An Assessment of Critical Thinking among Senior High School Students: A Basis for Intervention

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ABSTRACT

This study assessed the level of critical thinking skills among Senior High School students at Lorenzo S. Sarmiento Sr. National High School as a basis for an instructional intervention. A quantitative descriptive research design was employed, using a validated questionnaire that measured six components of critical thinking: interpretation, analysis, evaluation, inference, explanation, and self-regulation. The respondents consisted of 162 Grade 12 students selected through stratified random sampling from a population of 279 students. Data were analyzed using frequency, percentage, and mean. The demographic profile revealed that most respondents were female, aged 16–17 and enrolled in the Computer System Servicing strand. The results showed that the overall level of critical thinking skills was high. All components were rated high, with self-regulation obtaining the highest mean, followed by inference, explanation, interpretation, and evaluation, while analysis obtained the lowest mean score of 3.81. The findings indicate that students demonstrate a high level of critical thinking skills; however, analytical skills require further improvement. Based on the results, an instructional intervention program was proposed to strengthen students' analytical and problem-solving skills. The study concludes that targeted instructional interventions may further enhance students' critical thinking skills and support their academic development.

Keywords: Computer System Servicing, Critical Thinking, Intervention, Philippines

INTRODUCTION

Critical thinking is a vital skill that prepares students to navigate the complexities of the modern world (Kurylo et al., 2023). However, in China, most graduate students are classified as adult learners, with an average age of 24 years old (Jiang et al., 2024). The United States faces a challenge with the transferability of critical thinking, as this student struggles to adapt to and even practice it in specific courses. (Bates et al. 2024).

A study conducted in Zambales by Viado (2023) revealed that developing students' critical thinking skills is vital, as it enhances their analytical and problem-solving abilities, which are essential to national development. To expand, Nacaroğlu et al. (2020) found that critical thinking enables learners to evaluate information, analyze policies, and make sound judgments, thereby strengthening their critical thinking. In accordance with the study by Fitrianto and Hidayat (2024), critical thinking also contributes to national progress by preparing students to think critically and address complex social and economic challenges. Moreover, Faiq and Andriani (2023) examined how teaching methods that foster critical thinking in senior high education can improve students' analytical abilities and engagement, suggesting that such pedagogical strategies support deeper learning and help learners from diverse backgrounds better participate in educational processes and decision-making, key elements of empowerment and long-term engagement in society.

In the Davao region, studies have reported that students in Region XI encounter challenges in developing critical thinking and study skills, which affect their academic success and engagement in learning tasks (Borbon et al.,

2025). In cities such as Davao City, where schools serve learners from diverse socioeconomic and educational backgrounds, these challenges become visible when students struggle to analyze information, evaluate arguments, or generate solutions to complex problems in class discussions and academic tasks (Evardo, 2024). Moreover, this situation is often observed at Lorenzo S. Sarmiento Sr. National High School, where senior high school students find it difficult to interpret data, connect ideas, or apply concepts to real-life situations, which are essential components of critical thinking.

Although the study of Borbon et al. (2023) looked into the level of critical thinking skills and their connection to academic success among senior high school students at Lorenzo S. Sarmiento Sr. National High School, there is still a gap in research that focuses on how these skills are built and used in the classroom. The previous study showed that critical thinking is important for academic success, but it did not explain how students develop these skills through classroom activities, learning engagement, and teacher support. Therefore, this study aims to fill that gap by finding out the level of students' critical thinking skills, the factors that affect their development, and ways to improve these skills in the school's learning environment.

Research Objectives

1.To determine the demographic profile among students in Lorenzo S. Sarmiento Sr. National High School in terms of:

1.1 age;

1.2 sex; and

1.3 strand

2. To determine the level of students' critical thinking in Lorenzo S. Sarmiento Sr. National High School in terms of:

2.1 interpretation

2.2 analysis

2.3 evaluation

2.4 inference

2.5 explanation

2.6 self-regulation

3. To propose an instructional intervention based on the findings of the study at Lorenzo S. Sarmiento Sr. National High School.

METHODOLOGY

This study used a quantitative, descriptive research design. This type of design is suitable because it does not change or control conditions; instead, it focuses on describing a population, situation, or phenomenon. It helped the researchers determine the actual level of critical thinking among grade 12 students and how these skills could be improved through appropriate instructional intervention.

This research was quantitative, as it involved collecting and analyzing numerical data using a standardized questionnaire (Sino Cruz et al., 2023). The study employed this design using structured questionnaires to gather measurable data from grade 11 senior high school students. The variable was measured using a standardized instrument administered using a Likert scale. The collected data were analyzed using statistical tools and were interpreted accordingly.

Moreover, descriptive research is a method used to identify and describe the characteristics of a specific population or phenomenon (Shinija, 2024). Descriptive research provides a snapshot of a particular situation at a given point in time, systematically gathering information without manipulating variables or establishing cause-and-effect relationships (Creswell & Creswell, 2018).

Population and Sample

The respondents of the study were the Grade 12 students at Lorenzo S. Sarmiento Sr. National High School. The total population is 279 students, divided into five sections by strand: Section A (HUMMS), Section B (CSS), Section C (Agri), Section D (Caregiving), and Section E (GAS). Using the Raosoft sample size calculator with a 95% confidence level, 5% margin of error, and 50% response distribution, the required sample size for this study is 162 respondents. The participants of the study are Grade 12 students enrolled in the first semester of S.Y. 2025–2026 who are willing to participate and provide informed consent. Those who are not enrolled in the first semester or refuse to participate are excluded.

Grade 12 students were chosen as participants because they are at a stage of developing higher-order thinking and decision-making skills, which are essential to understanding the study's focus. The researchers used the stratified random sampling technique to ensure that each strand or section of Senior High School students was fairly represented. Stratified random sampling is a method where the population is divided into smaller groups, called strata, based on shared characteristics. In this case, the different academic strands are the shared characteristics. From each stratum, respondents are randomly selected to maintain balance and accuracy in the results. The instrument used in this study had a Cronbach's Alpha of 0.95, indicating excellent reliability. The total sample of 162 respondents was distributed among the five sections based on their population size. From each section, students were randomly selected using their class lists. If a chosen student declined to participate, another student from the same section was selected as a replacement.

Statistical tools

The statistical tools used for data analysis and interpretation were the following:

Mean. This statistical tool will be used to find the average response of students' critical thinking using a Likert scale.

Frequency and Percentage. This statistical tool will be used to describe the respondents' demographic profile and to show how many students have specific levels of critical thinking.

RESULT

Demographic Profile of the Respondents

Shown in Table 1 are the results of the demographic profile in terms of sex, age, and strand among grade 12 senior high school students in Lorenzo S. Sarmiento Sr. National High School.

Table 1. Demographic Profile of the Respondents

Demographic Profile	**Frequency (n=162)**	**Percentage (%)**
Sex*		
Male	66	40.74
Female	**96**	**59.26**
Total	162	100

Age*		
15-16	**121**	**74.69**
17-18	39	24.08
19-20	2	1.23
Total	162	100
Strand*		
GAS-ABM	22	13.58
GAS-HUMSS	35	27.64
CAREGIVING	23	25.63
CSS	**58**	**14.07**
AGRICULTURE	24	14.07
Total	162	100

Level of ICT Skills

Shown in Table 2 are the mean scores for the indicators of critical thinking skills among Senior High School students in Lorenzo S. Sarmiento Senior National High School with an overall mean of 3.91 and described as high with a standard deviation of 0.55. The high level could be attributed to the high rating given by the respondents in all indicators. This entails that the respondent's responses to the level critical thinking skills.

The cited overall mean score was obtained from the following computed mean scores from highest to lowest: 4.03 or Self-regulation with a standard deviation of 0.61; 92 or Inference with a standard deviation 0.64; 3.91 or Explanation with a standard deviation of 0.66; 3.90 or Interpretation with a standard deviation of 0.61; 3.89 or Evaluation with a standard deviation of 0.67; and 3.80 or Analysis with a standard deviation of 0.64.

Table 2. Level of Critical Thinking

Indicators	**Mean**	**SD**	**Descriptive Equivalent**
Interpretation	3.90	0.62	High
Analysis	3.81	0.64	High
Evaluation	3.89	0.68	High
Inference	3.92	0.64	High
Explanation	3.91	0.66	High
Self-Regulation	4.03	0.61	High
Interpretation	3.91	0.56	High
Overall	**3.90**	**0.62**	**High**

DISCUSSION

Demographic Profile of the Respondents

Regarding sex, the results showed more female respondents than male respondents. The findings also revealed that the majority of respondents were aged 16 to 17. Regarding the academic strand, most respondents are in the Computer System Servicing strand, with a minority in the GAS-ABM strand.

Level of Critical Thinking

The respondents' overall level of critical thinking skills in Lorenzo S. Sarmiento Sr. National High School is high. This means that the students' critical thinking abilities are well-developed across most areas. This further indicates that while learners show strong skills in monitoring and regulating their own thinking, certain aspects, particularly analytical skills, require more focused improvement. Critical thinking plays a crucial role in supporting effective learning and decision-making. With a high level of overall critical thinking, students are likely to engage in reflective and independent learning, which contributes to their academic growth and cognitive development (Haris et al., 2024). It is encouraging to see that students demonstrate strong self-regulation and metacognitive awareness in their learning.

This result aligns with the proposition of Jean Piaget's Constructivist Learning Theory, which emphasizes that learning is an active process where students acquire skills through engagement and practice. The lower performance in Analysis reflects common challenges among learners in examining arguments, identifying assumptions, and organizing ideas logically. Studies suggest that inquiry-based and practical teaching strategies can help improve analytical skills, reinforcing students' overall critical thinking abilities (Astina et al., 2025). Understanding the variations across the different components of critical thinking highlights the importance of instruction that addresses both strengths and weaknesses to ensure comprehensive cognitive development.

CONCLUSION

The study concludes that the overall level of critical thinking skills among Senior High School students in Lorenzo S. Sarmiento Sr. National High School was high, including the six components: interpretation, analysis, evaluation, inference, explanation, and self-regulation. Students showed strong higher-order thinking skills that support learning and decision-making, with self-regulation being the highest, reflecting their ability to monitor and improve their own thinking, while analysis was the lowest, indicating difficulties in examining ideas, identifying assumptions, and organizing information logically. These findings support Jean Piaget's Constructivist Learning Theory, which emphasizes that learning is an active process where students build knowledge through experience and reflection.

Proposed Enrichment Program

Since the results are already high, the researcher aims to make an enrichment program to help improve the areas that still need to be worked on.

REPUBLIC OF THE PHILIPPINES

REGION XI, DAVAO REGION

LORENZO S. SARMIENTO SR. NATIONAL HIGH SCHOOL

POBLACION, DAVAO DE ORO

"Critical Thinking and Application Program"

Proposed Enhancement Program

April 2026– June 2026

Activities	Objectives	Beneficiaries	Responsible	Time Frame	Budget
Problem-Solving	• Improve students' critical thinking skills in analyzing and solving problems • Develop logical reasoning and decision-making through problem-solving design. • Analyze real-world problems and propose problem-solving based	● Grade 12 Senior High School Students of Lorenzo S. Sarmiento Sr. National High School	● Researchers, Teachers, and School Administrators	●Once a week every Friday (1:00 pm – 3:00 pm)	● 1000 pesos per session
Group Discussion and Analysis	• Develop critical thinking through problem-solving. • Analyze real-life scenarios and data to make informed decisions. • Strengthen teamwork, communication, and logical reasoning skills.	● Grade 12 Senior High School Students of Lorenzo S. Sarmiento Sr. National High School	● Researchers, Teachers, and School Administrators	4 times a Month, every Monday	1500 pesos per session
Critical Thinking Exercise	• Strengthen students' analytical skills by evaluating scenarios and potential. • Encourage logical reasoning and ethical decision-making. • Promote reflection on consequences and improve their critical thinking skills	● Grade 12 Senior High School Students of Lorenzo S. Sarmiento Sr. National High School	● Researchers, Teachers, and School Administrators	Once a Month	5000 pesos (Honorarium for guest speaker)
Reflection Activities	• Students will reflect on their thinking process to improve self-regulation skills.	• Grade 12 Senior High School Students of Lorenzo S. Sarmiento Sr.	• Researchers, Teachers, and School Administrators	Last day of the interventio n	7000 pesos (prizes, certificate, and materials)

	• Develop self-regulation skills to improve critical thinking • Encourage students to reflect on their decision-making and problem-solving processes	National High School			

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