ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 5| May 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

THE INFLUENCE OF LEARNER ENGAGEMENT AND LEARNING ENVIRONMENT ON PERCEIVED CRITICAL THINKING SKILLS AMONG SENIOR HIGH SCHOOL LEARNERS

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Article DOI: https://doi.org/10.36713/epra21830
DOI No: 10.36713/epra21830

ABSTRACT

Low critical thinking skills among students is a global issue. The study determined the significance of learner engagement and learning environment as predictors of perceived critical thinking skills among senior high school learners. Utilizing multiple linear regression, data from 150 total samples selected through cluster random sampling yielded results that learner engagement and learning environment are significant predictors of perceived critical thinking skills. Social Constructivism Theory was affirmed. Exploring other variables that may account for the remaining 52% variance in learner perceived critical thinking skills, and implementing programs that enhance learner engagement and the learning environment are recommended.

KEYWORDS: *Influence Of Learner Engagement, Learning Environment, Perceived Critical Thinking Skills, Senior High School Learners*

INTRODUCTION

The Problem and Its Setting

Low critical thinking skills among students are a significant issue. Studies by Fadhlullah and Ahmad (2017), Hasanah et al. (2020), Hidayat et al. (2023), Fadillah et al. (2023), and Pitorini et al. (2024) affirm this troubling trend, illustrating the persistent nature of low critical thinking skills across various educational contexts. Similar findings have been reported globally by Finnie et al. (2018), Shirazi and Heidari (2019), Reboot Foundation (2020), and Encabo-Fernández et al., (2023). In the Philippines, Maquiling (2023), Lansangan and Orleans (2024) and Benedicto and Andrade (2022) documented low critical thinking skills among learners and pre-service teachers. Al-Mahrooqi & Denman (2020) emphasized how this deficit limits students' problem-solving abilities, often resulting in poor academic outcomes (Sarwanto, Fajari, & Chumdari, 2021). These findings underscore the urgency to investigate factors influencing low critical thinking skills, forming the basis of this study.

Significance of the Study

This study explores the factors that influence senior high school learners' perception of their critical thinking skills. It aims to guide educators and policymakers in enhancing cognitive competencies among students. Furthermore, the findings may serve as a foundation for future research on other factors affecting critical thinking, which are necessary for improving academic performance and preparing students for personal and career growth. Thus, the study may contribute to the cultivation of a more competent and critical-thinking-oriented student population.

Statement of the Problem

The study determined the significance of learner engagement and learning environment as predictors of perceived critical thinking skills among senior high school learners. Specifically, it purports to:

1. Determine the levels of learner engagement, learning environment, and perceived critical thinking skills among senior high school learners.
2. Determine the significance of the correlation between learner engagement and learning environment on perceived critical thinking skills among senior high school learners.
3. Determine the significance of the influence of learner engagement and learning environment on perceived critical thinking skills among senior high school learners.

Hypotheses

The following hypotheses were tested at a 0.05 level of significance:

H_{01}: Learner engagement and learning environment are not significantly correlated with perceived critical thinking skills among senior high school learners.

H_{02}: Learner engagement and learning environment do not significantly influence the perceived critical thinking skills among senior high school learners.

Theoretical/Conceptual Framework

The study was anchored on the Theory of Social Constructivism proposed by Lev Vygotsky in 1968. The theory posits that the

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collaborative learning approach emphasizes student involvement, discussion, and knowledge exchange. This learning theory stresses active interaction among learners, the teacher, and other components of the teaching-learning process rather than teacher monotony in the classroom. The underlying factor is that students collaborate in groups to share ideas, solve problems, or create something new to add to their existing knowledge.

The variables used in this study are learner engagement, indicated by behavioral, emotional, and cognitive engagements (Schindler et al., 2017), which stands for the collaborative learning idea presented in theory; the learning environment, indicated by relationship , personal growth, and equity dimensions (Dolinting & Pang, 2022), represents the interaction among learners, the teacher, and other components of the teaching-learning process as asserted in theory; and perceived critical thinking skills, indicated by knowledge construction, evaluating reasoning, and decision-making (Heard et al., 2020), which reflect the addition to their existing knowledge as mentioned in the theory.

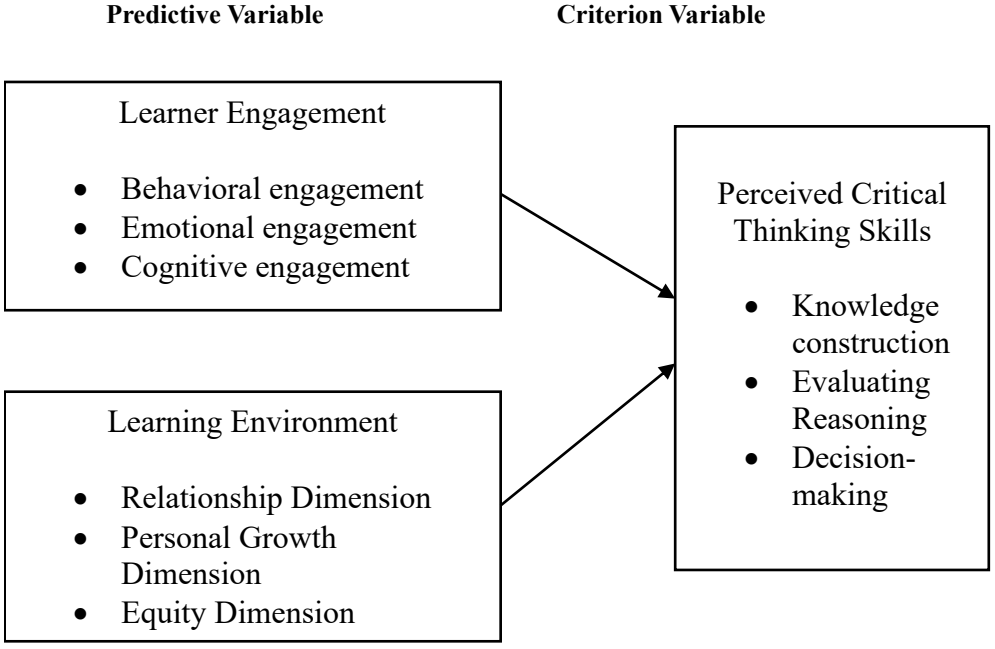


Figure 1. Conceptual Framework of the Study

METHODOLOGY

Research Design

A quantitative, descriptive-correlational design was used to investigate the influence of learner engagement and learning environment on the perceived critical thinking skills among senior high school learners (Devi et al., 2022). Additionally, multiple linear regression analysis was applied to assess these influences (Smalheiser, 2019).

Research Locale

The study was conducted in public schools in Cluster 3, Division of Davao City, an area with students from diverse socio-economic backgrounds. This locale was chosen to study Grade 12 senior high school students, who were developing their critical thinking skills, essential for higher education and future careers.

Sample and Sampling Technique

The study employed cluster random sampling (Simkus, 2023) and select 150 Grade 12 HUMMS learners from Cluster 3, Division of Davao City. The sample size was chosen to ensure statistical reliability of the findings (Ahmed, 2024).

Research Instruments

The study used adapted survey questionnaires based on the National Survey of Student Engagement developed by the Indiana University School of Education's Center in 2000 (University of North Dakota, 2023), the WIHIC instrument developed by Fraser, McRobbie, and Fisher in 1996 (Maharaj-Sharma, 2021), and the Critical Thinking Questionnaire (CThQ) by Kobylarek et al. (2022). The 45-item questionnaire was modified to fit the context of this study.

The first part of the questionnaire assessed learners' behavioral, emotional, and cognitive engagement. Respondents used a Likert scale to rate their level of agreement, where 5 indicated Very High, 4 High, 3 Moderate, 2 Low, and 1 Very Low engagement.

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Range of Means	Descriptive Level	Interpretation
4.20 – 5.00	Very High	Learner engagement is excellent.
3.40 – 4.19	High	Learner engagement is very good.
2.60 – 3.39	Moderate	Learner engagement is good.
1.80 – 2.59	Low	Learner engagement is poor.
1.00 – 1.79	Very Low	Learner engagement is very poor.

Additionally, the second part of the survey examined learners' perceptions of the learning environment, focusing on the relationship, personal growth, and equity dimensions. Respondents rated their satisfaction using a Likert Scale, where 5 indicated Very High, 4 High, 3 Moderate, 2 Low, and 1 Very Low satisfaction levels.

Range of Means	Descriptive Level	Interpretation
4.20 – 5.00	Very High	Learning environment is excellent.
3.40 – 4.19	High	Learning environment is very good.
2.60 – 3.39	Moderate	Learning environment is good.
1.80 – 2.59	Low	Learning environment is poor.
1.00 – 1.79	Very Low	Learning environment is very poor.

Furthermore, the third part of the questionnaire evaluated the learners' perceptions of their critical thinking skills, particularly in knowledge construction, evaluating reasoning, and decision-making. Respondent rated their perceptions using a Likert Scale with 5 indicated Very High, 4 High, 3 Moderate, 2 Low, and 1 Very Low perception.

Range of Means	Descriptive Level	Interpretation
4.20 – 5.00	Very High	Perceived critical thinking skills are excellent.
3.40 – 4.19	High	Perceived critical thinking skills are very good.
2.60 – 3.39	Moderate	Perceived critical thinking skills are good.
1.80 – 2.59	Low	Perceived critical thinking skills are poor.
1.00 – 1.79	Very Low	Perceived critical thinking skills are very poor.

The questionnaire was validated by three experts (mean score 4.50) and pilot-tested with 30 senior high school learners, achieving a reliable Cronbach's alpha of 0.91.

Ethical Considerations

The study followed the HCDC SMILE Review standards, securing informed consent and assent, voluntary participation and the right to withdraw. Anonymity, privacy and confidentiality were maintained in line with the Data Privacy Act of 2012. Data will be safely disposed of after one year. Justice was ensured through fair sampling of HUMSS students, and transparency was upheld by clearly explaining the study's purpose and sharing findings in academic settings.

Data Gathering Procedure

The researcher commenced the data gathering by seeking approval from the Society for Moral Integrity and Legal Ethics (SMILE). An endorsement letter from the Dean of the Graduate School at Holy Cross of Davao, approved by the thesis Adviser, was then obtained. A formal request was sent to DepEd Division of Davao City, through the Schools Division Superintendent (SDS), followed by seeking consent from the school principals of the targeted institutions. Parental consent and student assent were obtained in adherence to ethical standards, including privacy and confidentiality, voluntary participation, and the right to withdraw. The survey was administered in person, with schedules coordinated with school administrators and advisers to avoid class interruptions. Afterward, the responses were encoded and statistically analyzed using Mean, Pearson's Correlation Coefficient, and Multiple Linear Regression Analysis.

Data Analysis

Descriptive statistics summarized learners' perceptions using mean and standard deviation (Cooksey, 2020; Omda & Sergent, 2024) while Pearson's Correlation Coefficient examined the strength and direction of relationships among variables (Laerd Statistics, 2020), with a p-value below 0.05 indicating significance. Moreover, multiple Linear Regression Analysis assessed how learner engagement and the learning environment influenced perceived critical thinking skills (Smalheiser, 2019).

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The following scale was used to interpret the correlation coefficient (r-value):

r-value	Descriptive Interpretation
+/-1.00	Perfect correlation
Between +/-0.75 - +/-0.99	High correlation
Between +/-0.51 - +/-0.74	Moderately high correlation
Between +/-0.31 - +/-0.50	Moderately low correlation
Between +/-0.01 - +/-0.30	Low correlation
0.00	No correlation

RESULTS

Descriptive Analysis

Table 1 presents a descriptive summary of Learner Engagement and Learning Environment as predictive variables and Perceived Critical Thinking Skills as the criterion variable. Moreover, it contains the number of samples, standard deviation, mean, and the corresponding descriptive level.

Table 1. Descriptive Table

Variables	N	SD	Mean	Description Level
Learner Engagement	**150**	**0.47**	**4.05**	**HIGH**
Behavioral Engagement		0.54	4.06	HIGH
Emotional Engagement		0.59	4.07	HIGH
Cognitive Engagement		0.60	4.01	HIGH
Learning Environment	**150**	**0.46**	**4.01**	**HIGH**
Relationship Dimension		0.54	4.16	HIGH
Personal Growth Dimension		0.54	3.93	HIGH
Equity Dimension		0.57	3.93	HIGH
Perceived Critical Thinking Skills	**150**	**0.54**	**4.06**	**HIGH**
Knowledge Construction		0.63	3.90	HIGH
Evaluating Reasoning		0.58	4.14	HIGH
Decision–Making		0.59	4.18	HIGH

4.20-5.00 Very High, 3.40-4.19 High, 2.60-3.39 Moderate, 1.80-2.59 Low, 1.00-1.79 Very Low

Table 1 shows that learner engagement obtained a standard deviation of 0.47 and an overall mean of 4.05, indicating a high level and very good engagement. All its indicators also achieved high level means. In the same respect, the learning environment had a standard deviation of 0.46 and an overall mean of 4.01, signifying a high level and a very good learning environment with all its indicators at a high level. Lastly, perceived critical thinking skills gained a standard deviation of 0.54 and an overall mean of 4.06, demonstrating a high level and very good perceptions of critical thinking skills, with all its indicators achieving high level means.

Correlation Analysis

Table 2 presents the correlation results, including the predictive variables, namely, Learner Engagement and Learning Environment and criterion variable, which is Perceived Critical Thinking Skills. The table also presents the r-value, p-value, the decision on the hypothesis, and the corresponding interpretation.

Table 2. Correlation Table

	Perceived Critical Thinking Skills			
Variables	**r-value**	**p-value**	**Decision on H_o**	**Interpretation**
Learner Engagement	0.649	.000	Reject H_o	Significant
Learning Environment	0.633	.000	Reject H_o	Significant

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The correlation between learner engagement and perceived critical thinking skills was significant ($p = .000 < 0.05$), leading to the rejection of the null hypothesis. The r-value of 0.649 indicates a moderately high correlation. Similarly, the correlation between learning environment and perceived critical thinking skills was significant ($p = 0.000$), resulting in the rejection of the null hypothesis. The r-value of 0.633 also reflects a moderately high correlation.

Regression Analysis

Table 3 presents the regression results, including the predictive variables, namely, Learner Engagement and Learning Environment and criterion variable, which is Perceived Critical Thinking Skills. It also presents the unstandardized coefficients, standardized coefficients, the decision on the null hypothesis, and the interpretation.

Table 3. Regression Table

	Perceived Critical Thinking Skills					
	Unstandardized Coefficients		Standardized Coefficients			
Variables	**B**	**Standard Error**	**Beta**	***t***	**Sig.**	**Decision on H_o**
(Constant)	0.54	0.31		1.74	0.083	
Learner Engagement	0.47	0.10	0.40	4.63	0.00	Reject
Learning Environment	0.41	0.10	0.34	3.97	0.00	Reject
$R = 0.69$; $R^2 = 0.48$;			F-value= 66.93;		p-value= 0.000	

Learner engagement had a beta coefficient of 0.40 with a p-value of 0.000, leading to the rejection of the null hypothesis and indicating a significant 40% influence on perceived critical thinking skills. This means a 0.40-unit increase in learner engagement corresponds to a unit increase in perceived critical thinking skills. On the other hand, the learning environment showed a beta coefficient of 0.34 and a p-value of 0.000, also rejecting the null hypothesis and indicating a significant 34% influence. A 0.34-unit increase in the learning environment corresponds to a unit increase in perceived critical thinking skills. Combined, learner engagement and the learning environment explained 48% of the variance in perceived critical thinking skills ($R^2 = 0.48$, $p = 0.000$), confirming their combined significant effect. Finally, the statistical results of the study revealed the regression formula for perceived critical thinking skills is PCTS = 0.47 LEng + 0.41 LEnv + 0.54.

Summary of Findings

1. Learner engagement, learning environment, and perceived critical thinking skills among senior high school learners are very good.
2. Learner engagement and the learning environment are significantly correlated with perceived critical thinking skills among senior high school learners.
3. Learner engagement and learning environment significantly influence the perceived critical thinking skills among senior high school learners, with a 48% combined degree.

DISCUSSIONS

Very Good Level of Learner Engagement

The findings of this study indicate that learner engagement is at a very good level, supporting Chan et al. (2021), Alemayehu & Chen (2023), and Jiang & Peng (2023), who reported strong student engagement among learners. Students' behavioral and cognitive engagement aligns with Zhang et al. (2023) and Li et al. (2024), highlighting the importance of teacher support and interaction. This also affirms Lei's (2022) view on the role of emotional management in learning.

Very Good Level of Learning Environment

The learning environment was rated very good, consistent with El-Sabagh (2021), Omodan et al. (2020), and Müller & Mildenberger (2021), who noted the importance of supportive and effective educational atmosphere. On the same vein, teacher-student relationships (Johnson-Hansen, 2021) and peer collaborative (Meador et al.,2024) learning environments enhance student engagement, academic performance, and self-efficacy.

Very Good Level of Perceived Critical Thinking Skills

Senior high school learners demonstrated a very good level of perceived critical thinking skills, confirming findings from Noori et al. (2023) and Huang et al. (2022). The results echoed Handayanti et al. (2019) on knowledge construction, and Pilande (2023) and Pamaos et al. (2024), who emphasized students' ability to evaluate, analyze information and make sound decisions,

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which are essential for academic success and real-world problem-solving.

Correlation Findings

The findings revealed a strong correlation between learner engagement and perceived critical thinking skills among senior high school learners. This aligns with Warsah et al. (2021), Ospankulova et al. (2024), and Chandha & Chowdhury (2023), who emphasized that collaborative learning, active participation, and discussion-based instruction significantly enhance critical thinking abilities. Likewise, a strong correlation was found between learning environment and perceived critical thinking skills. This is consistent with Razak et al. (2022), Pan (2024), and Song & Cai (2024), who noted that student-centered, supportive, and interactive learning environments foster critical thinking skills.

Regression Findings

Regression analysis showed that learner engagement explains 40% of the variance in perceived critical thinking skills among senior high school learners. This supports findings by Li et al. (2023), Liu et al. (2023), and Tamimi (2023), who emphasized that cognitive, emotional, and behavioral engagement are significant predictors of higher-order thinking skills and academic achievement. Hasanov et al. (2021) further reinforced the role of holistic engagement in fostering critical thinking. Similarly, the learning environment accounted for 34% of the variance in perceived critical thinking skills. Studies by Lee & Kang (2020), Nguyen & Hsu (2022), and Lee (2021) highlighted the importance of small group work, real-life problem-solving activities, strong teacher-student and peer relationships supports the development of critical thinking skills. Espiritu & Viado (2023) and Yip & Saito (2023) also affirmed the role of collaborative learning and inclusive environments in enhancing critical thinking skills.

Conclusion

The study concluded that learner engagement and learning environment are significant predictors of perceived critical thinking skills among senior high school learners, with a 48% combined degree of influence. The Theory of Social Constructivism is affirmed, positing that the collaborative learning approach emphasizes student involvement, discussion, and knowledge exchange. This learning theory stresses active interaction among learners, the teacher, and other components of the teaching-learning process rather than teacher monotony in the classroom. The underlying factor is that students collaborate in groups to share ideas, solve problems, or create something new to add to their existing knowledge.

Recommendations

Further studies may be conducted by exploring other potential variables not covered in this study to account for the 52% variance in the perceived critical thinking skills. Educational institutions are encouraged to develop and implement policies and programs that enhance learner engagement and the learning environment to support the realization of equal access to quality education (SDG #4).

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ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 11| Issue: 5| May 2025|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2025: 8.691 || ISI Value: 1.188

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