# Time-on-Task, Classroom Engagement, and Academic Performance in Mathematics of Grade 8 Students

**Merzel Mark G. Guilaran, MaEd, Sharon L. Apohen, PhD**

**Mathematics, La Carlota City College, Philippines**

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## ABSTRACT

This study investigated the relationship among time-on-task, classroom engagement, and academic performance in Mathematics among Grade 8 students in a public secondary school in Negros Occidental. It employed a quantitative descriptive-correlational research design. The respondents were 144 students chosen from a total population of 225 through stratified sampling and simple random sampling. Data was collected using an adopted questionnaire and the students' official Mathematics grades. The results showed that the students had a high level of time-on-task and classroom engagement, while their academic performance in Mathematics was very satisfactory. The study also found a strong positive and significant relationship between time-on-task and classroom engagement, as well as a weak but significant relationship between time-on-task and academic performance. However, classroom engagement was not significantly related to academic performance. Based on the findings, the study concluded that time-on-task was more consistently associated with Mathematics performance than classroom engagement. Thus, it is recommended that strategies be strengthened to improve students' focus, participation, self-regulation, and task completion.

**Keywords:** Time-on-task, Classroom Engagement, Academic Performance, Mathematics Achievement, Grade 8 students

## INTRODUCTION

Mathematics education plays a crucial role in developing students' critical thinking, problem-solving, and overall academic readiness, particularly in junior high school where learners begin to engage with more abstract concepts. However, many Grade 8 students experience difficulties during this transition, resulting in inconsistent performance in Mathematics despite ongoing curriculum improvements and instructional innovations (Temple & Mohammed, 2020). These challenges highlight the importance of examining classroom-related factors that influence academic success, particularly those associated with students' behavior, participation, and instructional engagement.

One key factor emphasized in recent research is time-on-task, originally conceptualized in Carroll's Model of School Learning, which posits that learning depends on the ratio between time spent and time required for mastery. Godwin et al. (2021) defined time-on-task as the proportion of time students are actively engaged in learning activities. Studies show that students who remain consistently on-task tend to achieve better academic outcomes in Mathematics. This is especially critical in Math classrooms where sustained focus and practice are required. Similarly, reflect Joshi et al. (2022) and Zhang et al. (2025) show that classroom engagement which comprises the behavioral, cognitive, and emotional dimensions reflects how students participate, invest effort, and develop interest in learning. These interconnected dimensions are essential in fostering meaningful learning experiences, as they influence students' ability to process and understand complex Mathematical concepts. Mathematics performance remains a concern based on the study conducted by Galangco (2023) with evidence showing that engagement significantly affects achievement, especially in public secondary schools where maximizing instructional time is necessary.

Despite these insights, several research gaps remain. On the studies conducted by Godwin et al. (2021) and Maamin et al. (2021), they often treat time-on-task as a general measure of engagement without examining its direct and combined influence on subject-specific outcomes like Mathematics achievement. Furthermore, much of the literature is based on Western contexts, limiting its applicability to developing countries such as the Philippines (OECD, 2022). Prior research conducted by Joshi et al. (2022) and Kraft & Novicoff (2024) also tends to examine time-on-task and engagement independently, with limited investigation into their interaction and how qualitative aspects of engagement relate to the quantity of time spent on learning tasks. Additionally, Skilling et al. (2021) emphasized the lack of localized, grade-specific studies focusing on junior high school learners, particularly in public school settings where classroom dynamics and teaching practices vary. These gaps underscore the need for context-specific research, such as the present study, which aims to examine the relationship between time-on-task, classroom engagement, and academic performance in Mathematics among Grade 8 students in a public secondary school in Negros Occidental thereby contributing to evidence-based educational improvements.

**Theoretical Framework**

This study was based on three theoretical bases namely Carroll's Theory on Time-on-task, Student Engagement Theory by Fredericks et.al (2004) and Constructivist Learning Theory by Jean Piaget. The study is anchored on the Time-on-Task Theory proposed by John Carroll (1963), which states that learning occurs when students spend sufficient time actively engaged in academic tasks. According to the theory, students who devote more time and attention to learning activities are more likely to achieve better academic outcomes. In Mathematics education, students who remain attentive during lessons, participate in activities, and complete assigned tasks are expected to demonstrate improved academic performance. Kalos and Whitman (2020) support Carroll's theory's relevance by emphasizing that learning results are determined not only by the amount of instructional time allotted but also by successful involvement throughout that time. In this concept, time-on-task refers to actual learning time, which happens when students are behaviorally engaged and focused on academic activities. The idea continues to be extensively utilized in research on learning efficiency, engagement, and accomplishment across subjects, including Mathematics.

The theory of time-on-task by Carroll was taken from its model called Carroll’s model of school learning. Carroll’s model of school learning as cited by Leland (2025) explains academic achievement as function of the ratio between time spent in learning and the time needed to learn, positing that higher levels of mastery occur when the actual time a learner is engaged in tasks approximates or exceeds the time required for understanding. In this model, time spent in learning is shaped by two key factors: opportunity to learn (allocated time) and perseverance (learner engagement), which together determine how much time a student is actively involved in meaningful academic activity. Conversely, time needed to learn is influenced by aptitude, ability to understand instruction, and quality of instruction, reflecting individual differences and instructional effectiveness that determine how much time a learner requires to achieve mastery. These five factors such as opportunity, perseverance, aptitude, instructional quality, and ability to understand instruction collectively form the foundation of Carroll’s time-based framework.

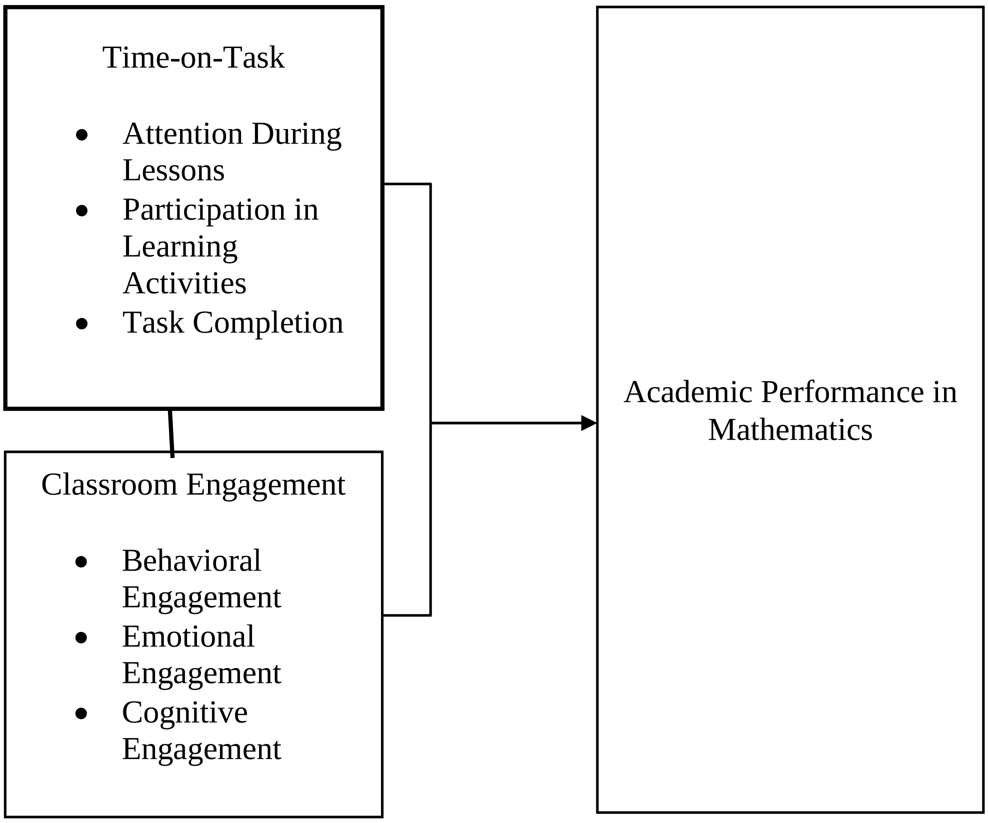
Student Engagement Theory by Jennifer Fredericks, Phyllis Blumenfeld, and Alison Paris (2004) conceptualizes engagement as a multidimensional construct consisting of behavioral, emotional, and cognitive components. Behavioral engagement refers to students’ interest and sense of belonging, and cognitive engagement emphasizes their investment in learning and mastery of complex concepts. This framework as cited by Wang et.al (2021) remains widely applied in recent educational research, as engagement is considered a key predictor of academic success and is highly responsive to classroom conditions and instructional strategies. In Mathematics education, where sustained attention and active problem-solving are essential, Student Engagement Theory provides a strong basis for understanding how students’ allocation of time to tasks translates into deeper involvement and improved academic performance. Thus, the theory supports the assumption that increased time-on-task enhances achievement only when accompanied by meaningful engagement in classroom learning activities.

Furthermore, the study is grounded in Constructivist Learning Theory, primarily influenced by Jean Piaget, which emphasizes that learners actively construct knowledge through interaction with their environment, rather than passively receiving information. Constructivism highlights key processes such as assimilation and accommodation, where learners integrate new knowledge with existing cognitive structures to develop deeper understanding. Taber (2024) and Çibukçiu (2025) who conducted their research continues to affirm that constructivist approaches, particularly in Mathematics education, promote active participation, critical thinking, and meaningful engagement, which are essential for improving academic outcomes. By emphasizing student-centered and activity-based learning, constructivist theory aligns closely with the concepts of classroom engagement and time-on-task, suggesting that the quality of time spent on learning tasks is enhanced when students are actively involved in constructing their own understanding. Therefore, this theory supports the premise that academic performance in Mathematics is significantly influenced not only by the duration of engagement but also by the depth of cognitive involvement during learning activities.

## Conceptual Framework

The conceptual framework of this study illustrates the relationship among time-on-task, classroom engagement, and academic performance in Mathematics among Grade 8 students. In this framework, time-on-task and classroom engagement serve as the independent variables, while academic performance in Mathematics serves as the dependent variable. Time-on-task is operationalized through three indicators: attention during lessons, participation in learning activities, and task completion. These indicators represent the extent to which students remain focused, actively participate, and complete assigned Mathematics tasks during instructional activities. Classroom engagement, on the other hand, is measured through behavioral engagement, emotional engagement, and cognitive engagement, which reflect students' observable participation, affective connection, and mental investment in Mathematics learning.

Figure 1. Schematic Diagram of the Conceptual Framework of the Study.




## Scope and Delimitation

The scope of this study focuses on examining the relationship between time-on-task and academic performance in Mathematics among Grade 8 students at a public secondary school in Negros Occidental. This study covers selected Grade 8 students in every class section currently enrolled during the school year 2026-2027 in which the research is conducted. Time-on-task is examined through specific factors such as attention during lessons, participation in learning activities, and task completion. However, the classroom engagement is examined through three specific indicators namely behavioral engagement, emotional engagement, and cognitive engagement while academic performance is measured using students' Mathematics grades. The investigation is limited to Mathematics to provide a focused analysis of engagement-related factors within a specific academic area.

The study is limited to Grade 8 students at a public secondary school in Negros Occidental and excludes students from other grade levels, courses, or schools. The findings are primarily designed to describe and explain correlations within the given population and environment, and they may not be applicable to other grade levels or broader educational settings without additional research.

## METHODOLOGY

### Research Design

This study utilized a quantitative descriptive correlational research approach to investigate the association between time-on-task, classroom engagement and academic performance in Mathematics among Grade 8 students at a public secondary school in Negros Occidental. A descriptive-correlational research methodology is a quantitative, non-experimental strategy that seeks to characterize variables as they occur naturally while also determining the degree and direction of the association between two or more variables without modification (Barooah, 2026). In this methodology, the researcher collects data in a methodical manner to provide a realistic picture of current conditions, while using correlational statistics such as Pearson's r to investigate how variables are related to one another. According to Beirut (2026), descriptive-correlational research does not demonstrate cause-and-effect linkages but instead identifies patterns of association that can be used to guide future investigation or decision making.

Quantitative research design is a systematic, objective technique that focuses on collecting and analyzing numerical data to describe, explain, forecast, or investigate correlations between variables using statistical procedures (Creswell & Creswell, 2021). It focuses on measurement, objectivity, and the utilization of organized instruments to provide results that may be applied to a larger population. In terms of the study, a quantitative research design is ideal since the variables (i.e., time-on-task, classroom engagement and academic performance) can be measured and statistically examined to identify the degree and direction of the link.

### Subject and Respondents of the Study

The subject and respondent of the study were the Grade 8 students at a public secondary school in Negros Occidental. These students were selected because they are currently exposed to structured Mathematics instruction and they are at a developmental stage where study habits and time management skills significantly influence academic outcomes. As primary sources of data, the Grade 8 students provided information regarding their time-on-task and their classroom engagement through survey instruments, while their academic performance data were obtained from their official school records. Their participation is essential in generating accurate findings that reflect the relationship between learning engagement and Mathematics achievement within the school context.

Focusing on a homogeneous group such as Grade 8 students ensures consistency in curriculum exposure and assessment methods, thereby strengthening the validity of the study. Consequently, these respondents are ideal for providing meaningful data that can help explain how time-on-task and classroom engagement influence Mathematics achievement and guide the development of more effective instructional strategies.

### Population and Sample Size

This study's population consists of 225 Grade 8 students enrolled at a public secondary school in Negros Occidental for the academic year 2025-2026. This entire group was considered eligible for the study because the research specifically attempts to evaluate the relationship between time-on-task and academic achievement in Mathematics at this grade level. By correctly identifying the population, the study ensured that the findings accurately represented the actual educational conditions, behaviors, and academic accomplishment of Grade 8 pupils at the school, thereby delivering relevant and important results to the institution.

A representative sample size of 144 students is drawn from this demographic using Yamane's formula, with a 5% margin of error. This method enables the researcher to collect a manageable quantity of responses while guarantee ensuring the sample precisely reflects the total population. The Yamane's formula is mathematically written as,

$$n = \frac{N}{1 + N(e)^2}$$

Where:

n = sample size taken

N = population

e = margin of error

Provided below is the computation of the sample size given from the population of Grade 8 students taken from a public secondary school in Negros Occidental.

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{225}{1 + (225)(0.05)^2}$$

$$n = 144$$

**Data Gathering Instrument**

The research instrument utilized in this study was a structured survey questionnaire designed to measure the variables of time-on-task, classroom engagement, and academic performance in Mathematics among Grade 8 students. The questionnaire was adopted from established and validated sources, specifically the Behavioral Observation of Students in Schools (BOSS) by Shapiro (2021) for time-on-task and the Student Engagement Instrument (SEI) by Appleton et.al (2022) for classroom engagement ensuring its reliability and validity. The instrument was composed of clearly organized sections to systematically gather relevant data, beginning with respondents' profile followed by items that assess their behaviors and experiences in Mathematics classes.

The first part of the questionnaire focused on time-on-task, consisting of 15 indicators grouped into three domains such as attention during lessons, participation in learning activities, and task completion. The Likert scale used in the second part uses the scale of frequency such as always (5), often (4), sometimes (3), rarely (2), and never (1). The statements used in the research questionnaire were adapted from the Behavioral Observation of Students in Schools (BOSS) by Shapiro et al. (2021) especially for the factor attention during lessons and the statements taken for the factors were adapted from the study conducted by Volpe et al. (2022) for participation-related classroom behavioral assessment and a study from Greenword et al. (2021) for task completion measurements.

The second part of the instrument measured classroom engagement which was divided into three dimensions: behavioral, emotional, and cognitive engagement, with a total of 15 statements. In this section, it employed a five-point Likert scale on agreement from 5 (Strongly Agree) to 1 (Strongly Disagree). Statements used in the classroom engagement were adapted and supported from a study by Appleton et.al (2022) for behavioral engagement, Fredricks et al. (2023) for emotional engagement and Reschly & Christenson (2022) for cognitive engagement. Overall, the instrument enabled the researcher to comprehensively assess how students allocate time to tasks, their level of engagement, and how these factors relate to their academic performance in Mathematics.

**Validity and Reliability of the Research Instrument**

The validity and reliability of the research instrument were ensured even though the questionnaire was adopted from different standardized sources. The items used in the study were derived from established instruments, namely the Behavioral Observation of Students in Schools (BOSS) for time-on-task and the Student Engagement Instrument (SEI) for classroom engagement, both of which have been previously tested for validity and reliability in educational research. Despite this, content validity was further established by subjecting the adapted questionnaire to expert evaluation. Selected five experts in Mathematics education and research reviewed the instrument to determine the clarity, relevance, and appropriateness of each item in relation to the research variables and the Grade 8 context. The composition of the validators who validated the questionnaire are two validators who have a master's degree, two have a Doctorate Degree and one is a research coordinator in a public secondary school in Negros Occidental. These experts were given a letter of consent in validating the research instrument. Their suggestions and recommendations were incorporated to improve the overall quality and suitability of the instrument.

The Lawshe Content Validity Ratio (CVR) was utilized in this study to establish the content validity of the questionnaire items through expert judgment. Originally introduced by Lawshe (1975), the CVR provides a quantitative approach to determining whether individual items in an instrument are essential to the construct being measured. In this method, a panel of subject-matter experts evaluates each item by classifying it as "essential," "useful but not essential," or "not necessary," and the results are computed using a standard formula to determine the level of agreement among experts. Recent literature affirms that Lawshe's method remains a widely accepted technique in educational and social science research for ensuring that measurement instruments adequately represent the intended domain of content (Romero Jeldres et al., 2023).

The content validity of the research questionnaire was established through expert evaluation using Lawshe's Content Validity Ratio (CVR). The results revealed that all 15 items of the time-on-task scale and all 15 items of the classroom engagement scale were unanimously rated as essential by the validators (CVR = 1.00). Considering that, for a panel of five experts, the minimum acceptable CVR value is 0.99 at the 0.05 level of significance, the obtained values indicate that all questionnaire items satisfy the criterion for strong content validity. These findings confirm that the instrument adequately represented the domains of the variables measured and were therefore appropriate for use in the conduct of the study. Provided below here is the table for the validity result of the research instrument used.

Table 1. Validity Result of the Research Instrument Used

| Construct and Subfactor | Number of Items | CVR | Interpretation |
|---|---|---|---|
| **Time-on-Task** | **15** | **1** | **Strong Content Validity** |
| Attention During Lessons | 5 | 1 | Strong Content Validity |
| Participation in Learning Activities | 5 | 1 | Strong Content Validity |
| Task Completion | 5 | 1 | Strong Content Validity |
| **Classroom Engagement** | **15** | **1** | **Strong Content Validity** |
| Behavioral Engagement | 5 | 1 | Strong Content Validity |
| Emotional Engagement | 5 | 1 | Strong Content Validity |
| Cognitive Engagement | 5 | 1 | Strong Content Validity |

The research questionnaire was pilot tested with 30 respondents similar to the target participants to ensure the consistency and reliability of the instrument. Cronbach's alpha was used to measure its internal consistency, with a value of 0.70, or higher generally considered acceptable.The results showed in Table 2 that the time-on-task scale had excellent internal consistency ($\alpha = 0.932$) while the classroom engagement scale had good internal consistency ($\alpha = 0.876$) based on the pilot test results. This indicates that the research instrument had satisfactory reliability and could consistently measure the intended variables of the study. Provided below here is the table for the reliability result of the research instrument used using the Cronbach's alpha ($\alpha$).

Table 2. Reliability Result of the Research Instrument Used

| Construct and Subfactor | Number of Items | Cronbach's α | Interpretation |
|---|---|---|---|
| **Time-on-Task** | **15** | **0.932** | **Excellent** |
| Attention During Lessons | 5 | 0.848 | Good |
| Participation in Learning Activities | 5 | 0.815 | Good |
| Task Completion | 5 | 0.832 | Good |
| **Classroom Engagement** | **15** | **0.892** | **Good** |
| Behavioral Engagement | 5 | 0.876 | Good |
| Emotional Engagement | 5 | 0.809 | Good |
| Cognitive Engagement | 5 | 0.774 | Acceptable |

## Data Gathering Procedure

The study's data collection process was conducted in a methodical and structured way to guarantee the precision and dependability of the information gathered. With the aim to conduct the study among Grade 8 students, the researcher first formally requested permission from the dean of the graduate school, secondly from the superintendent of the school's division, and finally from the principal of a public secondary school in Negros Occidental. Coordination with the Grade 8 section advisers was carried out to ensure the survey instrument was distributed smoothly after the approval was granted. The questionnaire was then created by the researcher in Google Form template, which made it convenient for students to complete on desktops or mobile devices. The respondents were given a clear explanation of the study's goal and were reassured that their answers would be kept private and utilized only for academic purposes.

Following the orientation, a group chat was used to send the Google Form link to the section advisers, who subsequently shared it with the students under their supervision. To ensure truthful and considerate answers, the respondents were given enough time to complete the questionnaire at their own leisure. With the goal of making sure that the desired number of participants was either met or approximated, the researcher kept an eye on the responses being submitted. All replies were documented, arranged, and ready for statistical analysis after data collection was finished. This technique made it possible for the researcher to effectively collect pertinent data while upholding accuracy, dependability, and ethical norms.

Ethical considerations were strictly observed throughout the conduct of the study to protect the rights, privacy, and welfare of the respondents. Since the respondents are Grade 8 students, parental consent and student assent were secured before their participation. The respondents were informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time without penalty. Confidentiality and anonymity were maintained by ensuring that personal information and responses were not disclosed to unauthorized individuals. The data gathered was used solely for academic purposes and was handled with utmost care in accordance with ethical research standards and data privacy principles.

## Data Analyses

The data gathered in this study were carefully organized, coded, and analyzed using appropriate statistical tools to address each statement of the problem.

For the first research question which sought to determine the level of student's time-on-task of Grade 8 students in Mathematics, the statistical tool to be used is the mean and standard deviation. The mean is computed as,

$$\bar{x} = \frac{\sum x}{n}$$

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Where:

$\bar{x}$ = mean

$\sum x$ = sum of all data

$n$ = total number of data

Standard deviation, on the other hand, indicates the degree of variability or dispersion of scores from the mean, showing how spread out the response is. Mathematically, standard deviation is expressed as,

$$\sigma = \sqrt{\frac{\sum(X - \bar{X})^2}{n - 1}}$$

Where:

$\sigma$ = sample standard deviation

$X$ = score

$\bar{X}$ = sample mean

$N$ = number of observations

As indicated below, the mean scores derived from the factors mentioned above were evaluated according to their level of agreement. The accompanying guide displays the implications of the mean range and the corresponding level of frequency as perceived by the Grade 8 students about the time-on-task factors.

| **Scale** | **Description** | **Mean Score Range** | **Interpretation** | **Verbal Description** |
|---|---|---|---|---|
| **5** | Always | **4.21–5.00** | Very High | Students consistently demonstrate high levels of focus, participation, and task completion in Mathematics. This indicates excellent time management and strong engagement with learning tasks. |
| **4** | Often | **3.41–4.20** | High | Students frequently exhibit positive time-on-task behaviors. They are generally attentive and involved, though occasional lapses in focus or task completion may occur. |
| **3** | Sometimes | **2.61–3.40** | Moderate | Students show moderate time-on-task behaviors. Their engagement and focus are inconsistent, suggesting the need for improved strategies to enhance sustained attention and participation. |
| **2** | Rarely | **1.81–2.60** | Low | Students seldom demonstrate effective time-on-task behavior. This indicates low engagement, frequent distractions, and difficulty completing tasks, which may negatively affect learning outcomes. |
| **1** | Never | **1.00–1.80** | Very Low | Students do not exhibit time-on-task behaviors. This reflects very poor focus, minimal participation, and lack of task completion, requiring immediate intervention and support. |

In addressing the second research question which is to determine the level of student's classroom engagement, the statistical tool used was the mean and the standard deviation. Provided below is the interpretation guide for the mean scores obtained from the factors of classroom engagement.

| Scale | Description | Mean Score Range | Interpretation | Verbal Description |
|---|---|---|---|---|
| **5** | Strongly Agree | **4.21 – 5.00** | Very High | Students consistently demonstrate very high levels of classroom engagement in terms of behavioral, emotional, and cognitive aspects. They actively participate in activities, show strong interest and motivation, and exert significant effort in understanding and applying Mathematics concepts. |
| **4** | Agree | **3.41 – 4.20** | High | Students frequently exhibit high classroom engagement. They are generally active in class participation, display positive attitudes toward learning Mathematics, and make consistent efforts to understand lessons, though minor inconsistencies may occur. |
| **3** | Neutral | **2.61 – 3.40** | Moderate | Students show moderate classroom engagement. Their participation, interest, and cognitive effort vary, indicating inconsistent involvement and the need for strategies to enhance motivation and deeper learning. |
| **2** | Disagree | **1.81 – 2.60** | Low | Students demonstrate low classroom engagement. They seldom participate actively, show limited interest in Mathematics, and exert minimal cognitive effort in understanding the lessons, which may negatively affect their academic performance. |
| **1** | Strongly Disagree | **1.00 – 1.80** | Very Low | Students exhibit very low classroom engagement. There is minimal participation, lack of interest and motivation, and little to no effort in processing Mathematical concepts, requiring immediate instructional interventions and support. |

In addressing the third research question which is to determine the level of academic performance of Grade 8 students, the appropriate statistical tool to be used was mean because it condenses every individual Math grade into a single representative value that represents the overall academic achievement in Mathematics for Grade 8, this statistical tool is extremely pertinent. The guide below was used to interpret the computed mean for the academic performance level.

| General Average | Interpretation | Verbal Description |
|---|---|---|
| **90–100** | **Outstanding** | Demonstrates consistent and high-level mastery of mathematical concepts and skills. Students in this range show strong problem-solving ability, conceptual understanding, and transfer of learning across contexts. This level aligns with full mastery in competency and mastery-based frameworks. |
| **85–89** | **Very Satisfactory** | Shows solid understanding of core mathematical competencies with minor gaps. Students are able to apply knowledge accurately in most situations and require minimal reinforcement to reach advanced mastery. |
| **80–84** | **Satisfactory** | Demonstrates acceptable understanding of fundamental mathematical concepts but with noticeable inconsistencies. Additional practice or instructional support may be needed to strengthen proficiency and ensure long-term retention. |

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| | | |
|---|---|---|
| **75–79** | **Fairly Satisfactory** | Indicates partial mastery of required competencies. Students exhibit basic skills but struggle with complex or unfamiliar tasks, suggesting the need for remediation or increased time-on-task and classroom engagement. |
| **Below 75** | **Did Not Meet Expectations** | Reflects insufficient mastery of essential mathematical skills and concepts. Students require significant instructional intervention, extended learning time, and targeted support to meet minimum competency standards. |

To answer the fourth research question which sought to determine the significant relationship between time-on-task and classroom engagement among Grade 8 students in Mathematics, the statistical tool to be used was the Spearman's rho correlation test. Provided below is the formula for Spearman's rho,

$$r_s = 1 - \frac{6\sum d_i^2}{n\,(n^2 - 1)}$$

where:

$\rho$ = Spearman's rho

$d_i$ = difference between the ranks of each paired observation

$n$ = number of paired observations

$\sum d_i^2$ = sum of the squared differences between ranks

To address the fifth research question which sought to determine the significant relationship between time-on-task and academic performance, the statistical tool was the Spearman's rho correlation test.

For the sixth research question, which aims to determine the significant relationship between classroom engagement and academic performance, Spearman's rho correlation test was utilized.

## RESULTS AND DISCUSSION

This chapter presents the study's findings using organized tables, figures, and summaries derived from the collected data, followed by a systematic analysis to identify patterns, relationships, and significant trends aligned with the research objectives.

### Level of Student's Time-on-Task in Mathematics

This section presents the level of students' time-on-task in Mathematics as reflected in their attention during lessons, participation in learning activities, and task completion. These indicators were examined to determine how frequently Grade 8 students remain focused, actively involved, and persistent in accomplishing Mathematics-related tasks during classroom instruction. Using mean and standard deviation, the findings provide an overall picture of how students manage and utilize their learning time in Mathematics, which serves as one of the key variables in the present study.

Table 3. Level of Students' Time-on-Task in Mathematics when taken as a whole in terms of Attention During Lessons, Participation in Learning Activities, and Task Completion..

| Statements | Mean | SD | Interpretation |
|---|---|---|---|
| **Attention During Lessons** | **3.93** | **0.89** | **High** |
| 1. I stay focused during Mathematics discussions. | 3.93 | 1.14 | High |
| 2. I pay attention while the teacher explains lessons. | 4.05 | 1.1 | High |
| 3. I avoid distractions during Mathematics class. | 3.53 | 1.26 | High |

| | | | |
|---|---|---|---|
| 4. I listen carefully to classroom instructions. | 4.21 | 1.06 | Very High |
| 5. I remain attentive throughout Mathematics activities. | 3.94 | 1.08 | High |
| **Participation in Learning Activities** | **4.03** | **0.77** | **High** |
| 6. I participate in Mathematics classroom discussions. | 4.01 | 1.09 | High |
| 7. I answer questions during Mathematics lessons. | 3.94 | 1.15 | High |
| 8. I cooperate during Mathematics group activities. | 4.26 | 0.97 | Very High |
| 9. I ask questions when I do not understand the lesson. | 4.06 | 1.13 | High |
| 10. I actively engage in classroom exercises. | 3.9 | 1.03 | High |
| **Task Completion** | **3.89** | **0.86** | **High** |
| 11. I finish Mathematics activities on time. | 3.79 | 1.17 | High |
| 12. I complete assigned Mathematics seatwork. | 3.84 | 1.13 | High |
| 13. I submit Mathematics assignments on or before deadlines | 4.01 | 1.08 | High |
| 14. I review my work before submission. | 3.81 | 1.16 | High |
| 15. I continue working even when Mathematics tasks are difficult until I complete it. | 3.97 | 1.16 | High |
| **Students' Time-On-Task in Mathematics As a Whole** | **3.95** | **0.78** | **High** |

*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 3 shows that 144 respondents had a high level of time-on-task in Mathematics overall (M = 3.95, SD=0.78), indicating that the students generally stayed engaged in mathematics-related classroom work. It also implies that the students frequently exhibit positive time-on-task behaviors and they are generally attentive and involved, though occasional lapses in focus or task completion may occur. Among the three indicators, Participation in Learning Activities (M = 4.03, SD = 0.77) obtained the highest mean, followed by Attention During Lessons (M = 3.93, SD = 0.89), and Task Completion (M = 3.89, SD = 0.86), all interpreted as High. Notably, it was found that students tend to have a higher time-on-task when they cooperate during Mathematics class (M = 4.26) and they listen carefully to classroom instructions (M = 4.21). However, the table provides that students have a lower time-on-task when they find difficulty in avoiding distractions during Mathematics class (M = 3.53) and finishing the mathematics activities on time (M = 3.79). From the results provided, it suggests that the students are generally attentive and participative in Mathematics class, which aligns with the studies conducted by Geary et al. (2021) and Jansen et al. (2023) showing that in-class attention is a strong predictor of gains in adolescent's Mathematics achievement and that Mathematics engagement is multidimensional, involving behavioral, cognitive, affective, and social participation.

The findings interpreted through its means show that the respondents already possess a generally positive classroom work orientation in Mathematics, particularly in teacher-directed and collaborative tasks, but they still experience some difficulty in sustaining concentration against distractions and in completing tasks efficiently. The relative higher means for listening to instructions and cooperating in group work imply that students respond well to structured teaching and peer-supported activities, while the comparatively lower means for avoiding distractions and finishing tasks on time indicate that independent regulation of attention and pacing may still need improvement. Alrajeh & Shindel (2020) and Alpaslan & Ulubey (2021) support this interpretation by showing in their studies that instructional, emotional, and organizational teacher support significantly influences Mathematics engagement, and that classroom engagement contributes meaningfully to Mathematics achievement through its interaction with emotions and motivation. In the same way, Lourenço & Paiva (2024) found on their research on academic time management and self-regulated learning that students who better regulate their learning behaviors and plan their time tend to demonstrate stronger academic performance, including in Mathematics.

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The implication of the result is that Mathematics teachers should continue using classroom approaches that sustain attention and active participation, such as clear instructions, collaborative problem-solving, guided questioning, and structured discussion, because these practices appear to match the students' strengths in listening and cooperating. At the same time, the lower ratings for distraction control and timely task completion suggest the need for interventions that strengthen students' self-regulation, such as breaking tasks into smaller steps, setting visible time targets, using progress-monitoring checklists, and teaching metacognitive strategies for staying focused and finishing work. Wang & Sperling (2020) and Maamin et al. (2022) showed that effective self-regulated learning interventions in Mathematics improve both Mathematics achievement and self-regulatory competence, especially when they combine cognitive, metacognitive, and motivational strategies, and with findings that student engagement is significantly associated with Mathematics achievement among secondary school learners. Therefore, the high level of time-on-task reflected in Table 1 may be viewed as a strong foundation for stronger classroom engagement and better Mathematics outcomes, provided that teachers and schools intentionally reinforce students' concentration, persistence, and time-management skills.

**Level of Student's Classroom Engagement in Mathematics**

This section presents the level of classroom engagement of Grade 8 students in Mathematics in terms of behavioral, emotional, and cognitive engagement. It aims to describe the extent to which students participate in class activities, show interest and positive feelings toward Mathematics, and invest mental effort in understanding concepts and solving problems. Using the mean and standard deviation, this part of the analysis provides a detailed description of students' overall engagement in Mathematics classes and helps explain how they experience the teaching-learning process in the subject.

Table 4. Level of students' Classroom Engagement in Mathematics when taken as a whole in terms of Behavioral Engagement, Emotional Engagement, and Cognitive Engagement

| Statements | Mean | SD | Interpretation |
|---|---|---|---|
| **Behavioral Engagement** | **4.09** | **0.8** | **High** |
| 1. I participate actively in Mathematics class activities. | 4.06 | 1.04 | High |
| 2. I follow classroom rules during Mathematics lessons. | 4.26 | 0.98 | Very High |
| 3. I complete Mathematics tasks given by the teacher. | 4.06 | 1.05 | High |
| 4. I stay involved in Mathematics classroom activities. | 4.02 | 0.97 | High |
| 5. I am always prepared to attend my Mathematics class. | 4.08 | 1.1 | High |
| **Emotional Engagement** | **4.09** | **0.77** | **High** |
| 6. I enjoy attending Mathematics class. | 4.14 | 1.03 | High |
| 7. I feel interested in Mathematics lessons. | 4.02 | 0.96 | High |
| 8. I feel motivated to learn Mathematics. | 3.98 | 1 | High |
| 9. I feel happy when participating in Mathematics activities. | 4.24 | 0.88 | Very High |
| 10. I feel confident while learning Mathematics. | 4.07 | 1.1 | High |
| **Cognitive Engagement** | **3.92** | **0.75** | **High** |
| 11. I can break down complex Math problems into simple tasks. | 3.69 | 1.09 | High |
| 12. I use strategies to solve Mathematics problems. | 3.92 | 1.01 | High |
| 13. I connect my Math lessons to real-life situations. | 3.88 | 1.05 | High |
| 14. I connect new Mathematics lessons with previous topics. | 3.87 | 1.07 | High |
| 15. I think carefully before answering Mathematics problems. | 4.24 | 0.98 | Very High |
| **Students' Classroom Engagement in Mathematics As a Whole** | 4.03 | 0.7 | **High** |

*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 4 shows that the overall level of classroom engagement of Grade 8 students in Mathematics is high (M = 4.03, SD = 0.70), indicating that learners are actively involved in classroom activities across behavioral, emotional, and cognitive dimensions. Based on the table, both behavioral and emotional engagement obtained the highest mean (M = 4.09), while cognitive engagement registered a slightly lower mean (M= 3.92) although it still falls within the high level. Since both behavioral and emotional engagement share the highest mean, they differ on their standard deviations, making emotional engagement as a strong indicator of classroom engagement in Mathematics (SD = 0.77) than behavioral engagement (SD = 0.80). It was found also that students engaged more in Mathematics by following the classroom rules during Mathematics lessons (M= 4.26, SD = 0.98) and when they feel happy when participating in Math activities (M= 4.24, SD= 0.88). However, results show that students have difficulty in connecting Math lessons in their real-life situations (M= 3.88) and their previous lessons (M = 3.87) that tend to have the lowest means in terms of their classroom engagement in Mathematics. With this pattern, it suggests that students are more consistently engaged through observable participation, preparation, compliance with classroom expectations, and positive feelings toward Mathematics than through deeper mental investment in analyzing and connecting concepts. Furthermore, Joshi et al. (2022) further support this result in which they describe student engagement as a multidimensional construct in which behavioral, emotional, and cognitive dimensions work together to shape students' participation and learning experiences in school.

High behavioral engagement indicates that the students tend to participate actively in class activities, follow rules, complete tasks, and come prepared for Mathematics lessons, which may reflect a structured and supportive classroom environment. Likewise, high emotional engagement further implies that the students generally enjoy Mathematics, feel interested in the lessons, and experience motivation and confidence while participating in classroom activities. However, because cognitive engagement obtained the lowest mean among the three indicators, the findings may also suggest that students need more support in areas that require deeper thinking, such as breaking down complex problems, linking new lessons with prior knowledge, and applying mathematical ideas to real-life situations. Maamin et al. (2022) reported that behavioral, affective, and cognitive engagement are all related to mathematics achievement, but cognitive engagement especially requires intentional classroom strategies to strengthen deeper academic processing.

Findings also imply that Mathematics teachers should sustain the learners' strong behavioral and emotional engagement while intentionally strengthening cognitive engagement through strategies that promote deeper understanding, such as problem-based learning, reflective questioning, collaborative problem solving, and tasks that connect Mathematics to authentic situations. Since supportive classroom environments and effective teacher feedback have been shown to improve students' behavioral engagement, teachers may also continue using encouraging, structured, and student-centered practices that make learners feel involved and valued in class. Guzman (2023) also found that students may show active engagement in Mathematics even when engagement does not automatically result in higher performance, which means that schools should address not only participation and motivation but also the quality of thinking and learning tasks provided to students. Therefore, school administrators and Mathematics teachers should design interventions that balance behavioral, emotional, and cognitive engagement so that students will not only participate and enjoy the lesson, but also develop stronger reasoning, problem-solving, and conceptual understanding in Mathematics.

**Level of Academic Performance in Mathematics**

This section presents the academic performance of Grade 8 students in Mathematics based on their general average. The data are summarized through frequency, percentage, mean, and standard deviation to show the distribution of students across the different performance levels. Through this analysis, the section provides a clear description of the learners' achievement in Mathematics and establishes the outcome variable that will later be examined in relation to time-on-task and classroom engagement.

Table 5. Level of Academic Performance in Mathematics

| Level of Academic Performance in Mathematics | f | Mean | SD | Interpretation |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| Outstanding | 55 | 87.00 | 5.89 | Very Satisfactory |
| Very Satisfactory | 34 | | | |
| Satisfactory | 37 | | | |
| Fairly Satisfactory | 18 | | | |
| Did Not Meet Expectations | 0 | | | |
| Total | 144 | | | |

*Legend: (90-100)-Outstanding; (85-89)-Very Satisfactory; (80-84)-Satisfactory; (75-79)-Fairly Satisfactory; (Below 75)-Did Not Meet Expectations*

Table 5 shows that the respondents' academic performance in Mathematics was generally strong, with an overall mean of 87.00 (SD = 5.89), interpreted as Very Satisfactory; specifically, 55 students were rated Outstanding, 34 were Very Satisfactory, 18 were Fairly Satisfactory, and none fell under Did Not Meet Expectations. This means that a large proportion of the 144 Grade 8 students performed at or above the expected level in Mathematics, indicating a favorable academic standing for the group as a whole (OECD 2023; Cabuquin & Abocejo, 2023). The result is encouraging and even appears stronger than some recent local findings in which students only reached satisfactory or developing levels in Mathematics, such as the studies of Dimatacot and Parangat (2022) among junior high school students in Zambales and Parcon and Bearneza (2024) among Grade 11 students in Southern Negros Occidental.

Delosa & Ong (2021) and Parcon & Bearneza (2024) suggested that the overall mean of Very Satisfactory suggests that the learners have developed a generally solid grasp of Mathematics competencies and are able to meet classroom expectations in solving tasks, completing requirements, and performing in graded assessments. Furthermore, Dimatacot & Parangat (2022) also implied that the absence of students in the Did Not Meet Expectations category further implies that, at the classroom level, most learners have attained at least minimum mastery of the competencies assessed in Mathematics. However, the presence of 18 students in the Fairly Satisfactory category and the variability reflected by the standard deviation of 5.89 indicate that performance is not uniform across all learners, so some students may still be struggling with higher-order skills or more complex mathematical tasks. This interpretation is consistent with Delosa and Ong (2021), who found that critical thinking skills significantly explain mathematics performance, and with OECD (2023), which reported that only 16% of 15-year-old students in the Philippines reached at least level 2 proficiency in Mathematics in PISA 2022, highlighting the continuing need to strengthen deeper conceptual understanding despite acceptable school grades.

Based on the findings, it implies that the teaching-learning practices currently used in the mathematics classroom should be sustained because they appear to support generally positive student performance. However, targeted interventions remain necessary for learners in the Fairly Satisfactory group so they can move toward higher achievement levels. Teachers may strengthen performance further by integrating cooperative learning, critical-thinking activities, problem-solving tasks, and real-life applications, since these strategies have been associated with better mathematics outcomes in both local and broader educational studies. In addition, OECD (2023) and Parcon & Bearneza (2024) both emphasized that schools should continuously monitor whether students' classroom grades reflect not only procedural success but also genuine mathematical proficiency, especially in light of national and international evidence showing that many Filipino learners still struggle with mathematical literacy and complex problem solving. Thus, the findings presented support the need for both enrichment programs for high-performing students and remedial or differentiated instruction for , so that all learners can achieve stronger and more sustainable Mathematics performance (Cabuquin & Abocejo (2023).

**Relationship between Time-on-Task and Classroom Engagement**

This section presents an analysis of the relationship between students' time-on-task and classroom engagement in Mathematics. Since both variables are essential in understanding how learners participate in the teaching-learning process, the analysis seeks to determine whether students who spend more time actively focused on academic tasks also tend to demonstrate higher levels of behavioral, emotional, and cognitive engagement. The relationship between these variables was tested using Spearman's rho correlation to determine the strength, direction, and significance of their association.

Table 6. Relationship between Student's Time-on-Task and their Classroom Engagement

| Variable | Test Statistics ($r_s$) | p-value | Decision for $H_o$ | Interpretation |
|---|---|---|---|---|
| Level of Time-on-Task vs.Level of Classroom Engagement | 0.711 | <0.001 | Reject $H_o$ | Significant |

The result presented in Table 6 indicates a strong positive and significant relationship between students' time-on-task and their classroom engagement in Mathematics ($r_s = 0.711,\ p < .001$) . This suggests that as students devote more time to actively participating in learning activities (e.g., listening, solving problems, and engaging in discussions), their level of engagement in the classroom also increases.

The finding aligns with existing literature emphasizing that active involvement in learning tasks enhances students' participation and attentiveness. For instance, Godwin et al. (2021) found that on-task behavior is positively associated with learning outcomes, indicating that students who remain focused are more likely to engage meaningfully in instructional activities. Similarly, Joshi et al. (2022) reported that behavioral and cognitive engagement are essential components of effective mathematics learning, as they foster students' interaction with content and improve classroom participation. Thus, the strong correlation observed in Table 4 highlights the importance of sustained attention and active participation in enhancing engagement in Mathematics.

The correlation coefficient ($r_s = 0.711$) suggests that time-on-task is a crucial behavioral indicator of student's engagement, meaning that learners who remain attentive and persist in completing tasks are more likely to exhibit deeper involvement in learning. It also implies that time-on-task is not merely about the quantity of time spent, but also about the quality of interaction with the learning material. This finding is supported by research conducted by Amerstorfer & Münsterr-Kistner (2021) who explained that academic engagement involves cognitive, emotional, and behavioral dimensions, all of which are strengthened when students are actively engaged in meaningful learning experiences.

Moreover, Monteiro et al. (2021) demonstrated that supportive classroom environments and effective instructional practices significantly increase student's behavioral engagement, suggesting that student focus is closely linked with how learning activities are structured. Therefore, the result implies that increased time-on-task reflects not only sustained attention but also a higher level of student involvement in academic tasks.

The findings imply that teachers should implement strategies that maximize students' time-on-task in order to improve classroom engagement in Mathematics. This can be achieved through structured lesson planning, interactive teaching approaches, and consistent monitoring of students' participation during class activities. Kraft & Novicoff (2024) indicated that increasing productive instructional time can positively influence learning outcomes, especially when time is used effectively for meaningful engagement rather than passive learning. Additionally, Aguhayon et al. (2023) stressed that providing supportive feedback, varied instructional materials, and differentiated activities can help maintain students' attention and encourage active participation. Consequently, schools and teachers should focus on creating learning environments that promote sustained student attention and active engagement, as there are key factors in improving students' overall performance and experience in Mathematics.

**Relationship between Time-on-Task and Academic Performance**

This section presents an analysis of the relationship between students' time-on-task and their academic performance in Mathematics. It specifically examines whether students who are more attentive during lessons, participate actively in learning activities, and complete tasks consistently also tend to obtain better Mathematics grades. By applying Spearman's rho correlation, this part of the chapter determines whether productive use of learning time is significantly associated with students' academic achievement in the subject.

Table 7. Relationship between Time-on-Task and Academic Performance

| Variable | Test Statistics ($r_s$) | p-value | Decision for $H_o$ | Interpretation |
|---|---|---|---|---|
| Level of Time-on-Task vs. Level of Academic Performance in Mathematics | 0.197 | 0.018 | Reject $H_o$ | Significant |

Table 7 shows that the relationship between students' time-on-task and their academic performance in Mathematics is positive but weak, with a Spearman's rho of 0.197 and a p-value of 0.018, which means the relationship is statistically significant and the null hypothesis is rejected. This suggests that when Grade 8 students spend more time focusing on mathematics tasks, participating in class activities, and completing requirements, their academic performance tends to be improved, although the increase is only modest. Consistent with the result presented, Godwin et al. (2021) found that on-task behavior was positively related to learning, although the strength of the relationship was also weak and varied across classrooms. Likewise, a Philippine study conducted by Santos et al. (2022) supported this finding in which they reported that time management was positively correlated with students' success in Science and Mathematics and that learners with better time management generally obtained higher achievement.

The result also implies that time-on-task contributes to academic performance in Mathematics, but it is not the only factor that explains students' performance. Because the correlation is weak, the data suggests that spending more time on learning tasks is beneficial, yet academic performance in Mathematics is also influenced by other learner-related and classroom-related variables such as attitudes, study habits, motivation, and the quality of instruction. Abalde and Oco (2023) found that students' habits and attitudes were important determinants of mathematics performance among Grade 10 learners in the Philippines. It also aligns with Abín et al. (2020), who emphasized that mathematics achievement is shaped not only by cognitive variables but also by motivational and emotional factors, showing that performance is a multidimensional outcome rather than a product of time alone.

From the findings provided, it implies that teachers should continue to strengthen students' time-on-task through strategies that promote sustained attention, purposeful seatwork, guided practice, and regular task completion, but these strategies should be paired with approaches that also improve motivation, understanding and classroom support.

As argued by Kraft and Novicoff (2024) both the quantity and quality of instructional time matter, because additional time leads to better achievement only when that time is converted into active learning opportunities. In the local context, Santos et al. (2022) recommended helping students develop better time management and reduce procrastination to improve mathematics-related performance., while Abalde and Oco (2023) emphasized the importance of strengthening productive learning routines and attitudes toward Mathematics. Therefore, Mathematics teachers and school administrators should design interventions that not only keep students on task, but also make that time meaningful through engaging instruction, timely feedback, and learner support so that improvements in academic performance become more substantial and sustainable.

**Relationship between Classroom Engagement and Academic Performance**

This section presents an analysis of the relationship between classroom engagement and academic performance in Mathematics among Grade 8 students.

It examines whether students' behavioral participation, emotional involvement, and cognitive investment in Mathematics learning are significantly associated with their academic achievement. Using Spearman's rho correlation, the results in this section help determine whether classroom engagement serves as an important factor linked to students' Mathematics performance.

Table 8. Relationship between the Students' Classroom Engagement and their Academic Performance in Mathematics.

| Variable | Test Statistics (($r_s$) | p-value | Decision for $H_o$ | Interpretation |
|---|---|---|---|---|
| Level of Classroom Engagement vs. Level of Academic Performance in Mathematics | 0.134 | 0.109 | Failed to Reject $H_o$ | Not Significant |

Table 8 reveals that the relationship between students' classroom engagement and their academic performance in Mathematics is positive but not statistically significant ( $r_s$= 0.134, p = 0.109), leading to the decision to retain the null hypothesis. This means that although the respondents generally manifested a high level of classroom engagement in Mathematics, differences in their engagement were not large enough to produce a significant difference in their Mathematics grades. This result is supported by Guzman (2023) who found that Grade 11 learners showed active engagement in Mathematics, yet their mathematics performance was unaffected by behavioral, emotional, and cognitive engagement, while Pineda et al. (2023) also reported no significant relationship between learning engagement and mathematics achievement during the post-pandemic transition. Similarly, Plateros et al. (2025) in their study on a junior high school setting in Zamboanga City, found no significant correlation between mathematics engagement and academic performance, suggesting that engagement alone may not always predict achievement in Mathematics. However, this result contrasts with international evidence from Maamin et al. (2022), who found that behavioral, affective, and cognitive engagement significantly influenced mathematical achievement among secondary schools, indicating that the engagement-achievement relationship may vary across contexts and learner groups.

The non-significant result is interpreted to mean that classroom engagement, while educationally valuable, is not by itself a sufficient predictor of mathematics performance in this particular group of Grade 8 students. In other words, students may participate actively, show interest, and remain emotionally and cognitively involved in class, yet their grades may still depend more strongly on other variables (e.g., prior knowledge, study habits, time management, motivation, instructional quality, and assessment demands). This finding is also consistent with Abalde and Oco (2023), who found that students' study habits and attitudes were important determinants of mathematics performance, and with Santos et al. (2022), who reported that time management positively influenced achievement in science and mathematics classes. Abin et al. (2020) also supported this finding who emphasized that mathematics achievement is explained not only by motivational factors but also by cognitive and emotional variables, highlighting the complexity of academic performance. Thus, the result presented in Table 6 suggests that while engagement remains an important classroom condition, its effect on achievement may be indirect, limited, or mediated by other academic and personal factors.

The implication of this finding tells that Mathematics teachers should continue to foster students' behavioral, emotional, and cognitive engagement, but they should also complement this with strategies that directly strengthen academic performance, such as explicit instruction, formative assessment, differentiated activities, study-skills support, and time management training. Since local evidence shows that high engagement does not always produce significantly higher mathematics achievement, schools should adopt a broader intervention approach that addressed both learner participation and the academic conditions needed for mastery of mathematical competencies. At the same time, international findings of Maamin et al. (2022) suggest that engagement can still become a meaningful contributor to mathematics achievement when classroom activities are intentionally designed to stimulate affective, behavioral, and cognitive involvement. Therefore, school administrators and teachers should not treat engagement as an isolated goal, but rather as one component of a comprehensive Mathematics improvement program that combines strong pedagogy, learner support, and performance monitoring to produce more consistent gains in academic achievement

## CONCLUSION

Based on the findings and discussion, the conclusions are the following:

1. Time-on-task is important in improving students' learning behavior in Mathematics. Since Grade 8 students showed a high level of time-on-task, this implies that students who stay focused, participate, and complete tasks are more likely to develop productive learning habits in Mathematics.

2. Classroom engagement helps create a positive Mathematics learning environment. The high level of classroom engagement implies that students are generally active, interested, motivated, and confident in Mathematics class; however, they still need more support in deeper thinking and connecting lessons to real-life situations.

3. Students' very satisfactory academic performance shows that current Mathematics learning practices are generally effective. However, the presence of students at satisfactory and fairly satisfactory levels implies that additional academic support is still needed for learners who struggle with Mathematics.

4. Time-on-task strongly influences classroom engagement. The significant relationship between time-on-task and classroom engagement implies that students who spend more productive time on Mathematics tasks tend to become more engaged behaviorally, emotionally, and cognitively in class.

5. Time-on-task contributes to academic performance, but only to a limited extent. The weak but significant relationship implies that being focused and completing Mathematics tasks can help improve grades, but academic performance is also affected by other factors such as study habits, motivation, prior knowledge, and quality of instruction.

6. Classroom engagement alone does not guarantee higher Mathematics performance. Since classroom engagement was not significantly related to academic performance, this implies that participation, interest, and motivation must be supported by effective teaching strategies, mastery of concepts, proper study habits, and academic interventions to improve students' Mathematics achievement.

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