International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Learners' Critical Thinking Skill and Problem-Solving Competence

April Rose S. Nallonar

Guimaras State University, Mclain, Buenavista, Guimaras

ABSTRACT

This study determined the learners' critical thinking skill and problem-solving competence in the District of Sibalom South, Schools Division of Antique, Philippines, for the school year 2024–2025. The study involved 256 randomly selected Grade 8 learners. Data on learners' critical thinking skill were collected using a validated questionnaire based on Atienza (2018), while problem-solving competence data were taken from the results of the Enhanced-Regional Unified Numeracy Test (E-RUNT). The research employed a descriptive-correlational design. Independent variables included sex, family monthly income, mother's educational attainment, school size, and school location, while the dependent variables were learners' critical thinking skill and problem-solving competence. Statistical tools such as frequency, percentage, mean, t-Test, ANOVA, and linear regression analysis (with .05 significance level) were used, processed through SPSS software. Findings revealed that the level of learners' critical thinking skill was "Very High" overall and across all demographic categories. In contrast, their level of problem-solving competence was "Not Proficient" across all groups. No significant differences were found in the learners' critical thinking skill when classified by sex, family monthly income, and mother's educational attainment, but significant differences emerged based on school size and school location. For learners' problem-solving competence, no significant differences were observed across all variables. Lastly, the study found that learners' critical thinking skill did not significantly influence their problem-solving competence.

Keywords: learners' critical thinking skill, problem-solving competence

Introduction

In today's rapidly changing and knowledge-driven society, the development of learners' critical thinking skills and problem-solving competence has become a central goal of basic education. These higher-order thinking skills enable learners to analyze information, evaluate evidence, make reasoned judgments, and apply knowledge to real-life situations. Educational systems worldwide emphasize critical thinking and problem-solving as essential competencies for academic success and lifelong learning (Facione, 2015; OECD, 2019).

Critical thinking refers to the ability to think clearly and rationally, involving skills such as analysis, interpretation, inference, and evaluation of information (Facione, 2015). In the classroom, learners who demonstrate strong critical thinking skills are more capable of understanding complex concepts, questioning assumptions, and engaging meaningfully in learning tasks. Research indicates that students with well-developed critical thinking skills tend to perform better academically and are more adept at independent learning (Ennis, 2011).

Closely related to critical thinking is problem-solving competence, which involves identifying problems,

generating and evaluating possible solutions, and applying appropriate strategies to reach effective outcomes. Problem-solving is considered a core component of 21st-century skills and is essential in mathematics, science, and real-world contexts (OECD, 2019). Learners who possess strong problem-solving competence are better prepared to face academic challenges and adapt to unfamiliar situations (Jonassen, 2011).

Studies have consistently shown a strong relationship between critical thinking and problem-solving skills, suggesting that learners who can critically analyze situations are more likely to develop effective problem-solving strategies (Dwyer, Hogan, & Stewart, 2014). Instructional practices that promote inquiry-based learning, collaborative tasks, and reflective thinking have been found to significantly enhance these competencies among learners.

In the Schools Division of Antique, Philippines, developing learners' higher-order thinking skills is aligned with the goals of the K to 12 curriculum, which emphasizes learner-centered instruction and the cultivation of critical and creative thinking. However, empirical studies focusing on Grade 8 learners' critical thinking skills and problem-solving competence in the local context remain limited. Thus, this study aims to examine the level of critical thinking skills and problem-solving competence of 256 randomly selected Grade 8 learners in the Schools Division of Antique during School Year 2024–2025, providing data-driven insights that may guide teachers, school administrators, and curriculum planners in enhancing instructional strategies and learning outcomes.

This study aimed to examine the critical thinking skills and problem-solving competence of Grade 8 learners in the Schools Division of Antique, Philippines during School Year 2024–2025. Specifically, it sought to determine the level of critical thinking skills among the learners in terms of analysis, interpretation, inference, evaluation, and explanation. It also aimed to assess learners' problem-solving competence, including their ability to identify problems, generate and evaluate solutions, and apply appropriate strategies to resolve challenges. Furthermore, the study sought to determine whether significant differences exist in critical thinking skills and problem-solving competence when learners are grouped according to selected demographic variables, such as age, sex, and academic standing. Lastly, the study aimed to examine the relationship between learners' critical thinking skills and their problem-solving competence. The findings of this study are intended to provide empirical evidence to guide teachers, school administrators, and curriculum planners in developing instructional strategies that enhance higher-order thinking skills and improve learning outcomes among Grade 8 learners.

Methodology

This study employed a descriptive-correlational research design to determine the level of critical thinking skill and problem-solving competence of Grade 8 learners in the District of Sibalom South, Schools Division of Antique, Philippines, for School Year 2024–2025. The descriptive component aimed to determine the levels of learners' critical thinking skills and problem-solving competence, while the correlational component examined the relationship between these two variables.

The study involved 256 randomly selected Grade 8 learners, chosen through random sampling to ensure representation from different schools within the district. The independent variables included sex, family monthly income, mother's educational attainment, school size, and school location, while the dependent variables were learners' critical thinking skill and problem-solving competence.

Data on learners' critical thinking skill were collected using a validated questionnaire adapted from Atienza (2018), which measured dimensions such as analysis, interpretation, inference, evaluation, and

explanation. Learners' problem-solving competence data were obtained from their scores on the Enhanced-Regional Unified Numeracy Test (E-RUNT), which assesses learners' ability to identify problems, generate solutions, and apply strategies to solve mathematical problems.

Data collection was conducted after securing the necessary permissions from school authorities, and ethical considerations such as informed consent, confidentiality, and voluntary participation were observed.

The collected data were analyzed using descriptive statistics—frequency, percentage, and mean—to determine the levels of critical thinking skills and problem-solving competence. Inferential statistical tools, including t-Test, Analysis of Variance (ANOVA), and linear regression analysis, were employed to identify significant differences and relationships among variables at a 0.05 level of significance. All data processing and analyses were performed using SPSS software to ensure accuracy and reliability of results.

Results

The results of the study revealed that the overall critical thinking skill of the Grade 8 learners in the District of Sibalom South was rated "Very High" with a mean of 4.32 (SD = 0.41). Across all demographic classifications—including sex, family monthly income, and mother's educational attainment—learners consistently demonstrated high levels of critical thinking. Among the dimensions measured, analysis and evaluation received the highest mean scores (M = 4.38, SD = 0.39; M = 4.35, SD = 0.41, respectively), suggesting that learners are particularly strong in examining information critically and making reasoned judgments.

In contrast, the overall problem-solving competence of learners was assessed as "Not Proficient", with an average E-RUNT score of 58.7% (SD = 6.8). This low level of competence was consistent across all demographic variables, including sex, family income, mother's educational attainment, school size, and school location. The data indicate that despite high critical thinking skills, learners struggle to apply these skills effectively in problem-solving scenarios, particularly in numeracy tasks assessed by the E-RUNT.

Inferential analysis showed that there were no significant differences in learners' critical thinking skills when grouped by sex, family monthly income, and mother's educational attainment ($p > 0.05$). However, significant differences were found based on school size ($p = 0.03$) and school location ($p = 0.02$), suggesting that learners from larger schools or particular locations performed differently in critical thinking tasks. For problem-solving competence, no significant differences were observed across any demographic variables ($p > 0.05$).

Finally, linear regression analysis revealed that learners' critical thinking skills did not significantly predict their problem-solving competence ($\beta = 0.12$, $p = 0.08$), indicating that high critical thinking abilities do not necessarily translate into proficiency in solving problems as measured by the E-RUNT. These findings highlight a gap between learners' cognitive reasoning skills and their ability to apply these skills to practical problem-solving situations.

Discussion

The findings of this study reveal a notable contrast between learners' critical thinking skills and their problem-solving competence. The Grade 8 learners in the District of Sibalom South demonstrated a very high level of critical thinking, particularly in the dimensions of analysis and evaluation. This indicates that learners are capable of examining information, assessing arguments, and making reasoned judgments, which aligns with previous research emphasizing that adolescents can develop strong higher-order

thinking skills when provided with appropriate instruction and supportive learning environments (Facione, 2015; Ennis, 2011). The significant differences in critical thinking observed across school size and school location suggest that environmental and institutional factors, such as teacher expertise, class size, and resource availability, may influence learners' ability to apply cognitive skills effectively.

Despite high critical thinking skills, learners' problem-solving competence was consistently rated as "Not Proficient", with low E-RUNT scores across all demographic variables. This suggests a disconnect between learners' ability to think critically and their capacity to apply these skills in practical problem-solving scenarios. Such a gap may reflect limitations in instructional approaches that fail to integrate critical thinking with applied problem-solving exercises, particularly in numeracy contexts (Jonassen, 2011). It also aligns with studies that emphasize that problem-solving competence requires not only cognitive reasoning but also procedural knowledge, practice, and familiarity with domain-specific tasks (OECD, 2019).

The lack of a significant predictive relationship between critical thinking skills and problem-solving competence further supports the idea that possessing higher-order thinking abilities alone does not guarantee effective problem-solving performance. This finding underscores the importance of explicitly teaching learners how to transfer critical thinking skills into real-world problem-solving contexts, as suggested by Dwyer, Hogan, and Stewart (2014).

Overall, the study highlights the need for instructional strategies that bridge the gap between cognition and application. Educators must incorporate more inquiry-based, problem-centered learning activities that encourage learners to actively apply critical thinking in solving practical and numeracy-based problems. Strengthening this connection can enhance learners' overall competence and better prepare them for academic challenges and real-life situations.

Conclusion

The study concludes that Grade 8 learners in the District of Sibalom South exhibit very high critical thinking skills, particularly in analysis and evaluation, demonstrating their ability to reason, interpret information, and make informed judgments. However, their problem-solving competence remains "Not Proficient", indicating a significant gap between their cognitive reasoning abilities and the practical application of these skills in solving problems, especially in numeracy-related tasks. The findings also show that critical thinking skills do not significantly predict problem-solving competence, suggesting that higher-order thinking alone is not sufficient for effective problem-solving. While variables such as sex, family income, and mother's educational attainment did not significantly affect learners' skills, differences in school size and location highlight the influence of environmental and institutional factors on the development of critical thinking. Overall, the results underscore the need to bridge the gap between learners' cognitive abilities and their practical problem-solving performance through targeted instructional strategies and supportive learning environments.

Recommendations

To address the gap between critical thinking and problem-solving competence, it is recommended that educators implement problem-based and inquiry-oriented learning strategies that encourage learners to apply reasoning skills in practical contexts. Schools should provide supplemental interventions, such as tutorials and workshops, to strengthen problem-solving abilities, particularly in numeracy. Curriculum planners should design cross-disciplinary programs that explicitly link critical thinking with applied

problem-solving exercises. Additionally, school administrators should consider contextual factors, such as school size and location, to ensure equitable access to resources and learning opportunities. Future research is encouraged to explore other factors affecting problem-solving competence, including teaching methodologies, classroom practices, and learner motivation, to provide a more comprehensive understanding of ways to enhance both critical thinking and problem-solving skills.

References

1. Atienza, R. (2018). Development of critical thinking skills in secondary school learners. Philippine Journal of Educational Research, 17(2), 45–59.
2. DepEd (Department of Education). (2020). Enhanced-Regional Unified Numeracy Test (E-RUNT) manual. Department of Education, Philippines.
3. Dwyer, C. P., Hogan, M. J., & Stewart, I. (2014). An integrated critical thinking framework for the 21st century. Thinking Skills and Creativity, 12, 43–52.
4. Ennis, R. H. (2011). The nature of critical thinking: An outline of critical thinking dispositions and abilities. University of Illinois.
5. Facione, P. A. (2015). Critical thinking: What it is and why it counts. Insight Assessment.
6. Jonassen, D. H. (2011). Learning to solve problems: A handbook for designing problem-solving learning environments. Routledge.
7. OECD. (2019). PISA 2018 results: What students know and can do. OECD Publishing.