepts to one another, which helps to reinforce their understanding and memory of the material (Webb & Palincsar, 1996; Peteros, 2024).

Unfortunately, the Philippines' performance in international tests highlights the need to confront these academic behaviors. The numerical value and ranking of the Philippines in mathematics come from the 2018 Programme for International Student Assessment (PISA), which aims to assess and compare how well 15-year-old students can apply their mathematical knowledge and skills to solve problems in real-world contexts (Satiti *et al.*, 2021). However, the Philippines scored two points better in mathematics in the 2022 PISA, going from 353 in 2018 to 355 in 2022 (Acido & Caballes, 2024). This poor performance could be attributed to the fact that students indulge in many academic behaviors. Therefore, there is a call for strategies to alter these behaviors to foster students' mathematical learning. The impact of academic behaviors on students' mathematical performance is a concern that needs to be addressed in public schools. Teachers have complained about poor attitudes in class, brought about by high involvement in social media by students, negative peer influence, lack of engagement in class discussions, zero focus on academic achievements, and poor study habits. For instance, students are always using their phones during lessons; most of the study groups are formed for mainly social interactions, with little time devoted to actual study, and minimal or no engagement during math lessons.

It is in this context that the study is conducted with the goal addressing issues that disrupt students' achievement in mathematics. This study seeks to assess the students' academic behaviors such as social media exposure, peer influence, study habits, students' engagement in class and their mathematics performance. Consequently, this study seeks to analyze the predictive role of these academic behaviors on the students' mathematics performance at the identified public high school. The findings of this study will provide insights which would be the bases for recommendations to teachers, parents, and policymakers in addressing issues relevant to students' disruptive academic behaviors affecting their mathematics performance.

## 2. Purpose of the Study

This research assessed the relationship of the academic behaviors on the mathematics achievement of the Grade 8 students in a public secondary school in Cebu, Philippines. Specifically, this study sought to answer the following objectives:

- 1) To assess the level of academic behaviors of the respondents such as social media exposure, peer influence, student engagement, and study habits.
- 2) To determine the level of achievement of the respondents in Mathematics.

- 3) To test if academic behaviors significantly predict the mathematics achievement of the respondents.

### 3. Materials and Methods

This section presents the procedures observed during the data gathering process which include the design, respondents, data collection process, data collection tools and data analysis.

#### 3.1 Research Design

This research utilized a descriptive correlational design, which aimed to explain the relationship between two or more variables without making any claims about cause and effect. This study used a survey questionnaire and achievement test as the primary instruments. These were distributed to the targeted respondents in a public secondary school. The survey included questions on various academic behaviors including social media exposure, peer influence, student engagement, and study habits, and the achievement test was aligned with activities provided by the Department of Education (DepEd). This design played a significant role in the research study which determined the impact of these factors to provide appropriate recommendations to the concerned DepEd officials.

#### 3.2 Respondents

The respondents of this study were the 188 Grade 8 students from the chosen public secondary school. The distribution of the respondents is presented in Table 1. It can be observed that most of the respondents were aging 13 years old while most of them were male students.

**Table 1:** Profile of the Respondents

Profile	f	%
<b>Age</b>		
15 and above	7	3.72
14	46	24.47
13	133	70.74
12	2	1.06
<b>Total</b>	<b>188</b>	<b>100.00</b>
<b>Gender</b>		
Female	86	45.74
Male	102	54.26
<b>Total</b>	<b>188</b>	<b>100.00</b>

All students received traditional or direct instruction in their Grade 8 Mathematics lessons, utilizing the lecture method and conducting the same activities across all groups, regardless of their learning styles.

### 3.3 Data Collection Tools

This research utilized adopted survey questionnaires composed of four parts and a 40-item multiple-choice achievement test. Part I is an adopted questionnaire from Sutarno (2019) about social media use which has 10 indicators and rated by the respondents on a five-point scale namely: Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly Disagree (1). It was designed to assess the extent of social media exposure among respondents. Questions focused on frequency of use, types of social media platforms used, and the nature of interactions on these platforms. Part II is an adopted questionnaire from Moneva and Legaspino (2020) which was used to assess the peer influence of the respondents. This contained 12 indicators on the 5-point scale of Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly Disagree (1). The respondents were asked to indicate the extent of their agreement with the given items. Part III used an adopted questionnaire from Handelsman *et al.* (2005), which assessed the level of classroom engagement among respondents. It had 23 indicators to be answered with a 5-point scale of Very Characteristic of Me (5), Characteristic of Me (4), Moderately Characteristic of Me (3), Not Characteristic of Me (2), and Not at all Characteristics of Me (1). Questions addressed participation in class activities, attention during lessons, and interactions with teachers and classmates. Part IV is an adopted questionnaire from Capuno *et al.* (2019), aimed to evaluate the study habits with nine statements which was rated by the respondents on a five-point scale namely: Strongly Agree (5), Agree (4), Undecided (3), Disagree (2), and Strongly Disagree (1). The questions covered areas such as time management, study techniques, and frequency of study sessions.

To gather sufficient data for analysis, the researcher employed a 40-item multiple-choice achievement test as the second instrument. This test was designed to assess students' readiness for instruction by evaluating their prior knowledge and understanding of the lesson content. The test aimed to measure how well students grasped these fundamental concepts before they were introduced to further instruction. Each student's achievement was graded based on their responses to the test items. The collected scores provided a snapshot of the student's initial understanding and were subjected to statistical analysis to determine patterns and insights into their readiness. This analysis helped to identify areas where students may need additional support, guiding the subsequent instructional approach.

### 3.4 Data Gathering Process

The researchers observed the protocol and ethical standard in conducting this research. A formal transmittal letter was submitted to the Schools Division Superintendent's asking for the approval of the conduct of the study. Once approved, the transmittal letter was forwarded to the School Principal to formalize consent for data gathering. The principal was oriented about the study to provide a clear idea of its objectives and procedures. Upon securing the necessary approvals and orientation, the survey was formally initiated. An informed consent was asked from the parents of the respondents

while an informed assent secured from the respondents before they were allowed to participate in the study. Thereafter, the researchers administered the survey and achievement test to the respondents. To guarantee that every respondent completed all the necessary information for the survey, the researchers provided enough time for them to perform the task. Using statistical tools, the researchers tallied, summarized, analyzed, and interpreted the data collected. The results of the scores from the survey questionnaire and achievement test were statistically analyzed in accordance to the study's objectives.

### 3.5 Data Analysis

Several statistical tools were used to assess mathematics achievement and academic behaviors. Frequency count and percentage were used to determine the number of respondents who belong to the level of the mathematics achievement. Weighted mean was used to determine the overall level of academic behaviors by averaging scores, taking into consideration their importance or frequency, thus allowing for a balanced assessment of different behaviors. Standard deviation was also used to describe the degree of the distribution of the responses of the respondents to the questionnaires. Multiple regression analysis was utilized to test whether academic behaviors significantly predict the respondents' mathematics achievement.

## 4. Results and Discussion

This section presents the results on the data gathered which include the academic behaviors and mathematics achievement of the respondents. Moreover, the results on the test of the hypothesis are also presented.

### 4.1 Level of Social Media Exposure of the Respondents

This section presented the level of academic behaviors of respondents in terms of social media exposure. Social media exposure and its influence on academic behaviors were analyzed to determine its potential effects.

**Table 2:** Level of Social Media Exposure

S/N	Indicators	WM	SD	Verbal Description
1	I engage in academic discussion on social media platforms	3.74	1.07	High
2	I make use of social media to share information with my classmates	4.13	0.94	High
3	I follow the latest developments in my field through social media	3.18	1.24	Moderate
4	I solely rely on information gotten from social media to do my assignment without consulting any other sources	3.36	1.07	Moderate
5	Engaging in academic forums on social media confuses me	3.28	1.24	Moderate
6	Sometimes I use social media to understand what I have been taught in class	3.71	1.25	High

7	Social media is encouraged by the lecturer as part of the assignment	4.06	0.91	High
8	We have a social media group for some of my courses	3.89	1.13	High
9	I have to use social media extensively because most of my course assignments/projects are in the forms of blogs/online presentation	3.54	1.17	High
10	I communicate with the lecturer through social media	4.08	1.06	High
	<b>Aggregate Mean</b>	<b>3.70</b>		<b>High</b>
	<b>Aggregate Standard Deviation</b>		<b>1.11</b>	

**Legend:** 4.21-5.00-Very High; 3.41-4.20- High; 2.61-3.40-Moderate; 1.81-2.60-Low; 1.00-1.80-Very Low.

Table 2 showed the respondents' academic behaviors regarding social media exposure, with an aggregate mean of 3.70, corresponding to a verbal description as High, and an aggregate standard deviation of 1.11, indicating frequent engagement with variability in responses. The highest-rated behavior was using social media to share information with classmates, with a weighted mean of 4.13, described as High, while moderate ratings were observed for reliance solely on social media for assignments without consulting other resources, with a weighted mean of 3.36, and confusion in academic forums, with a weighted mean of 3.28. These findings suggested both benefits and challenges in the educational use of social media.

The results showed that students had a high level of social media exposure, using platforms to collaborate with classmates, complete course assignments, and interact with teachers. This reflected a growing trend of digital integration in students' academic lives, where social media served not only as a tool for communication but also a space for sharing learning materials and solving problems. However, the effectiveness of such use depended on how critically students assessed the information they received and the purpose behind their online engagement. While social media held potential for enhancing learning, especially in mathematics through tutorial videos, discussion threads, and collaborative tools, it also posed risks when students relied on unverified or distracting content. This duality highlighted the need for schools to implement digital literacy programs that taught students to manage online spaces responsibly and effectively for learning purposes.

Recent studies suggested that although social media could offer educational benefits, excessive usage correlated with reduced academic performance due to distraction and time displacement (Dontre, 2021; Zhang, 2024). Teachers and parents were therefore required to guide students toward balanced digital habits. This emphasized the responsibility of schools not only to facilitate access to digital platforms but also to prepare students to utilize them critically and meaningfully.

### 3.2 Level of Peer Influence

Peer influence was another important factor that shaped the academic behaviors of students, including motivating them, collaborating, and making certain decisions. Positive peer interactions could help enhance academic performance, while negative

influences could lead to distractions. This section presented the level of academic behavior of the respondents in terms of peer influence, emphasizing its impact on their study habits and learning experiences. The data gathered are presented in Table 3.

**Table 3: Level of Peer Influence**

S/N	Indicators	WM	SD	Verbal Description
1	I belong to a peer group.	3.96	1.19	High
2	I spend much time with my peer group.	3.19	1.15	Moderate
3	My peers have assisted me in improving my grades.	3.59	1.06	High
4	I can make academic decisions easily when I am with my peers.	3.44	1.11	High
5	We study together after class.	2.79	1.27	Moderate
6	We always help each other with academic difficulties.	3.96	0.99	High
7	My current achievement in all my subjects is better than the previous one before I met my friends.	2.99	1.16	Moderate
8	I often skip classes to spend time with my friends.	1.51	0.97	Very Low
9	The competition with my peers for grades is quite intense.	3.12	1.20	Moderate
10	I and my friends are always talking every class hour.	3.44	1.24	High
11	I and my friends compete for grades.	3.06	1.28	Moderate
12	My peers destruct me in my studies.	2.89	1.38	Moderate
	<b>Aggregate Mean</b>	<b>3.16</b>		<b>Moderate</b>
	<b>Aggregate Standard Deviation</b>		<b>1.17</b>	

Table 3 showed the respondents' academic behaviors influenced by peers, with an aggregate mean of 3.16, described as Moderate, and a standard deviation of 1.17, indicating the average peer influence with considerable variability. High ratings were obtained for belonging to a peer group and helping each other with academic difficulties, with a weighted mean of 3.96. Moderate ratings were observed for competition, with a weighted mean of 3.12, and distractions, with a weighted mean of 2.89, reflecting mixed impacts. Very low engagement in skipping classes, with a weighted mean of 1.51, highlighted respondents' prioritization of academics over social distractions.

Academic behaviors were strongly influenced by peers through motivation, guidance, and collaboration. High ratings on assisting classmates with grades, showing a weighted mean of 3.59, and helping make decisions, with a weighted mean of 3.44, highlighted the advantages of peer support. However, moderate ratings for distractions and competition suggested that balance was needed in peer influence. The findings indicated that peer influence had a moderate impact on students' academic behavior. While peers were often a source of academic motivation and collaborative learning, instances of distraction and off-task behavior were also reported. This dual influence reflected the critical role that peer groups played in shaping students' attitudes toward learning and overall academic engagement.

Bandura's (1977) Social Learning Theory states that people tend to model the behaviors they see in others, particularly those with whom they strongly identified as peers. This made peer influence a powerful factor in reinforcing positive and negative

academic behaviors. Peer groups significantly shaped students' study behaviors, encouraging or distracting academic effort. As highlighted by Leo *et al.* (2022), positive peer influence could foster academic motivation, while negative peer pressure could increase disengagement.

Schools were advised to consider intervention programs, such as training students in peer coaching, encouraging academic study groups, and integrating peer assessment in instruction to harness peer relationships as a consistent and intentional support mechanism for student achievement in mathematics.

### 4.3 Level of Student Engagement

Student Engagement was a critical factor in academic success, reflecting the level of attention, participation, and commitment students exhibited in their learning activities. Engaged students were more likely to achieve better outcomes and actively contribute to their educational environment. This section presented the level of academic behaviors of the respondents in terms of student engagement, highlighting their involvement and interaction in educational activities.

Table 4 illustrated the level of student engagement based on various academic behaviors, with an aggregate mean of 3.70, categorized as High, and an aggregate standard deviation of 1.02. It emphasized behaviors such as attending classes, participating actively, and concentrating on coursework as important aspects of student engagement.

**Table 4:** Level of Student Engagement

S/N	Indicators	WM	SD	Verbal Description
1	Raising my hand in class	3.64	1.09	High
2	Participating actively in small group discussions	4.12	0.92	High
3	Asking questions when I don't understand the instructor	3.88	1.01	High
4	Doing all the homework problems	3.73	1.10	High
5	Coming to class every day	4.27	1.05	Very High
6	Going to the professor's office hours to review assignments or tests, or to ask questions	2.91	1.28	Moderate
7	Thinking about the course between class meetings	3.49	1.15	High
8	Finding ways to make the course interesting to me	3.65	1.01	High
9	Taking good notes in class	3.87	1.02	High
10	Looking over class notes between classes to make sure I understand the material	3.54	1.06	High
11	Really desiring to learn the material	3.62	1.15	High
12	Being confident that I can learn and do well in the class	3.98	0.93	High
13	Putting forth effort	4.04	0.90	High
14	Being organized	3.55	0.93	High
15	Getting a good grade	3.54	0.87	High
16	Doing well on the tests	3.40	0.96	Moderate
17	Staying up on the readings	3.27	1.19	Moderate
18	Having fun in class	3.92	1.08	High

19	Helping fellow students	3.84	0.95	High
20	Making sure to study on a regular basis	3.25	1.03	Moderate
21	Finding ways to make the course material relevant to my life	3.79	0.99	High
22	Applying course material to my life	3.74	0.94	High
23	Listening carefully in class	4.13	0.85	High
	<b>Aggregate Mean</b>	<b>3.70</b>		<b>High</b>
	<b>Aggregate Standard Deviation</b>		<b>1.02</b>	

The results indicated that students were highly engaged in attending class daily, with a weighted mean of 4.27, categorized as Very High, and in listening attentively during class, with a weighted mean of 4.13, categorized as High, reflecting consistent attendance and attentiveness. However, attending professor's office hours reflected limited engagement, with a weighted mean of 2.91, categorized as Moderate, indicating a lack of motivation or willingness to seek individualized academic support.

The findings showed that student engagement among respondents was generally high. Students exhibited regular attendance, attentiveness during discussions, and active participation in classroom activities. These behaviors indicated that learners were motivated and committed to their academic progress, which was a critical factor for enhancing mathematics performance.

High engagement served as a strong indicator of a productive learning environment. However, maintaining this level of involvement required more than student interest; it also demanded that teachers implement structured, engaging, and student-centered instructional practices. As Younas (2023) emphasized student engagement was multifaceted-encompassing behavioral, emotional, and cognitive components – each of which played a role in academic performance. They suggested practical strategies such as project-based learning, formative assessment with feedback, and choice-driven tasks that increase autonomy and investment in learning. These strategies enabled students to feel more engaged in the learning process and deepened their commitment to academic activities.

#### 4.4 Level of Study Habits

This section presented the respondents' level of academic behavior in terms of study habits, focusing on their approaches to learning, time management, and problem-solving skills. Table 5 provided information from the data gathered regarding their consistency and effectiveness in study practices.

Table 5 evaluated the study habits of respondents, focusing on approaches to independent learning and time management, with an aggregate mean of 3.37, categorized as Moderate, and an aggregate standard deviation of 1.11. It highlighted the respondents' effective study strategies.

**Table 5: Level of Study Habits**

S/N	Indicators	WM	SD	Verbal Description
1	I study mathematics even when I am very tired.	2.94	1.10	Moderate
2	I study mathematics first by deciding what area to study.	3.57	1.01	High
3	I study mathematics for about 50 minutes and then take about ten minutes break before starting again.	3.05	1.21	Moderate
4	I practice mathematics always with textbook.	2.88	1.20	Moderate
5	I study mathematics with a friend(s), quiz each other, compare notes and predict test question.	3.46	1.19	High
6	In solving a problem, I pay much attention to details.	3.82	1.00	High
7	I study mathematics for a very long period without regard to my time table.	3.03	1.16	Moderate
8	I feel good when I solve mathematics problems by myself.	4.12	1.08	High
9	I study mathematics with a high level of concentration.	3.44	1.08	High
	<b>Aggregate Mean</b>	<b>3.37</b>		<b>Moderate</b>
	<b>Aggregate Standard Deviation</b>		<b>1.11</b>	

The results showed strengths in areas such as feeling good when solving mathematics problems by myself, with a weighted mean of 4.12, categorized as High, and paying attention to details in solving problems, with a weighted mean of 3.82, also categorized as High. These findings reflected a positive attitude toward independent problem-solving and precision. On the other hand, weaker habits were observed in consistently practicing mathematics using a textbook, with a weighted mean of 2.88, categorized as Moderate, and studying mathematics even when tired, with a weighted mean of 2.94, also categorized as Moderate. It indicated an inconsistent study routine and limited perseverance in challenging conditions.

The findings revealed that students displayed moderately developed study habits. They demonstrated strengths in concentration and problem-solving but were inconsistent in time management, routine planning, and sustained review practices. These results suggested that while students possessed the cognitive ability to study effectively, they lacked the structure and strategies to do so consistently.

Effective time management, regular review, and goal setting have been shown to enhance academic success. Schools were advised to implement intervention programs promoting self-regulated learning and guided formations that taught students to plan, organize, and monitor their learning routines (Balolong *et al.*, 2025). These programs could include time-blocking techniques, weekly academic planners, goal-setting workshops, and reflection exercises to help learners internalize effective study habits.

#### 4.5 Level of Achievement of the Respondents in Mathematics

This section outlined the respondents' achievement levels in mathematics, divided into five categories: Outstanding, Very Satisfactory, Satisfactory, Fairly Satisfactory, and Poor. The data comprised the frequency (f), percentage (%), mean score, and standard deviation to provide a comprehensive overview of the respondents' performance.

Through the analysis of these results, this section sought to determine the student's overall proficiency levels, highlight trends in performance, and identify areas that need intervention. The findings provided a foundation for understanding the respondents' mathematical skills and their implications for academic support and curriculum enhancement.

**Table 6:** Level of Achievement of the Respondents in Mathematics

Level	Numerical Range	f	%
Outstanding	32-40	1	0.53
Very Satisfactory	24-31	11	5.85
Satisfactory	16-23	25	13.30
Fairly Satisfactory	8-15	128	68.09
Poor	0-7	23	12.23
<b>Total</b>		<b>188</b>	<b>100.00</b>
<b>Mean</b>		<b>12.76</b>	
<b>St. Dev.</b>		<b>5.25</b>	

Table 6 showed the frequency distribution (f) and percentage (%) of respondents' mathematics achievement levels. The highest portion is 68.09 percent, was classified as Fairly Satisfactory with numerical range from 8 to 15. A smaller portion of respondents achieved Satisfactory, with 13.30 percent, and Very Satisfactory, with 5.85 percent, while only 0.53 percent were classified as Outstanding, with a numerical range from 32 to 40. Notably, 12.23 percent of respondents fell in the Poor category, with a numerical range of 0-7. The mean score is 12.76, with a standard deviation of 5.25, suggesting that performance was concentrated around the Fairly Satisfactory level.

The findings indicated that many students congregated in the Fairly Satisfactory achievement level, indicating foundational knowledge in mathematics but with visible gaps in mastery. This performance reflected the national trend, where mathematics remained a challenging subject for many learners. According to Prayitno *et al.* (2026), students often struggled with conceptual understanding and application, leading to average or below-average achievement.

To address these challenges, schools were encouraged to integrate individualized remediation strategies, such as diagnostic assessments to identify specific learning deficits, followed by tailored interventions like one-on-one tutoring, scaffolded instructional materials, and differentiated tasks. These approaches ensured that students' unique needs were addressed without relying on a one-size-fits-all solution.

#### 4.6 Regression Analysis of the Respondents' Mathematics Performance

The results of the multiple regression analysis are presented in Table 7. The results revealed a not statistically significant of the academic behaviors on the students' mathematics performance,  $F(4, 183) = 0.317$ ,  $p = .866$ , and the  $R^2$  value was .007. This result suggest that only 0.7% of the variance in math performance is explained by the predictor variables present in the model.

On the individual assessment of the predictor variables, none of the variables showed a statistically significant impact on mathematics performance. Social media exposure ( $\beta = -.063$ ,  $t = -0.763$ ,  $p = .447$ ) indicated a small negative correlation with performance, suggesting that greater exposure to social media neither significantly impairs nor improves students' mathematics results. In the same way, peer influence ( $\beta = -.048$ ,  $t = -0.575$ ,  $p = .566$ ) showed a slight and non-significant negative relationship. This implies that peer interactions, typically thought to influence academic behaviors, might not directly result in observable disparities in mathematics achievement in this scenario. Student involvement ( $\beta = .017$ ,  $t = 0.159$ ,  $p = .874$ ) and study practices ( $\beta = .011$ ,  $t = 0.105$ ,  $p = .916$ ) produced positive yet insignificant coefficients, suggesting that these factors, as defined in the research, do not meaningfully predict mathematics achievement.

**Table 7:** Regression Analysis of the Respondents' Mathematics Performance

	R square	df	F	Standard coefficients ( $\beta$ )	t -Stat	p-value
Regression	0.007	4	0.317			0.866
Residual		183				
<b>Total</b>		<b>187</b>				
Constant					4.391	.000
Social Media Exposure				-.063	-.763	.447
Peer Influence				-.048	-.575	.566
Student Engagement				.017	.159	.874
Study Habits				.011	.105	.916

\*significant at  $p < 0.05$

These results are especially significant considering that current research frequently emphasizes the role of engagement and study practices as key indicators of academic success. In the context of the Philippines, various subtle explanations could explain the noted non-significant relationships. Initially, the rollout of the K to 12 curriculum and the varying learning environments in public schools might lessen the direct impact of individual-level actions. Structural factors like oversized classes, scarce teaching resources, and differences in teacher effectiveness may reduce the impact of individual academic behaviours (Laitsch *et al.*, 2021). Consequently, students indicating strong involvement or productive study techniques might still not attain superior performance because of systemic limitations.

Moreover, the insignificant impact of social media exposure might indicate the changing role of digital platforms in the lives of the secondary students. Students in the Philippines frequently demonstrate adaptable digital habits, balancing recreational and educational use, which could clarify the lack of a significant predictive influence (Nabong & Ferenal, 2025). On one hand, the minimal impact of peer dynamics on the mathematics performance could be linked to the more significant influence of the family expectations, teacher authority, and socio-economic factors on the students. On the other hand, the

insignificant influence of study habits may be related to the concept of the students' habitual actions in learning and strategies to better perform in the subject (Tagud & Valle, 2023; Tus, 2020).

## 5. Conclusion

This study analyzed the relationship of the academic behaviours on the mathematics performance of the Grade 8 students in the Philippines. The regression analysis shows that social media exposure, peer influence, student engagement, and study habits do not substantially predict mathematics performance for Grade 8 students. This discovery emphasizes the intricacy of academic success and implies that personal academic behaviors by themselves might not adequately account for performance results in situations where structural and socio-cultural elements are predominant. For upcoming studies, it is suggested to implement a more holistic model that includes contextual factors and to use more detailed assessments of student behaviors. These endeavors will enhance comprehension of the complex factors influencing mathematics performance and aid in creating more impactful educational strategies in the Philippines.

## Conflict of Interest Statement

The authors declare no conflict of interest.

## About the Authors

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