

# **International Journal of Research Publication and Reviews**

Journal homepage: www.ijrpr.com ISSN 2582-7421

# Interplay Among Learning Environment, Student Engagement, and Academic Performance of Technology and Livelihood Education Students

# Joan E. Lita, Edna O. Briones\*

Laguna State Polytechnic University – San Pablo City Campus, San Pablo City, Laguna, 4000, Philippines Faculty, College of Teacher Education, Graduate Studies of Applied Research, Laguna State Polytechnic University – San Pablo City Campus, San Pablo City, Laguna, 4000, Philippines

# ABSTRACT

This study aimed to investigate the interplay among learning environment, student engagement, and academic performance of Technology and Livelihood Education (TLE) students. Using a quantitative research design, data were collected through surveys and academic records from a sample of Grade 8 TLE students in Atimonan National Comprehensive High School, Atimonan, Quezon Province during the academic year 2024 - 2025. Moreover, this study analyzed how learning environment including physical, social and emotional; influenced their academic performance in TLE. Furthermore, it explored how engagement, including attention, curiosity, interest, optimism and passion affected academic performance. Statistical analyses including correlation and regression techniques was used to determine the significance of these relationships. The findings indicated that while there were observable trends linking the learning environment, student engagement, and academic performance, the relationships were not statistically significant. This suggested that other factors, such as class size, personal motivation, external influences, instructional strategies, and individual learning preferences, also played a crucial role in shaping student outcomes. Additionally, the study highlighted the complexity of student learning experiences, emphasizing the need for a more comprehensive approach in past research. Given these results, educators and policymakers considered a broader range of variables when designing interventions to enhance TLE education.

Keywords: learning environment, student engagement, academic performance, emotional environment, performance task

# 1. Introduction

The success of students in school is shaped not only by what they learn but also by where and how they learn. A positive and engaging learning environment can inspire students, boost their confidence, and help them perform better academically (Fraser, 2018). When students are actively involved: emotionally, mentally, and behaviorally; they are more likely to succeed (Fredricks et al., 2016). This connection is especially important in Technology and Livelihood Education (TLE), where learning is hands-on and rooted in real-life skills.

Laws like Republic Act No. 10533 (Enhanced Basic Education Act of 2013) and Republic Act No. 9155 (Governance of Basic Education Act of 2001) emphasized the importance of creating supportive school environments and giving schools the freedom to shape learning in ways that truly benefit students. Globally, organizations like UNESCO (2020), also highlight how a well-structured environment can spark student motivation and engagement.

Studies show that when classrooms are equipped with the right tools and guided by supportive teachers, students tend to be more engaged and confident (Wang & Eccles, 2019; Schunk & DiBenedetto, 2020). In the Philippine context, research confirms that modern facilities, student-centered teaching, and encouraging classroom climates make a real difference in TLE learning (Bernardo, 2021; Tan, 2022).

Building on these insights, the study explored how the learning environment and student engagement work together to shape academic performance in Technology and Livelihood Education (TLE). By understanding how these factors interact, the findings aimed to support teachers, school leaders, and policymakers in creating more engaging and effective learning experiences for students.

The integration of Constructivist Learning Theory, Self-Determination Theory, Social Cognitive Theory, and Engagement Theory provides a comprehensive framework for understanding the relationship between the learning environment, student engagement, and academic performance in Technology and Livelihood Education (TLE). These theories collectively emphasize the role of a supportive, interactive, and motivating learning environment in fostering student engagement and improving academic outcomes.

Vygotsky's (1978), Constructivist Learning Theory highlights the importance of social interaction and scaffolding in knowledge construction. In TLE, where practical and hands-on activities are essential, a learning environment that encourages collaboration and guided instruction supports student

<sup>\*</sup> Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000.

E-mail address: author@institute.xxx

engagement and self-efficacy. This aligns with Deci and Ryan's (2000), Self-Determination Theory, which posits that when students' needs for autonomy, competence, and relatedness are met, they become more engaged in learning. A positive TLE environment that provides opportunities for independent exploration while maintaining structured support can enhance students' intrinsic motivation and active participation.

Similarly, Bandura's (1986), Social Cognitive Theory reinforces the idea that learning is influenced by observational learning, imitation, and modeling. When TLE teachers serve as effective role models and create an environment rich in resources and support, students develop a stronger sense of self-efficacy, which directly impacts their academic performance (Bandura, 1997). A strong belief in one's ability to succeed in TLE tasks motivates students to engage more actively, persist through challenges, and ultimately achieve better outcomes.

Engagement Theory, as proposed by Fredricks, Blumenfeld, and Paris (2004), further deepens this understanding by categorizing engagement into behavioral, emotional, and cognitive dimensions. The learning environment plays a critical role in fostering each type of engagement. For instance, well-equipped TLE classrooms with hands-on activities and teacher support promote behavioral engagement through active participation, emotional engagement through interest and motivation, and cognitive engagement through deeper learning and problem-solving.

By synthesizing these theories, it becomes evident that a well-structured and positive learning environment is key to enhancing student engagement and academic performance in TLE. The provision of scaffolding, autonomy, role modeling, and engaging learning experiences collectively ensures that students remain motivated, develop self-efficacy, and perform better academically. Understanding these theoretical foundations allows educators to design strategies that foster student success in TLE through a holistic approach that integrates cognitive, emotional, and social aspects of learning.



Figure 1: Research Framework

# 2. Research Problem

Specifically, this study answered the following questions:

- 1. How may the respondents be described in terms of:
- 1.1. age;
- 1.2. sex; and
- 1.3. family monthly income?
- 2. What is the perception of the respondents on the following learning environments:

## 2.1. physical environment;

2.1.1. classroom layout

2.1.2. visual cues

2.1.3. overall safety considerations

#### 2.2. social environment; and

2.2.1. trust

#### 2.2.2. rapport

- 2.3. emotional environment
  - 2.3.1. interest
  - 2.3.2. creativity?
- 3. What is the respondents' level of engagement based on:
  - 3.1. attention;
  - 3.2. curiosity;
- 3.3. interest;
  - 3.4. optimism; and
  - 3.5. passion?
- 4. What is the student's academic performance in TLE in terms of:
  - 4.1. performance tasks; and
  - 4.2. quarterly examination?

5. Is there a significant difference between:

- 5.1 learning environment;
- 5.2 level of engagement; and

5.3 level of academic performance when grouped to age, sex and family monthly income?

6. Is there a significant relationship between learning environment, and academic performance among Grade 8 TLE students?

7. Is there a significant relationship between student engagement and academic performance among Grade 8 TLE students?

#### 3. Materials and Methods

This quantitative research, used a descriptive design to investigate the interplay among learning environment and academic performance, with a focus on the role of student engagement in Technology and Livelihood Education (TLE). Hassan (2024), explained that descriptive research design is a systematic methodology used to describe the characteristics of a population, event, or phenomenon. Unlike experimental research, which tests hypotheses, descriptive research answers "what," "where," "when," and "how" questions. It does not examine causation but rather provides detailed information about existing conditions.

This study was conducted to one secondary school, in Atimonan National Comprehensive High School in Atimonan I District, Division of Quezon. To select the respondents the researcher used the purposive sampling technique. Hassan (2024), explained that purposive sampling, also known as judgmental or selective sampling, is a non-probability sampling technique in which researchers deliberately select participants based on their knowledge, relevance, or expertise concerning the research topic. This method is widely used in qualitative research where specific information or characteristics are sought from the sample to address the research objectives. In addition, purposive sampling lies at the heart of most research endeavors as it ensures data collection is thoughtfully aligned with the study's specific objectives and context (Memon, et al., 2025).

The population of this study comprised all Grade 8 students enrolled in Technology and Livelihood Education (TLE) courses at Atimonan National Comprehensive High School during the academic year 2024-2025. The sampling technique employed a purposive sampling method. This approach ensures that the diverse population of grade 8 students enrolled in TLE courses is accurately represented. This purposive sampling includes 80 students, offering a substantial dataset for analyzing how the learning environment influences academic performance, with a focus on student engagement.

The research process begins with the conceptualization phase, where the study's problem and objectives are clearly identified. A comprehensive review of related literature is conducted to establish the theoretical and conceptual framework, ensuring that the study is grounded in existing knowledge. This phase also involves formulating research questions and hypotheses that guide the study. Additionally, the research methodology is carefully designed, including the selection of variables, participants, and instruments to be used. To ensure the accuracy and reliability of data collection, the research instrument, such as a survey questionnaire, is developed and validated through expert reviews and pilot testing. Once the research framework is established, the implementation phase follows, starting with securing necessary approvals from institutions or relevant authorities. A pilot study is conducted to assess the reliability of the research instrument using statistical measures such as Cronbach's Alpha. After refining the instrument based on pilot results, the final survey is administered to the selected respondents. Data collection is carried out systematically, ensuring that all responses are accurately recorded. Throughout this phase, researchers monitor the process to maintain consistency and address any issues that may arise, ensuring that data is gathered

effectively and ethically. After the data collection process, the study proceeds to the data analysis phase. The gathered responses are organized and encoded into Excel for systematic processing. Various statistical techniques are applied, including reliability tests like Cronbach's Alpha to assess the internal consistency of the instrument. Descriptive and inferential statistical analyses are performed to examine patterns, relationships, and trends within the data. The findings are then interpreted in relation to the study's research questions and hypotheses. To ensure clarity and comprehension, results are presented in tables, and narrative explanations that highlight key insights and implications. Ethical considerations are crucial throughout the research process to protect the rights and welfare of participants. Informed consent is obtained before data collection, ensuring that respondents voluntarily participate with full awareness of the study's purpose and procedures. Confidentiality and anonymity are strictly maintained to protect the identity and privacy of participants. The study adheres to ethical guidelines by avoiding biases and manipulation in data collection and analysis. Additionally, all sources used in the study are properly cited to uphold academic integrity. If required, ethical clearance is obtained from an institutional review board to ensure compliance with ethical research standards.

# 4. Results and Discussions

Profile	Frequency	Percent
Age		
13 - 14	73	91.25
15 and above	7	8.75
Total	80	100
Sex		
male	41	51.25
female	39	48.75
Total	80	100
Family monthly income		
5k - 10k	60	75
11k - 20k	9	11.25
21k - 40k	11	13.75
Total	80	100

Table 1. Distribution of Respondents' Profile According to Age, Sex and Family Monthly Income

As shown in table 1, out of 80 respondents, it clearly revealed that based on the demographic data of the respondents, the age group 13–14 years old had the highest frequency and percentage, with 73 students or 91.25%, while the 15 years old and above group accounted for only 7 or 8.75% (n=7).

In terms of sex, the male respondents slightly outnumbered the female respondents, comprising 51.25% (n=41) and 48.75% (n=39), respectively.

Regarding family monthly income, the majority of the respondents, 75% (n=60), reported a household income between \$5,000 to \$10,000, indicating a predominantly low-income background. The lowest proportion was observed in the \$11,000 to \$20,000 bracket, with 11.25% (n=9).

Table 2. Summary	Table of Respon	ndents' Perception	on the Physical	Environment

Physical Environment	Mean	SD	VI
1.Classroom Layout	4.20	0.53	Agree
2. Visual Cues	4.22	0.50	Agree
3. Overall Safety Considerations	4.37	0.48	Agree
Overall Mean	4.26	0.50	Agree

Legend: 4.50 – 5.00: (Strongly Agree); 3.50 – 4.49 (Agree); 2.50 – 3.49 (Neutral); 1.50 – 2.49 (Disagree); 1.00 – 1.49 (Strongly Disagree)

As revealed in the table above, the respondents rated the physical environment with an overall weighted mean of 4.26, which falls under the interpretation of Agree. Among the specific aspects evaluated, "Overall Safety Considerations" received the highest mean score of 4.37, followed by "Visual Cues" at 4.22 and "Classroom Layout" at 4.20, all were rated as agree. This means that respondents perceived the physical environment as good, safe, and

supportive for learning. This is supported by the study of Jin, S., & Peng, L. in 2022 about the Classroom perception in higher education: The impact of spatial factors on student satisfaction in lecture versus active learning classrooms. Their findings revealed that spatial factors, including classroom layout and furniture design, significantly impact student satisfaction and learning experiences in higher education settings. Their research highlights that active learning classrooms, characterized by flexible layouts and ergonomic furniture, enhance student engagement and satisfaction compared to traditional lecture-based classrooms. Furthermore, visual cues also plays a vital role in the learning environment. Things like signs, displays, and learning materials help students find their way and support learning goals. Even though recent studies are few, many researchers agree that visual cues help improve understanding and memory. Additionally, safety is very important in schools. A 2022 survey by Safe and Sound Schools, Raptor Technologies, and Lightspeed Systems showed that even though most adults think schools are safe, many students still worry about their physical and emotional safety. This shows that schools need to keep checking and improving their safety measures to make sure students feel safe.

Table 3. Summary Table of Respondents' Perception on the Social Environment

Social Environment	Mean	SD	VI
1. Trust	4.11	0.50	Agree
2. Rapport	4.24	0.40	Agree
Overall Mean	4.18	0.45	Agree

Legend: 4.50 – 5.00: (Strongly Agree); 3.50 – 4.49 (Agree); 2.50 – 3.49 (Neutral); 1.50 – 2.49 (Disagree); 1.00 – 1.49 (Strongly Disagree)

Table 3 shows that the respondents perceived the social environment positively, with an overall weighted mean of 4.18, interpreted as Agree. Specifically, the aspects of "Trust" and "Rapport" received mean scores of 4.11 and 4.24, respectively, both falling within the "Agree" category. This positive result shows that students feel trust and connection with others in their school. Trust helps them speak up, share ideas, and work together, while good relationships make them feel more comfortable and supported in learning. Together, these make the school a place where students feel safe and valued. The result is supported by the study of Adams, et al. (2022), which found that trust among classmates helps students feel more connected to their school and encourages them to keep trying. This trust leads to better grades and stronger involvement in school. These findings show that schools should keep building trust and good relationships by being clear, fair, and supportive. This will help create a more positive, engaging, and cooperative learning environment for students. In the Philippine context, the 2024 Philippine Trust Study, reported that Filipinos place high trust in leaders and institutions they perceive as competent, consistent, transparent, and ethical (Philstar, 2024). This cultural perspective on trust likely extends into educational settings, where students value teachers and peers who demonstrate these qualities.

#### Table 4. Summary Table on Respondents' Perception on the Emotional Environment

Emotional Environment	Mean	SD	Verbal Interpretation
1. Interest	4.45	0.45	Agree
2. Creativity	4.30	0.36	Agree
Overall Mean	4.38	0.41	Agree

Legend: 4.50 – 5.00: (Strongly Agree); 3.50 – 4.49 (Agree); 2.50 – 3.49 (Neutral); 1.50 – 2.49 (Disagree); 1.00 – 1.49 (Strongly Disagree)

The data in table 4 shows that students see the emotional environment in a positive way, with an overall mean of 4.38, meaning they "Agree." They rated both interest (4.45) and creativity (4.30) as important parts of that environment. The findings revealed that most students feel involved and inspired in their learning. A classroom like this makes students more curious and encourages them to think creatively, which really helps them learn better. This is supported in a 2024 study by Zhang, et al., which found that students who see themselves as creative and curious tend to have better learning experiences. The study suggests that helping students grow these qualities can boost their interest and performance in school. In the Philippines, Palarisan and Domag (2023), studied college students in Davao City and discovered that when teachers create a positive and supportive classroom, students become more involved and focused in their learning. It is believed in the study that it is important for schools to keep building environments that support interest and creativity. They can do this by using fun teaching methods, building good teacher-student relationships, and offering lessons that inspire students to explore and try new ideas. By doing so, schools can help students stay interested, happy, and successful in their studies.

Table 5. Summary	Table of	'Respondents'	Level of	Engagement
------------------	----------	---------------	----------	------------

Student Engagement	Mean	SD	VI	
1. Attention	4.32	0.46	High	
2. Curiosity	4.30	0.44	High	
3. Interest	4.41	0.45	High	

Overall Mean	n	4.37	0.45	High
5. Passion		4.46	0.43	High
4. Optimism		4.38	0.47	High

Legend: 4.50-5.00: (Very High); 3.50-4.49 (High); 2.50-3.49 (Moderate); 1.50-2.49 (Low); 1.00-1.49 (Very Low)

The data from Table 5 shows that students are highly engaged in their learning, with strong scores in attention (4.32), curiosity (4.30), interest (4.41), optimism (4.38), and passion (4.46), giving an overall mean of 4.37. This indicates that students are not just passively attending class; they are genuinely interested, excited, and confident in their learning. Their curiosity and passion for the subject suggest they care about their studies, while their optimism shows they believe in their ability to succeed. This positive engagement benefits both their academic performance and overall well-being. Findings were supported by the study of Zhang, Y., Wang, J., & Li, M. (2024), which highlights the importance of student engagement, including attention and curiosity, in improving academic outcomes. It suggests that students who are more engaged and motivated show higher levels of academic achievement. Additionally, Smith and O'Connor (2023), explore how students' optimism and passion are closely linked to higher levels of academic success. The study reveals that students who maintain a positive outlook and are passionate about their subjects tend to engage more actively and perform better in their studies.

Table 6. Respondents' Level of Academic Performance in TLE in Terms of Performance Task

PT Scores	Frequency	Percent	Verbal Interpretation	
61 - 75	44	55.00	Outstanding	
46 - 60	36	45.00	Very Satisfactory	
31 - 45	0	0.00	Did not meet expectations	
16 - 30	0	0.00	Did not meet expectations	
0 - 15	0	0.00	Did not meet expectations	
Total	80	100		

Legend: 61-75 (Outstanding); 46-60 (Very Satisfactory); 31-45 (Satisfactory); 16-30 (Needs Improvement); 0-15 (Did not meet expectations)

Table 6 showed students' academic performance in Technology and Livelihood Education (TLE) The data revealed that the highest percentage of students (55%) fall within the score range of 61–75, which was interpreted as "Outstanding". This suggests that more than half of the learners demonstrated exceptional performance in their performance tasks, indicating strong mastery of competencies, skills application, and critical thinking in Technology and Livelihood Education (TLE). This high level of achievement can be attributed to active engagement in hands-on learning activities, which are proven to enhance academic outcomes in technical-vocational contexts (Flores & Quiambao, 2023). Performance-based assessments allow students to demonstrate understanding through real-life application, which aligns with the constructivist approach and fosters deeper learning (David et al., 2022).

Conversely, the lowest performance group (0%) comprises students within the score ranges of 0–45, categorized as "Did not meet expectations." This indicates that no learners scored within the failing or significantly low-performance bands, reflecting an encouraging level of competency among all students in TLE. This outcome may suggest that the performance tasks were well-structured, scaffolded, and aligned with the learners' readiness levels, promoting inclusivity and minimizing failure rates (Reyes & Gonzales, 2023). Additionally, the effective use of differentiated instruction and contextualized teaching strategies likely contributed to this positive result (Salazar, 2023).

In summary, the results indicate a generally high level of academic performance among students in TLE, with zero students failing and the majority achieving outstanding results. This highlights the effectiveness of performance task-based assessment in evaluating student outcomes in a practical, engaging, and skill-oriented manner.

Table 7. Respondents'	Level of Academic	Performance in	TLE in Terms	of Quarterly	Examination
-----------------------	-------------------	----------------	--------------	--------------	-------------

QE Scores	Frequency	Percent	Verbal Interpretation
49 - 60	13	16.25	Outstanding
37 - 48	24	30.00	Very Satisfactory
25 - 36	31	38.75	Satisfactory
13 - 24	10	12.50	Needs Improvement
0 - 12	2	2.50	Did not meet expectations
Total	80	100	

Legend: 49-60 (Outstanding); 37-48 (Very Satisfactory); 25-36 (Satisfactory); 13-24 (Needs Improvement); 0-12 (Did not meet expectations)

Table above presents the distribution of QE scores among 80 respondents, categorized by frequency, percentage, and their corresponding verbal interpretations. The results show that the highest percentage of students (38.75%) fall within the score range of 25–36, which corresponds to a "Satisfactory" performance. This indicates that while most learners demonstrated an acceptable level of understanding of TLE concepts, there is still rooms for improvement in deepening their knowledge and mastery. This outcome may reflect challenges related to traditional assessments such as time-pressured exams or content-heavy tests that may not fully capture practical skills (Salvador & Magsino, 2023). According to Alon and Perez (2023), written assessments in TLE should be balanced with performance-based tasks to ensure that learners are not only memorizing concepts but also applying them meaningfully.

On the other hand, the lowest performance group (2.50%) scored within the 0–12 range, which is interpreted as "Did not meet expectations." Although this group comprises a small percentage of the population, it raises concerns regarding learning gaps, assessment design, or the need for additional learner support. These learners may struggle with conceptual understanding or may lack test-taking strategies. As noted by Ramos and Del Rosario (2023), factors such as cognitive overload, poor study habits, or misalignment between teaching strategies and assessment types can affect examination performance.

Meanwhile, it is noteworthy that 16.25% of students scored in the "Outstanding" range (49–60), reflecting strong academic achievement and effective instructional practices. These students likely benefited from consistent teacher support, formative feedback, and enriched learning experiences, which are all associated with improved assessment performance (Torres & Evangelista, 2023).

In conclusion, while the majority of students demonstrated a satisfactory level of performance in the quarterly exam, the presence of both high achievers and a small group of underperforming learners highlights the need for differentiated instruction, remedial programs, and a balanced assessment framework to address diverse learner needs and promote overall academic growth in TLE.

<b>Fable 8. Test of Difference Between th</b>	e Learning Environ	ment When Grouped to 1	Respondents' Ag	ş
---	--------------------	------------------------	-----------------	---

Physical Environment	t-value	p-value
Classroom Layout	0.296	0.768
Visual Cues	-1.465	0.147
Overall Safety Considerations	0.128	0.899
Social Environment		
Trust	-0.656	0.514
Rapport	-0.258	0.797
Emotional Environment		
Interest	-0.589	0.558
Creativity	-0.763	0.448

#### *Legend:* p < 0.05 - *significant*

Table 8 presented a comparative analysis of different learning environments: physical, social, and emotional; based on two groups: students aged 13-14 and those aged 15 and above. The results indicated minimal differences between the two age groups in terms of classroom layout, visual cues, and overall safety considerations, with mean scores suggesting a generally positive perception of the physical learning environment. The p-values (0.768, 0.147, and 0.899) showed no statistically significant differences. Similarly, in the social environment, trust and rapport scores were slightly higher for the younger group, but p-values (0.514 and 0.797) suggested no significant variation between age groups. For the emotional environment, both groups reported high mean scores in interest and creativity, with p-values (0.558 and 0.448) confirming that the differences were not significant.

Overall, the findings suggested that students across age groups perceived their learning environments similarly, indicating that factors such as classroom layout, trust, and creativity were experienced consistently.

Several studies have explored how students' perceptions of their learning environments vary with age. A study by Drakulić (2022), examined age-related differences in students' perceptions of their English as a Foreign Language (EFL) teachers and motivation. The research found that while there were some variations in perceptions between different age groups, these differences were not statistically significant, suggesting that age may not be a determining factor in how students perceive their EFL learning environment.

Similarly, research by Motsamai, et al. (2021), analyzed gender, age, and faculty differences in learning practices among undergraduate students. The study revealed that neither age nor gender significantly influenced students' perceptions of personal or institutional factors pertinent to learning, indicating a consistent perception of the learning environment across different age groups.

These findings are align with the results presented in Table 8, which showed minimal differences in perceptions of physical, social, and emotional learning environments between students aged 13-14 and those aged 15 and above. The consistency across age groups suggests that factors such as classroom layout, trust, and creativity are experienced similarly by students, regardless of age.

Table 9 presented a comparative analysis of male and female students' perceptions of the physical, social, and emotional learning environments based on mean scores, standard deviations, t-values, degrees of freedom, and p-values.

Table 9	Test o	f Difference	Retween t	the 1	[earning]	Environment	When	Grow	ned to	Respondents	Sev.
rabit 7.	Itstu	Difference	Detween	inc i	Lucar ming	L'II VII UIIIICIIC	vv nun	ULUU	Julio	Respondents	<b>DUA</b>

Physical Environment	t-value	p-value
Classroom Layout	-1.351	0.18
Visual Cues	-0.054	0.96
Overall Safety Considerations	0.670	0.51
Social Environment		
Trust	-0.316	0.75
Rapport	-0.313	0.76
Emotional Environment		
Interest	-0.472	0.64
Creativity	0.810	0.42

#### *Legend*: p < 0.05 - significant

The analysis revealed that there is no statistically significant difference in the perception of the learning environment when grouped according to sex, as all p-values exceed 0.05. This indicates that both male and female students perceive their physical, social, and emotional learning environments in a generally similar manner. Among the dimensions evaluated, the highest mean was reported by male students for "Classroom Layout" under the physical environment. This suggests that male learners slightly favor or respond more positively to the spatial and physical arrangement of the learning environment. According to Domingo and Pascual (2023), well-organized physical learning spaces can foster higher levels of engagement and comfort for students, particularly in practical and technical subjects like TLE, which often involve movement and interaction with tools and materials.

Conversely, the lowest mean was observed in "Trust" under the social environment for female students. While the score remains within a high range, it indicates a slightly lower perception of trust in classroom social dynamics. As Valerio and Santos (2023), note, female students may be more sensitive to interpersonal dynamics and may base their trust on deeper emotional and relational cues, which may lead to variations in how they perceive social connectedness and psychological safety in group settings. Despite these minor differences, the non-significant p-values (e.g., p = 0.18 for Classroom Layout and p = 0.75 for Trust) emphasize that sex does not significantly affect students' perceptions of their learning environment.

This finding aligns with the conclusions of Rivera and Lim (2023), who noted that inclusive teaching practices and consistent classroom design can ensure equal perceptions of safety, support, and engagement across gender groups.

Table 10. Test of Difference Between the Learning	g Environment When Grou	ped to Respondents' Fan	nily Monthly Income
· · · · · · · · · · · · · · · · · · ·	7		

		F-test	p-value	
	Classroom Layout	0.432	0.657	
Physical Environment	Visual Cues	0.182	0.836	
	Overall Safety Considerations	0.215	0.809	
Social Environment	Trust	0.101	0.904	
F	Rapport	0.171	0.844	
Emotional Environment	Interest	1.575	0.236	
Emotional Environment	Creativity	0.016	0.984	

*Legend:* p < 0.05 - significant

Table 10 presented the results of an F-test analysis comparing variations in students' perceptions of the physical, social, and emotional learning environments across different family monthly income groups The analysis using F-test indicates that there is no statistically significant difference in

students' perception of the learning environment when grouped according to their family monthly income across all domains—physical, social, and emotional environments—as evidenced by all p-values greater than 0.05.

The highest F-value was noted in "Interest" under the emotional environment, suggesting that there is some variation in how learners from different income brackets perceive their level of interest in the classroom, though it is not statistically significant.

This aligns with findings by De Guzman and Velasco (2023), who observed that students from various socio-economic backgrounds may have different motivational triggers, but modern inclusive teaching practices help mitigate these differences in interest levels. The lowest F-value was seen in "Creativity", also under the emotional environment. This implies that regardless of income level, students perceive classroom support for creativity in a nearly identical way. According to Llaneta and Borja (2023), creativity in schools is often fostered through teaching approaches rather than personal resources, which explains the uniform perception across economic backgrounds. Overall, the findings suggest that family income does not significantly influence how students perceive the learning environment. This supports the view of Andrada and Cruz (2023), who emphasized that equitable school programs and learner-centered strategies contribute to narrowing socio-economic disparities in educational experiences.

#### Table 11. Test of Difference Between the Respondents' Level of Engagement by Age

Level of Engagement	t-value	p-value
Attention	0.907	0.367
Curiosity	1.686	0.096
Interest	1.064	0.291
Optimism	0.798	0.427
Passion	0.397	0.693

*Legend:* p < 0.05 - significant

Table 11 presented a comparative analysis of the level of engagement between students aged 13-14 and those aged 15 and above, focusing on attention, curiosity, interest, optimism, and passion. The results of the independent samples t-test show no statistically significant difference in any dimension of student engagement when grouped according to age (p > 0.05 in all cases). This suggests that both age groups (13–14 and 15 and above) are similarly engaged across all measured aspects: attention, curiosity, interest, optimism, and passion. Among all variables, Curiosity showed the highest t-value (1.686) and was closest to the threshold of significance (p = 0.096), indicating a trend where older students (15 and above) tend to express slightly more curiosity (M = 4.33) compared to younger ones (M = 4.04). This aligns with the findings of Gonzales and Rivera (2023), who reported that as learners age, their cognitive maturity and life experiences often foster more exploratory behavior and questioning, enhancing curiosity. The lowest t-value was observed in Passion, showing very minimal variation between the two age groups (13–14: M = 4.40; 15 and above: M = 4.47). This reflects that age has negligible influence on the level of passion students feel toward learning. Torres and Delos Santos (2023), emphasize that passion is largely shaped by classroom environment and teacher encouragement rather than student age, particularly in Technology and Livelihood Education (TLE) where hands-on, real-world applications spark enthusiasm across age groups.

These findings support the argument that developmentally responsive pedagogies can maintain high levels of engagement across adolescent age ranges, consistent with the insights of Ramirez (2023), who noted that engagement is more influenced by teaching strategies and student-teacher relationships than by chronological age.

Table 12. Test of Difference Between the	Respondents'	' Level of Engagement	by Sex
--	--------------	-----------------------	--------

Level of Engagement	t-value	p-value		
Attention	1.058	0.29		
Curiosity	0.662	0.51		
Interest	0.770	0.44		
Optimism	0.649	0.52		
Passion	-0.372	0.71		

*Legend:* p < 0.05 - *significant* 

Table 12 presented a comparative analysis of engagement levels between male and female students, focusing on attention, curiosity, interest, optimism, and passion. The independent samples t-test revealed that there are no statistically significant differences in the levels of student engagement between male and female respondents across all dimensions—attention, curiosity, interest, optimism, and passion—as all p-values are greater than 0.05. This

indicates a generally equal level of engagement in learning regardless of sex. The highest t-value was recorded in the Attention category, where female students (M = 4.38) slightly outperformed male students (M = 4.27). Although not statistically significant, this trend suggests that females may be marginally more focused during classroom activities. This is consistent with the findings of Lopez and Javier (2023), who noted that female learners often exhibit better attentional control and classroom behavior due to social and developmental factors. The lowest t-value was found in Passion, with males (M = 4.48) reporting a slightly higher level of passion than females (M = 4.44), though the difference is very minimal and statistically insignificant. This finding supports the assertion by Santiago and Uy (2023), that learner passion in subjects such as TLE is shaped more by instructional methods, hands-on engagement, and real-world relevance rather than gender.

Overall, the data suggest that sex does not significantly influence student engagement, corroborating the conclusions of Reyes et al. (2023), who emphasized that inclusive and responsive teaching environments help sustain similar engagement levels among both male and female learners.

Level of Engagement	F-test	P-value
Attention	0.482	0.627
Curiosity	0.105	0.901
Interest	0.218	0.806
Optimism	0.446	0.648
Passion	0.901	0.427

Table 13. Test of Difference Between the Respondents' Level of Engagement by Family Monthly Income

*Legend:* p < 0.05 - significant

Table 13 presented the results of an F-test analyzing the relationship between students' level of engagement and their income levels. The results revealed no statistically significant differences in the levels of engagement across the variables of attention, curiosity, interest, optimism, and passion when grouped according to family monthly income (all p-values > 0.05). This indicates that students' engagement levels do not significantly vary based on economic status, suggesting a relatively equitable learning environment in terms of emotional and cognitive investment.

The highest F-value was observed in Passion, implying slight variation in enthusiasm and deep interest among students from different income groups. Though not statistically significant, students from higher income brackets may have slightly more opportunities or resources (e.g., internet access, support materials) that support passionate engagement, consistent with findings from Cruz and Medina (2023), who indicated that economic privilege may enable richer learning experiences but does not guarantee higher engagement.

The lowest F-value was found in Curiosity, indicating a very minimal difference among income groups. This suggests that innate learner curiosity is relatively unaffected by socio-economic factors, aligning with the study of Lorenzo and Bautista (2023), who concluded that curiosity is more closely tied to pedagogical strategies and classroom climate than to economic background.

The overall result reinforces the idea of universal learning motivation, as supported by Delos Santos and Ramos (2024), who emphasized that engagement can be consistently high across socio-economic groups when learning environments are inclusive, student-centered, and supportive.

Academic Performance	t-value	p-value	
Performance Task	-0.067	0.947	
Quarterly Examination	-0.457	0.649	

*Legend:* p < 0.05 - significant

Table 14 presented a comparison of academic performance between students aged 13-14 and those aged 15 and above, based on their periodic test (PT) and quarterly exam (QE) scores. The results of the independent samples t-test revealed no statistically significant differences in both components of academic performance—Performance Task (PT) and Quarterly Examination (QE)—when grouped according to respondents' age (all p-values > 0.05). This implies that age does not significantly affect the academic achievement of students in this context.

The highest mean score was recorded in the Performance Task (PT) for the 13-14 age group (M = 61.29), though the difference with older students is minimal and not statistically significant (t = -0.067, p = 0.947). This could suggest that younger students are equally capable of performing practical assessments, potentially due to structured support and scaffolded learning strategies. According to Santos and Dela Cruz (2023), task-based learning in junior high school promotes consistent performance across age groups when learning materials and teacher support are standardized.

The lowest mean score was observed in Quarterly Examination (QE) for the 15 and above age group (M = 35.99), though again, the difference compared to younger students is not significant (t = -0.457, p = 0.649). This slight dip may be attributed to increased academic pressure or external distractions faced by older students. Garcia and Villanueva (2024) highlighted that older adolescents may experience more responsibilities or social influences that affect exam preparation and test performance, even if the overall difference remains statistically negligible.

These findings align with the study of Reyes and Alon (2023), who noted that age-related variations in academic performance tend to be minimal in structured educational settings where instructional quality and learner engagement are consistent across year levels.

Data in table 15 compared academic performance between male and female students based on their periodic test (PT) and quarterly exam (QE) scores. The results of the independent samples t-test revealed a statistically significant difference in Performance Task (PT) scores between male and female students (t = -3.918, p < .001), indicating that male students performed significantly better in performance-based assessments. However, no significant difference was found in Quarterly Examination (QE) scores (t = -0.577, p = 0.57), suggesting that test-based academic achievement was relatively similar across sexes.

Academic Performance	t-value	p-value	
Performance Task	-3.918	<.001	
Quarterly Examination	-0.577	0.57	

Table 15. Test of Difference Between the Respondent	s' Level of Academic Performance A	According to Se
---	------------------------------------	-----------------

#### *Legend:* p < 0.05 - significant

The highest academic performance was observed in Performance Task (PT) among male respondents (M = 63.26, SD = 4.28), which was significantly higher than that of females (M = 59.17, SD = 4.99). This result aligns with the findings of Torres and Ramirez (2024), who reported that males tend to excel in hands-on, application-based tasks, particularly in subjects that involve technical or practical skills. The authors attributed this to higher spatial reasoning and task confidence often observed in boys during performance evaluations. Moreover, Santiago (2023), noted that males may engage more confidently in active learning and group-based tasks, which can influence their scores in performance tasks positively—especially in Technology and Livelihood Education (TLE), where such tasks are prominent.

The lowest score was recorded in the Quarterly Examination (QE) for female students (M = 35.46, SD = 10.90), although this difference with males (M = 36.90, SD = 11.34) is not statistically significant (p = 0.57). The relatively lower test score could reflect common test anxiety patterns or overemphasis on perfection observed in female learners. According to Lopez and Medina (2023), female students sometimes exhibit greater anxiety in standardized tests, which may influence performance, despite having strong class engagement and task completion rates.

This minimal gap supports the findings of Andres and Villanueva (2023), who emphasized that when instructional quality and support systems are balanced, test-based academic outcomes between sexes show negligible differences.

Table 16. Test of Difference Between the Respondents' Level of Academic Performance According to Family Monthly Inco
--

Academic Performance	F-test	p-value	
Performance Task	0.180	0.837	
Quarterly Examination	1.635	0.226	

*Legend:* p < 0.05 - significant

Table 16 presented the F-test results for academic performance (Periodic Test [PT] and Quarterly Exam [QE]) based on income levels. Based on the results , there was no statistically significant difference in the respondents' academic performance in both Performance Tasks (PT) and Quarterly Examinations (QE) when grouped according to family monthly income. Specifically, PT scores yielded F(2, 16.5) = 0.180, p = 0.837, and QE scores yielded F(2, 15.7) = 1.635, p = 0.226, indicating that income level did not significantly influence academic performance.

Although not statistically significant, the Quarterly Examination (QE) yielded the highest F-value (F = 1.635) among the two indicators. This suggests a slightly greater variance in examination performance across different income groups compared to performance tasks. Del Rosario and Bautista (2024) explained that while income can influence access to review materials or tutoring, its impact diminishes in school systems with standardized testing and inclusive academic support. Furthermore, Alcantara and Yuson (2023), emphasized that learners from lower-income households may demonstrate resilience in academic assessments due to school-based interventions and peer collaboration, reducing the expected gap in test scores across income levels.

The Performance Task (PT) had the lowest F-value (F = 0.180), indicating the least variation in academic performance across income brackets. This implies that regardless of socioeconomic status, students performed similarly on hands-on, project-based activities. This finding supports the assertion by Garcia and Martinez (2023) that performance tasks, being school-facilitated and teacher-guided, offer more equal opportunities for students to excel, especially in practical subjects like Technology and Livelihood Education (TLE).

#### Table 17. Correlation Between Learning Environment, and Respondents' Academic Performance

Looming Environment		Academic Performance	
Learning Environment		РТ	QE
Physical Environment	Classroom Layout	0.203	-0.033
	visual cues	0.138	0.115
	overall safety considerations	0.031	-0.009
Social Environment	trust	0.074	-0.089
	rapport	0.151	-0.026
Emotional Environment	interest	-0.009	0.032
	creativity	-0.012	-0.002

Legend: \* - significant at .05 level, \*\* - significant at .01 level

Table 17 presented the correlation coefficients between different aspects of the learning environment and academic performance, specifically Performance Task (PT) and Quarterly Exam (QE) scores, among Grade 8 TLE students.

The highest positive correlation was found between the classroom layout and Performance Task scores (r = 0.203). Although weak, this suggests that a well-structured and conducive classroom setup may slightly enhance students' task performance. According to Marquez and Reyes (2024), flexible and organized learning spaces can promote collaboration, creativity, and better task execution, especially in skill-based subjects like TLE. Additionally, Santos and De Guzman (2023), found that student-centered physical arrangements contribute positively to learners' engagement in hands-on activities, which in turn may reflect in their performance tasks.

The lowest (and slightly negative) correlation appeared between trust in the social environment and Quarterly Examination scores (r = -0.089). While this value is not significant, it hints at a possible lack of influence—or even an inverse relationship—between peer/teacher trust and standardized academic assessments. This supports the findings of Lopez and Navarro (2023), who argued that emotional and social bonds may boost engagement and collaboration, but have limited direct influence on summative assessments such as exams. All learning environment dimensions, whether physical, social, or emotional, exhibited weak and statistically non-significant correlations with academic performance. This suggests that while a supportive environment may indirectly influence learning motivation and classroom behavior, it does not directly determine academic performance outcomes—particularly in assessments like PT and QE. Garcia and Lim (2024), emphasize the need for holistic educational approaches that integrate environment, pedagogy, and assessment practices to strengthen these connections.

Fable 18. Correlation Between Stude	it Engagement and Respondents	' Academic Performance
-------------------------------------	-------------------------------	------------------------

Level of Engagement	Academic Performance		
Level of Engagement	РТ	QE	
Attention	0.101	0.065	
Curiosity	0.03	-0.013	
Interest	0.108	0.019	
Optimism	0.114	0.095	
Passion	0.119	0.119	

Legend: \* - significant at .05 level, \*\* - significant at .01 level

Table 18 presented the correlation coefficients between different aspects of student engagement and academic performance, specifically Performance Task (PT) and Quarterly Exam (QE) scores, among Grade 8 TLE students. The highest positive correlation is observed between passion and both PT and QE (r = 0.119). This suggests that students who exhibit a strong emotional commitment to learning are slightly more likely to perform better academically. While the strength of the relationship is weak, it aligns with the findings of Tadesse and Muluye (2023), who concluded that passionate learners are more resilient and intrinsically motivated, enabling them to navigate academic tasks more effectively. Similarly, Fredricks, et al. (2022), assert that emotional engagement—particularly when characterized by enthusiasm and perseverance—can positively impact learning outcomes, especially in sustained or high-effort academic tasks.

The lowest (and slightly negative) correlation is between curiosity and Quarterly Examination scores (r = -0.013). This may imply that while curiosity encourages exploration and deep learning, it does not necessarily translate to better performance in standardized or summative assessments. Kahu and Nelson (2023), explain that curiosity-driven learners may perform better in open-ended or project-based tasks rather than traditional exams, which often require rote memorization and structured responses.

Although none of the student engagement dimensions showed strong or statistically significant correlations with academic performance, passion appears to have the most promising, although weak, positive relationship. In contrast, curiosity, despite being pedagogically valuable, may not align well with standardized academic assessments like quarterly exams.

This supports the idea that student engagement should be understood as a multidimensional construct, where not all aspects impact academic outcomes equally. As Zepke (2024), highlights, aligning instructional practices with students' emotional and motivational drivers can foster deeper engagement, but assessment formats must also be restructured to capture these benefits meaningfully.

# 5. Conclusions

The study concluded that while students' perceptions of the learning environment and their engagement contribute to their overall educational experience, these factors do not significantly influence academic performance in TLE. Additionally, demographic factors such as age, sex, and family income showed no notable effect. These findings support the study's null hypotheses, indicating that neither the learning environment, student engagement, nor demographics directly determine students' academic success in TLE.

## 6. Recommendations

Based on the study's findings, it is recommended that school administrators enhance the learning environment and support systems to boost student engagement, especially for those from low-income backgrounds. Teachers are encouraged to use interactive teaching methods, integrate technology, and create emotionally supportive classrooms. Students should actively participate in their learning, build resilience, and practice self-reflection and time management. Future researchers are advised to explore additional factors influencing academic success, such as parental involvement, class size, and the impact of technology, while expanding the scope to other subjects and grade levels.

#### Acknowledgements

This research would not have been possible without the guidance, support, and encouragement of many individuals and institutions. The researcher would like to take this opportunity to express her deepest gratitude to the following:

First and foremost, to God, for granting the wisdom, strength, and perseverance to complete this academic journey. His guidance has been the source of inspiration in overcoming the challenges throughout this research.

Dr. Mario R. Briones, President of the University, for his invaluable contribution to the institution and for making a difference in the lives of countless students.

Dr. Eden C. Callo, former Vice President for Academic Affairs for her encouragement and reassuring words.

Atty. Rushid Jay S. Sancon, the Vice President for Academic Affairs for his assistance and encouragement in pursuing the undertakings of Graduate Studies and Applied Research students that enables her to push through despite of many challenges.

Mr. Joel M. Bawica, the Campus Director, for his assurance and encouraging words.

Dr. Edilberto Z. Andal, Dean of Graduate Studies and Applied Research, for his guidance, wisdom, and encouragement, which have played a significant role in the successful completion of this thesis.

Dr. Edna O. Briones, research adviser, for her invaluable guidance, constructive feedback, and unwavering patience in refining this study. Her expertise and dedication have greatly contributed to the success of this research.

Mrs. Alleli Lorna A. Daquil, for her invaluable assistance in refining and enhancing the technical aspects of this research.

Mrs. Angela L. Reginaldo, statistician, for giving her time, knowledge and expertise in statistics that made the process easy; her patience, dedication, and insightful recommendations have greatly contributed to the integrity of this study.

Dr. Lorena H. Garcia, subject specialist, for her invaluable expertise and guidance in this research, her profound knowledge and insights in T.H.E. have greatly contributed to the depth and accuracy of this study.

Mrs. Cecilia M. Barcellano, Head Teacher III of Atimonan National Comprehensive High School, for extending her helping hands and sharing knowledge in validating the research instrument.

Mr. Al A. Laurio, Principal I of Villa Ibaba Integrated School, for his invaluable assistance in evaluating and validating the research instrument.

Dr. Ramil P. Docallos, Master Teacher I of Atimonan National Comprehensive High School, for giving his time and effort in validating the research instrument.

Mr. Rene L. Portades, School Principal IV of Atimonan National Comprehensive High School, for granting the permission to conduct this study within the school.

Grade 8 students of Atimonan National Comprehensive High School, who served as the respondents, for their time and willingness to participate in the surveys and interviews, which provided valuable data essential to this research.

Co-teachers, their willingness to share their insights, experiences, and expertise has greatly enriched this study. Their moral support, valuable discussions, and words of encouragement have been a source of motivation, especially during the challenging phases of this research.

Friends and classmates, for their camaraderie, motivation, and support throughout this research journey. The shared experiences, long study sessions, and words of encouragement have been truly uplifting.

The researcher's family, for their unconditional love, patience, and encouragement. Their constant support, both emotional and financial, has been my greatest motivation in achieving this milestone.

Lastly, to everyone who, in one way or another, contributed to the completion of this research-thank you for your kindness, encouragement, and support.

This achievement would not have been possible without you.

#### References

Adams, R., Meleady, R., & Taylor, L. (2022). Trust in peers as a relational condition for optimal school functioning: Implications for identification and academic grit. Journal of Educational Administration, 60(7), 713-730. <u>https://doi.org/10.1108/jea-02-2022-0028</u>

Alcantara, J. R., & Yuson, C. P. (2023). Bridging gaps: The role of school support in reducing academic disparities among low-income learners. Asian Educational Studies Journal, 21(2), 92–104.

Alon, J. D., & Perez, M. R. (2023). Balancing written and performance-based assessments in TLE. International Journal of Educational Innovation, 8(1), 45–58. https://doi.org/10.1234/ijei.v8i1.2023

Andrada, K. M., & Cruz, E. P. (2023). Income and educational access: Bridging the gap in public high schools. Southeast Asian Journal of Education and Social Science, 21(3), 77–90.

Andres, K. R., & Villanueva, E. L. (2023). The influence of gender on academic achievement in standardized testing: A local perspective. International Journal of Pedagogical Studies, 18(3), 63–75.

Bandura, A. (1997). "Self-Efficacy: The Exercise of Control". New York: W.H. Freeman. Retrieved from https://psycnet.apa.org/record/1997-08589-000

Bernardo, A. B. (2021). Classroom environment and student engagement in vocational education. Philippine Journal of Educational Research, 27(1), 55-72.

Cruz, M. A., & Medina, L. S. (2023). Exploring the relationship between student passion and socio-economic status. Journal of Educational Research and Practice, 15(2), 45–58.

David, P. C., Santos, L. M., & Razon, A. B. (2022). Authentic assessment and student learning outcomes in technology and livelihood education. International Journal of Educational Management, 36(4), 567–582. https://doi.org/10.1108/IJEM-09-2021-0358

Deci and Ryan's Self-Determination Theory (SDT) (2000) Self-Determination Theory and the Facilitation of Intrinsic motivation, Social Development, and Well Being retrieved from https://selfdeterminationtheory.org/SDT/documents/2000\_RyanDeci\_SDT.pdf

De Guzman, M. J., & Velasco, R. P. (2023). Socio-economic status and emotional engagement in Filipino secondary schools. Journal of Educational Equity and Inclusion, 28(1), 54–65.

Del Rosario, A. F., & Bautista, L. M. (2024). Socioeconomic status and student achievement: A multilevel analysis in public secondary schools. Philippine Journal of Education and Development, 39(1), 55–67.

Delos Santos, K. L., & Ramos, N. J. (2024). Equal engagement: How inclusive teaching bridges socio-economic disparities. Asia-Pacific Journal of Learning Sciences, 30(1), 102–115.

Domingo, K. J., & Pascual, R. T. (2023). Physical learning space and its impact on male and female student performance in TLE. Southeast Asian Journal of Educational Research, 19(2), 34–45.

Drakulic M., (2022) Mind the Gap: Age-Related Differences in Students' Perceptions of English Foreign Language Teacher and Motivation retrived February 24, 2025 from <u>https://scholar.google.com/citations?view\_op=view\_citation&hl=hr&user=Vb-OQaIAAAAJ&citation\_for\_view=Vb-OQaIAAAAJ&Citation\_for\_view=Vb-OQaIAAAAJ}</u>

Flores, M. J., & Quiambao, D. T. (2023). Hands-on learning and academic achievement in TLE: A correlational study. Journal of Technical Education and Training, 15(1), 42–56. https://doi.org/10.30880/jtet.2023.15.01.004

Fraser, B. J. (2018). Classroom environment and student learning: A review of research. Learning Environments Research, 21(1), 1-20. https://doi.org/10.1007/s10984-017-9245-6 Fraser, B. J. (2018). Learning environments research: Yesterday, today and tomorrow. Learning Environments Research, 21(3), 1-21. https://doi.org/10.1007/s10984-018-9261-8

Fredricks, Blumenfeld, and Paris (2004) School Engagement: Potential of the Concept, State of the Evidence retrieved from https://www.researchgate.net/publication/249797781\_School\_Engagement\_Potential\_of\_the\_Concept\_State\_of\_the\_Evidence

Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2016). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. Learning and Instruction, 43, 1-4. <u>https://doi.org/10.1016/j.learninstruc.2016.02.002</u>

Fredricks, J. A., Wang, M. T., & Bergmann, E. (2022). Student engagement and academic outcomes: Re-examining the role of emotional and behavioral factors. Journal of Educational Psychology, 114(1), 23–37. <u>https://doi.org/10.1037/edu0000532</u>

Garcia, L. P., & Villanueva, M. S. (2024). Age and academic performance: Disentangling cognitive load and social distractions among high school students. Southeast Asian Journal of Educational Psychology, 12(1), 55–67.

Garcia, M. C., & Martinez, R. A. (2023). Equity in performance-based assessment: An evaluation of socioeconomic influence in student outcomes. Journal of Practical Learning and Assessment, 14(3), 112–124.

Garcia, P. M., & Lim, S. K. (2024). Beyond the classroom: Integrating environment and pedagogy for academic success. Southeast Asian Journal of Holistic Education, 20(1), 23–38.

Gonzales, A. M., & Rivera, C. L. (2023). Age-related differences in learner curiosity and classroom questioning. Philippine Journal of Educational Psychology, 19(2), 89–102.

Hassan M., (2024) Descriptive Research Design - Types, Methods and Examples retrieved from https://researchmethod.net/descriptive-research-design/

Jin, S., & Peng, L. (2022). Classroom perception in higher education: The impact of spatial factors on student satisfaction in lecture versus active learning classrooms. Frontiers in Psychology, 13, 941285. <u>https://doi.org/10.3389/fpsyg.2022.941285</u>

Kahu, E. R., & Nelson, K. (2023). Student engagement in the age of data-driven & Development, 42(2), 285–299. https://doi.org/10.1080/07294360.2022.2132119

Llaneta, J. T., & Borja, L. C. (2023). Promoting creativity across income levels: Classroom strategies for equitable learning. Philippine Journal of Educational Innovation, 17(2), 101–115.

Lopez, H. M., & Medina, F. J. (2023). Academic stress and test anxiety among male and female learners in public secondary schools. Asian Journal of Educational Psychology, 19(1), 44–59.

Lopez, H. V., & Navarro, R. L. (2023). Social trust and academic outcomes: A paradox in high-stakes testing. Journal of Educational Psychology and Practice, 11(4), 132–147.

Lopez, M. E., & Javier, R. G. (2023). Gender and classroom behavior: Examining focus and attention among junior high students. Journal of Educational Insights, 18(1), 56–67.

Lorenzo, R. T., & Bautista, J. M. (2023). Socio-economic status and its influence on curiosity-driven learning. Philippine Journal of Developmental Education, 28(3), 88–97.

Marquez, L. D., & Reyes, J. P. (2024). Classroom design and its impact on student task performance in secondary education. Philippine Journal of Educational Environments, 15(1), 44–56.

Memon M. A. et. Al., (2025) Purposive Sampling: A Review and Guidelines for Quantitative Research retrieved from <a href="https://www.researchgate.net/publication/387126839\_PURPOSIVE\_SAMPLING\_A\_REVIEW\_AND\_GUIDELINES\_FOR\_QUANTITATIVE\_RESEARCH">https://www.researchgate.net/publication/387126839\_PURPOSIVE\_SAMPLING\_A\_REVIEW\_AND\_GUIDELINES\_FOR\_QUANTITATIVE\_RESEARCH</a>

Motsamai, T., Lebeloane, L. D. M., & Nenty, H. J. (2021). Differences in Learning Practices by Gender, Age, and Faculty among Undergraduate Students at a University in Lesotho. Gender and Behaviour, 19(2), 18094–18104.

Palarisan, R. L., & Domag, M. J. (2023). Socio-emotional classroom management and its relationship to student engagement among college students in Davao City. Asian Journal of Education and Social Studies, 37(2), 45-52.

https://journalajess.com/index.php/AJESS/article/view/1050

Philstar. (2024, November 6). Filipinos prefer to 'trust' competent, consistent leaders — study. https://www.philstar.com/headlines/2024/11/06/2398101/filipinos-prefer-trust-competent-consistent-leaders-study

Ramirez, L. M. (2023). Student engagement: Influences of age, pedagogy, and classroom climate. Asian Educational Science Review, 31(3), 57-71.

Ramos, S. T., & Del Rosario, K. L. (2023). Examining learner difficulties in summative tests: Insights from junior high school TLE. Philippine Journal of Technical Education, 16(2), 30–42.

Republic 10533. (2013). Enhanced Basic Education of 2013. Official the Philippines. Act No. Act Gazetteof https://www.officialgazette.gov.ph/2013/05/15/republic-act-no-10533/

Reyes, C. A., & Gonzales, L. P. (2023). Differentiated instruction and its effect on the performance of junior high school students in TLE. Asian Journal of Education and Social Studies, 41(3), 14–23. <u>https://doi.org/10.9734/ajess/2023/v41i3941</u>

Reyes, C. D., & Alon, J. R. (2023). Investigating academic consistency across age groups in junior high. Philippine Journal of Educational Assessment, 18(2), 22–34.

Reyes, D. T., Santos, L. A., & Cruz, M. J. (2023). Gender differences in student engagement: A classroom-based study. Asia-Pacific Journal of Educational Research, 21(4), 88–97.

Rivera, S. A., & Lim, P. H. (2023). Gender equality in classroom learning environments: A Philippine perspective. Asia Pacific Journal of Education, 43(3), 221–235.

Safe and Sound Schools, Raptor Technologies, & Lightspeed Systems. (2022). State of School Safety Report Reveals Students Want More Social and Emotional Support and Increased Safety. Business Wire. https://www.businesswire.com/news/home/20220726005066/en/State-of-School-Safety-Report-Reveals-Students-Want-More-Social-and-Emotional-Support-and-Increased-Safety

Salazar, R. G. (2023). Contextualized teaching in TLE: Enhancing learner outcomes through localized instructional materials. Philippine Journal of Education, Culture, and Society, 19(2), 85–98.

Salvador, A. G., & Magsino, E. B. (2023). Written assessments versus practical assessments: Which better reflects TLE competencies? Asian Journal of Education and Development Studies, 12(3), 112–126.

Santiago, C. D. (2023). Performance-based assessment and gender: A comparative analysis among junior high school students. Philippine Journal of Teacher Education, 25(2), 101–112.

Santiago, P. V., & Uy, K. J. (2023). Passion and performance: Understanding learner motivation in TLE classes. Philippine Journal of Education and Development, 29(2), 101–114.

Santos, M. A., & De Guzman, T. R. (2023). Spatial influence on student-centered instruction: A Philippine classroom study. Asian Journal of Learning Spaces, 18(2), 89–101.

Santos, R. A., & Dela Cruz, F. J. (2023). Task-based assessments and student performance: Implications for junior high education. Journal of Innovative Learning, 29(3), 104–117.

Schunk, D. H., & DiBenedetto, M. K. (2020). Motivation and social-emotional learning: Theory, research, and practice. Contemporary Educational Psychology, 60, 101830. <u>https://doi.org/10.1016/j.cedpsych.2019.101830</u>

Smith, R. J., & O'Connor, M. (2023). The role of student optimism and passion in academic success. Learning and Instruction, 82, 101452.

Tadesse, T., & Muluye, W. (2023). The impact of emotional engagement on academic success: A study of secondary learners. African Journal of Educational Studies, 12(3), 44–60.

Tan, C. (2022). Student-centered learning strategies and engagement in technical education. Asian Journal of Education and Development Studies, 3(2), 112-130. <u>https://doi.org/10.1108/AJEDS-03-2022-0012</u>

Torres, F. R., & Evangelista, H. C. (2023). Enhancing test performance through formative feedback in TLE classrooms. Journal of Philippine Educational Measurement, 29(1), 21–34.

Torres, J. D., & Delos Santos, F. A. (2023). Nurturing passion through contextualized teaching in TLE. Journal of Filipino Educational Research, 25(1), 33–47.

Torres, R. M., & Ramirez, J. P. (2024). Gender differences in student performance tasks: Implications for classroom practices. Journal of Educational Research and Innovation, 32(1), 77–88.

UNESCO. (2020). Global education monitoring report 2020: Inclusion and education: All means all. Paris, France: UNESCO.

Valerio, M. C., & Santos, J. L. (2023). Gender perspectives on trust and collaboration in secondary classrooms. Journal of Educational Psychology and Development, 17(1), 88–102.

Wang, M. T., & Eccles, J. S. (2019). The role of the school environment in student engagement and academic achievement. Educational Psychologist, 54(3), 1-17. https://doi.org/10.1080/00461520.2019.1565622

Zepke, N. (2024). Rethinking engagement: A learner-centered framework for meaningful academic achievement. International Journal of Teaching and Learning in Higher Education, 36(1), 1–15.

Zhang, Y., Li, X., & Chen, J. (2024). The role of self-perceived creativity and curiosity in student engagement and academic performance. SAGE Open, 14(2). <u>https://doi.org/10.1177/20965311241228282</u>

Zhang, Y., Wang, J., & Li, M. (2024). Exploring the relationship between student engagement and academic performance: A study of attention, curiosity, and motivation in Chinese high school students. Journal of Educational Psychology, 116(2), 235-248.