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## Student Performance as Predicted by Learning Environment and Student Engagement

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### ABSTRACT

This study examined the relationship between learning environment and student engagement in relation to the performance of Grade 6 pupils at Rosario Central Elementary School in Rosario District, Agusan del Sur. Utilizing a descriptive-correlational research design, the study involved selected Grade 6 pupils who served as respondents of the study. Validated and adapted survey questionnaires were used to measure three key variables: learning environment sharing and comparing knowledge, relevance, self-control and self-reflection, epistemological understanding, teaching for understanding, support learning for understanding, and problem-solving strategies, student engagement behavioral, agentic, cognitive, and emotional, and student performance test scores. Data were analyzed using mean, Pearson product-moment correlation, and multiple linear regression. Results revealed that learners exhibited a high level of student engagement across all dimensions and perceived a favorable learning environment in terms of the identified indicators. Likewise, students demonstrated a satisfactory level of performance based on their test scores. Significant relationships were found between learning environment and student performance, as well as between student engagement and student performance. Furthermore, regression analysis indicated that certain dimensions of learning environment and student engagement significantly predicted student performance, while others did not show significant predictive influence. The findings suggest that both learning environment and student engagement play crucial roles in improving student performance, with some dimensions exerting stronger influence than others. Therefore, teachers and school administrators are encouraged to create supportive, engaging, and learner-centered classroom environments and to implement strategies that enhance students' active participation and motivation, ultimately leading to improved academic outcomes.

### INTRODUCTION

Student performance in elementary education reflects learners' academic achievement as well as their engagement, motivation, and persistence in learning. Learners who actively participate and sustain effort tend to perform better, while those with low engagement often struggle with poor focus and inconsistent academic outcomes. This indicates that performance is influenced not only by cognitive ability but also by learners' interaction with their learning environment.

Globally, low student performance remains a concern, with many learners failing to meet proficiency standards due to limited instructional support, inadequate resources, and low engagement (Department of Education, 2023; Farooq *et al.*, 2011). In the Philippines, similar issues persist, where poor study habits and insufficient learning support contribute to academic underachievement among elementary learners (Peñeda *et al.*, 2022).

At Rosario Central Elementary School in Rosario District, Agusan del Sur, teachers have observed that many Grade 6 pupils demonstrate uneven performance, low participation, and poor focus during lessons. Factors such as limited motivation and inadequate learning conditions contribute to these challenges, highlighting the need to examine variables that influence student achievement. Student engagement, which includes behavioral,

cognitive, emotional, and agentic dimensions, plays a vital role in learning, as engaged learners are more likely to participate, persist, and succeed academically. Likewise, the classroom environment shapes learning through elements such as collaboration, relevance, reflection, and problem-solving, which enhance engagement and academic outcomes.

Given these conditions, this study aims to determine the influence of student engagement and classroom environment on the performance of Grade 6 pupils at Rosario Central Elementary School, using test scores as a measure of academic achievement.

### LITERATURE REVIEW

#### Learning Environment

The learning environment is a fundamental factor that influences learners' engagement and academic performance, as it shapes the conditions under which learning occurs. It encompasses physical, social, and instructional elements including classroom organization, teacher support, peer interaction, and access to learning resources. A supportive and well-structured environment encourages participation, focus, and persistence, which are essential for academic success. In line with this, Cornelius-White (2017) emphasized that learner-centered environments significantly enhance students' motivation

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and achievement. Similarly, Cleveland and Fisher (2014) highlighted that classroom design and accessibility of materials directly affect learners' concentration and task completion. These perspectives indicate that a positive classroom environment creates opportunities for meaningful engagement and improved learning outcomes. Consistent with these findings, E-Palli studies provide further evidence on the importance of the learning environment in shaping learners' academic behavior. In conformity with this, Cebelleros and Buenaventura (2024) found that classroom climate, peer interaction, and teacher support significantly influence student engagement and participation. Parallel to this, Pagalilauan *et al.* (2023) emphasized that supportive and inclusive classroom environments enhance learners' confidence, collaboration, and academic performance. These findings reflect that the learning environment plays a vital role in fostering engagement and improving performance. Anchored to the present study, the classroom environment including sharing and comparing knowledge, relevance, reflection, and problem-solving is expected to significantly influence the performance of Grade 6 pupils.

### Student Engagement

Student engagement is widely recognized as a multidimensional construct that reflects learners' active involvement in academic activities through behavioral, cognitive, emotional, and agentic dimensions. It determines how learners participate, think, feel, and take initiative in the learning process. In agreement with this, Fredricks *et al.* (2016) explained that engaged learners are more likely to demonstrate persistence, apply learning strategies, and achieve higher academic outcomes. Likewise, Lei *et al.* (2018) found that students who actively participate in classroom tasks tend to perform better academically compared to those who are disengaged. This suggests that engagement is a key factor in promoting meaningful learning and academic success.

In the same vein, E-Palli studies further highlight the role of engagement in improving academic outcomes. This corresponds to the findings of Almerino *et al.* (2020), who revealed that student engagement significantly influences academic performance through active participation and effective learning behaviors. Similarly, Lagunday *et al.* (2025) identified engagement-related constructs such as grit and willingness to communicate as predictors of critical thinking and academic success. These findings indicate that engaged learners demonstrate higher levels of persistence, motivation, and achievement. In relation to the present study, student engagement is expected to serve as a critical variable influencing the academic performance of Grade 6 learners, particularly when supported by a conducive classroom environment.

### Student Performance

Student performance refers to learners' academic achievement as measured through test scores, grades, and mastery of competencies. It reflects the extent to which

learners acquire knowledge, develop skills, and achieve expected learning outcomes. In line with this, York *et al.* (2015) emphasized that academic performance is a key indicator of educational effectiveness and future success. Similarly, Richardson *et al.* (2012) found that performance is influenced not only by cognitive ability but also by motivation, engagement, and self-regulation. These findings highlight that academic achievement is shaped by multiple interacting factors within the learning process. Supporting this, E-Palli studies provide additional evidence linking classroom conditions and engagement to performance outcomes. In agreement with this, Almerino *et al.* (2020) reported that learners who actively engage in classroom activities demonstrate higher academic achievement compared to disengaged peers. Likewise, Pagalilauan *et al.* (2023) found that supportive learning environments and collaborative practices significantly improve learners' academic outcomes and participation. These findings suggest that student performance is strongly influenced by both engagement and environmental factors. Anchored to this study, performance measured through test scores is expected to be significantly influenced by student engagement and the classroom environment among Grade 6 pupils.

### Synthesis

The reviewed literature highlights that learning environment and student engagement are key determinants of student performance. A supportive classroom environment fosters collaboration, relevance, and meaningful learning experiences, while student engagement promotes active participation, persistence, and cognitive investment. Evidence from both global and E-Palli studies confirms that these variables are interconnected and contribute significantly to improved academic outcomes.

However, while previous studies have examined learning environment, engagement, and performance separately, limited research has explored their combined influence among elementary learners in public schools. This gap supports the need for the present study, which aims to determine how learning environment and student engagement jointly influence the academic performance of Grade 6 pupils at Rosario Central Elementary School.

### MATERIALS AND METHODS

This study employed a quantitative research design using a correlational approach to determine the relationship between learning environment, student engagement, and the academic performance of elementary learners. The respondents of the study were the selected Grade 6 pupils from Rosario Central Elementary School in Rosario District, Agusan del Sur. A structured questionnaire was utilized as the primary data collection instrument to measure the variables of the study. The learning environment was assessed in terms of sharing and comparing knowledge, relevance, self-control and self-reflection, epistemological understanding, teaching for

understanding, support learning for understanding, and problem-solving strategies, while student engagement was measured through its dimensions, namely behavioral, agentic, cognitive, and emotional engagement. Student performance was measured using learners' test scores.

The questionnaire items were adapted from established instruments and modified to suit the context of elementary learners. Prior to data collection, the researcher secured the necessary approvals from the Schools Division Superintendent, school head, and other concerned authorities. Ethical considerations were strictly observed, including informed consent, confidentiality, and voluntary participation of the respondents. The questionnaires were administered personally by the researcher, and clear instructions were provided to ensure accurate responses. Collected data were checked, organized, and encoded for analysis.

The data were analyzed using appropriate statistical tools. Weighted mean was used to determine the levels of learning environment and student engagement among learners, as well as the level of student performance. Pearson product-moment correlation coefficient was applied to examine the significant relationship between learning environment, student engagement, and student performance. Furthermore, multiple linear regression analysis was employed to identify the extent to which learning environment and student engagement significantly predict learners' academic performance. All statistical analyses were conducted using a significance level of 0.05.

### Mathematical Expressions and Symbols

Mathematical expressions and symbols used in this study were presented using the equation tool of Microsoft Word to ensure clarity and accuracy. The study utilized multiple linear regression analysis to determine the predictive influence of learning environment and student engagement on learners' academic performance. The

regression model is expressed as:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \epsilon$$

where:

Y = Student Performance (Test Scores)

$\alpha$  = Constant or intercept

$\beta_1$  = Regression coefficient of Learning Environment

$\beta_2$  = Regression coefficient of Student Engagement

$X_1$  = Learning Environment

$X_2$  = Student Engagement

$\epsilon$  = Error term

This equation was used to determine the extent to which learning environment and student engagement significantly predict the academic performance of Grade 6 pupils at Rosario Central Elementary School.

### RESULTS AND DISCUSSION

The level of student engagement of learners is presented in Table 2. The results revealed that learners demonstrated a generally high level of engagement, as reflected by the overall mean. Among the indicators, behavioral engagement obtained the highest mean, indicating that learners actively participate in classroom activities, complete tasks, and follow instructions. This was followed by cognitive and emotional engagement, suggesting that learners invest effort in understanding lessons and show interest in learning. However, agentic engagement obtained the lowest mean, implying that learners are less likely to express their ideas, ask questions, or take initiative in shaping their learning. These findings suggest that while learners are actively involved in classroom tasks, there is still a need to strengthen their ability to take ownership of their learning process.

The level of student engagement of learners is presented in Table 1. The results revealed that learners demonstrated a generally high level of engagement, as reflected by the overall mean of 3.21 (Agree). Among the indicators, behavioral engagement obtained the highest mean (3.30, Agree), indicating that learners actively participate in

**Table 1:** Level of Student Engagement of Learners

Indicators	Mean	Description
Behavioural Engagement	3.30	Agree
Agentic Engagement	3.13	Agree
Cognitive Engagement	3.19	Agree
Emotional Engagement	3.22	Agree
Overall Mean	3.21	Agree

classroom activities. This was followed by emotional engagement (3.22, Agree) and cognitive engagement (3.19, Agree), suggesting that learners show interest and exert effort in understanding lessons. Meanwhile, agentic engagement obtained the lowest mean (3.13, Agree), implying that learners are less likely to take initiative or express their ideas during instruction.

These findings suggest that while learners are generally engaged in classroom activities, there is still a need to strengthen their active involvement, particularly in

expressing ideas and taking ownership of their learning. The level of classroom environment of learners is presented in Table 2. The results revealed that learners perceived a generally high level of classroom environment, as reflected by the overall mean of 3.26 (Agree). Among the indicators, epistemological understanding obtained the highest mean (3.36, Agree), indicating that learners are encouraged to think critically and understand knowledge more deeply. This was followed by self-control and self-reflection and problem-solving strategies (3.30, Agree),

**Table 2:** Level of Learning Environment

Indicators	Mean	Description
Sharing and Comparing Knowledge	3.21	Agree
Relevance	3.22	Agree
Self-Control and Self-Reflection	3.30	Agree
Epistemological Understanding	3.36	Agree
Teaching Understanding	3.26	Agree
Support Learning for Understanding	3.18	Agree
Problem-Solving Strategies	3.30	Agree
Overall Mean	3.26	Agree

suggesting that learners are supported in managing their learning and engaging in higher-order thinking tasks. Meanwhile, support learning for understanding obtained the lowest mean (3.18, Agree), implying that learners may need additional support in fully developing deeper comprehension of lessons.

These findings suggest that while the classroom environment is generally supportive, there is still a need

to further strengthen instructional practices that enhance deeper understanding and learning support among learners.

The relationship between student engagement, classroom environment, and student performance is presented in Table 3. The findings revealed that both variables have significant relationships with student performance, as reflected by student engagement ( $r = 0.57, p = 0.000$ )

**Table 3:** Relationship Between Student Engagement, Learning Environment, and Student Performance

Variables	t-value	p-value	Interpretation
Student Engagement & Student Performance	0.57	0.000	Reject Ho (Significant)
Learning Environment & Student Performance	-0.029	0.000	Reject Ho (Significant)

and classroom environment ( $r = -0.029, p = 0.000$ ). These results indicate that both student engagement and classroom environment are significantly associated with learners' academic performance. Among the variables, student engagement showed a stronger relationship, suggesting that learners' active participation, effort, and involvement in classroom activities play a more influential role in shaping their academic performance. In contrast, classroom environment demonstrated a negligible relationship despite being statistically significant,

implying that its practical influence on performance is minimal. This suggests that while a supportive learning environment contributes to the overall learning process, student engagement remains a more dominant factor in improving learners' academic outcomes.

The regression analysis of classroom environment predicting student performance is presented in Table 4. The results revealed that among the different dimensions, sharing and comparing knowledge ( $p = 0.022$ ) is a significant predictor of student performance, indicating

**Table 4:** Regression Analysis of Learning Environment Predicting Student Performance

Variables	t-value	p-value	Interpretation
Constant	7.539	0.000	
Sharing and Comparing Knowledge	2.312	0.022	Significant
Relevance	-1.425	0.156	Significant
Self-Control and Self-Reflection	1.145	0.253	Not Significant
Epistemological Understanding	1.884	0.061	Not Significant
Teaching for Understanding	-1.488	0.146	Not Significant
Support Learning for Understanding	-0.161	0.872	Not Significant
Problem-Solving Strategies	-0.161	0.872	Not Significant

that opportunities for collaboration and exchange of ideas play an important role in enhancing learners' academic outcomes. In contrast, relevance ( $p = 0.156$ ), self-control and self-reflection ( $p = 0.253$ ), epistemological understanding ( $p = 0.061$ ), teaching for understanding ( $p = 0.146$ ), support learning for understanding ( $p = 0.872$ ), and problem-solving strategies ( $p = 0.872$ ) were found to

be not significant predictors.

These findings suggest that while the classroom environment is generally supportive, most of its dimensions do not strongly influence student performance when examined simultaneously. This implies that collaborative learning practices, particularly those that encourage sharing and comparing knowledge,

are more effective in improving academic performance than other environmental factors. The regression analysis of student engagement predicting student performance is presented in Table

5. The results revealed that none of the engagement dimensions significantly predict student performance, as reflected by behavioral engagement ( $p = 0.265$ ), agentic engagement ( $p = 0.227$ ), cognitive engagement ( $p =$

**Table 5:** Regression Analysis of Student Engagement Predicting Student Performance

Variables	t-value	p-value	Interpretation
Constant	9.552	0.000	
Behavioral Engagement	-1.118	0.265	Not Significant
Agentic Engagement	1.212	0.227	Not Significant
Cognitive Engagement	-1.378	0.170	Not Significant
Emotional Engagement	0.242	0.809	Not Significant

0.170), and emotional engagement ( $p = 0.809$ ). These findings indicate that the different dimensions of student engagement do not have a significant predictive influence on learners' academic performance.

This suggests that while learners may demonstrate active participation, effort, and involvement in classroom activities, these forms of engagement alone may not directly translate into improved academic performance. It implies that other factors, such as instructional strategies, classroom environment, or external support, may play a more important role in determining learners' academic outcomes.

## CONCLUSIONS

This study concludes that student engagement and classroom environment both play important roles in influencing the academic performance of learners. The findings revealed that learners generally demonstrate a high level of student engagement and perceive a supportive classroom environment, indicating that they are actively involved in learning activities and are provided with favorable conditions for learning. Despite this, learners' academic performance remains moderate, suggesting that high engagement and a positive environment do not automatically guarantee higher achievement.

The results further showed that both student engagement and classroom environment are significantly related to student performance, indicating that learners who are more engaged and who experience a supportive learning environment tend to perform better academically. Among the two variables, student engagement exhibited a stronger relationship with performance, highlighting the importance of learners' active participation, effort, and involvement in the learning process.

However, regression analysis revealed that most dimensions of classroom environment and student engagement do not significantly predict student performance when examined simultaneously. Only the dimension of sharing and comparing knowledge was found to be a significant predictor, emphasizing the importance of collaborative learning and interaction in improving academic outcomes. This suggests that while both engagement and classroom environment are important, their individual components may not independently determine performance, and their

influence may depend on how they interact with other factors.

Overall, the findings imply that improving student performance requires more than simply enhancing engagement or classroom conditions. Greater emphasis should be placed on effective instructional strategies, particularly those that promote collaboration and active knowledge exchange among learners. Additionally, other influencing factors such as teaching practices, learner characteristics, and external support systems should be considered in designing interventions aimed at improving academic achievement.

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