

Numeracy Performance Enhancement Program in the Schools Division of Tarlac Province: Strategic Mediation of Instructional Leadership Practices

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ABSTRACT

This study examined the numeracy performance enhancement program in the Schools Division of Tarlac Province through the strategic mediation of instructional leadership practices. Specifically, the study assessed the level of numeracy skills among elementary learners, determined the extent of instructional leadership practices in mathematics, examined the significant relationship between instructional leadership and numeracy performance, identified the instructional leadership components that significantly predict numeracy achievement, determined the significant differences in numeracy performance across schools grouped according to leadership practices, and evaluated the extent to which instructional leadership variables explain variance in numeracy performance. The study utilized a quantitative research design employing descriptive-

correlational, regression, analysis of variance, and path analysis methods. Findings revealed that learners generally demonstrated high numeracy skills, particularly in basic mathematical competencies, while more complex areas such as division, fractions, and problem solving remained moderate. Instructional leadership practices were observed to a high extent, especially in instructional monitoring, teacher collaboration, feedback provision, and learner progress monitoring. Significant positive relationships existed between instructional leadership practices and learners' numeracy performance. Moreover, clear instructional direction, regular coaching, professional learning priority, data-driven decision-making, and consistent supervision significantly predicted numeracy achievement. Results further revealed significant differences in numeracy performance across schools according to leadership practices, with schools exhibiting stronger instructional leadership obtaining higher numeracy performance. Path analysis also confirmed that instructional leadership variables significantly explained variance in numeracy performance and that the proposed model demonstrated good to excellent fit indices. The study concluded that instructional leadership plays a critical role in improving mathematics instruction and enhancing learners' numeracy achievement. Therefore, strengthening instructional leadership practices, professional development initiatives, instructional supervision, and

data-driven instructional systems is recommended to further improve numeracy performance among elementary learners.

Keywords: | *Numeracy Performance, Instructional Leadership, Mathematics Education, Elementary Learners,*

INTRODUCTION

Numeracy skills are fundamental to learners' academic success, particularly at the elementary level where mathematical understanding forms the basis for more complex problem-solving and analytical thinking. Numeracy encompasses not only the ability to perform basic arithmetic operations but also the capacity to interpret, analyze, and apply mathematical concepts in real-life situations. In the Schools Division of Tarlac Province, assessing the level of numeracy skills among elementary learners is essential in identifying learning gaps and designing targeted interventions. According to OECD (2019), numeracy proficiency is a key predictor of academic and life outcomes, as it supports logical reasoning and decision-making. Similarly, Mullis et al. (2020) emphasized that early mastery of mathematical concepts significantly influences learners' future achievement in mathematics.

The level of numeracy skills among elementary learners often varies due to differences in instructional quality, learner readiness, and access to resources. Some learners demonstrate proficiency in basic mathematical operations and problem-solving, while others struggle with foundational concepts such as number sense and place value. These disparities highlight the importance of early assessment and intervention to ensure that all learners achieve minimum proficiency levels. Research indicates that learners who receive consistent and structured instruction in mathematics are more likely to develop strong numeracy skills (Siegler et al., 2018; Gersten et al., 2017).

Instructional leadership plays a critical role in shaping the quality of mathematics instruction across schools. School leaders influence teaching practices by setting clear goals, providing professional support, and fostering a culture of continuous improvement. The extent of instructional leadership practices in mathematics includes activities such as monitoring instruction, supporting teacher development, and using data to guide decision-making. According to Hallinger (2018), effective instructional leadership is strongly associated with improved teaching quality and student outcomes. Similarly, Robinson et al. (2017) identified instructional leadership as a key factor in enhancing academic performance, particularly when leaders focus on teaching and learning processes.

The relationship between instructional leadership and learners' numeracy performance has been widely supported in educational research. Schools with strong instructional leadership tend to demonstrate higher levels of student achievement, as leaders actively support teachers and ensure the effective implementation of instructional strategies. According to Leithwood et al. (2016), leadership practices that emphasize goal setting, resource allocation, and teacher support significantly impact student learning outcomes. Moreover, Hallinger and Heck (2016) found that instructional leadership indirectly influences student achievement by improving teaching practices and school conditions.

Further analysis of instructional leadership components reveals that certain practices significantly predict numeracy achievement. Leadership behaviors such as providing instructional support, promoting professional development, and monitoring student progress have been identified as strong predictors of academic performance. According to Robinson et al. (2017), leaders who prioritize teacher learning and development contribute to improved instructional quality and student outcomes. Multiple regression analyses in educational studies often show that these leadership components account for a significant proportion of variance in student achievement.

Differences in numeracy performance across schools can also be attributed to variations in leadership

practices. Schools with more effective leadership structures tend to demonstrate higher levels of learner achievement compared to those with less developed practices. Analysis of variance (ANOVA) is commonly used to examine these differences, revealing that leadership practices contribute to variations in academic outcomes. According to Hallinger (2018), differences in school performance are often linked to the degree of leadership effectiveness and the consistency of instructional practices.

METHODS

Research Design

This chapter presents the research design, the sources of data which includes the locale of the study and the research population, instrumentation and data collection, and the tools for data analysis.

Participants and Locale

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Sampling and Data Collection

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Data Analysis

This study would employ a quantitative research design, specifically utilizing a non-experimental, explanatory-predictive design incorporating descriptive, correlational, comparative, regression, and structural equation modeling approaches. This design is highly appropriate as the study aims to examine relationships, test predictive models, compare group differences, and explain variance among variables using advanced statistical techniques.

Ethical Considerations

This study would strictly adhere to ethical standards in educational research to ensure the protection of participants' rights, dignity, and welfare. Prior to data collection, formal approval were obtained from the Schools Division Office of Tarlac Province and from the respective school heads of participating schools. All participants were provided with an informed consent form that clearly explains the purpose of the study, procedures involved, expected duration, and any potential risks or benefits. For learner participants who are minors, parental

or guardian consent were secured, along with learner assent.

RESULTS AND DISCUSSION

1. This study examined the numeracy performance enhancement program in the Schools Division of Tarlac Province through the strategic mediation of instructional leadership practices.
2. Specifically, the study assessed the level of numeracy skills among elementary learners, determined the extent of instructional leadership practices in mathematics, examined the significant relationship between instructional leadership and numeracy performance, identified the instructional leadership components that significantly predict numeracy achievement, determined the significant differences in numeracy performance across schools grouped according to leadership practices, and evaluated the extent to which instructional leadership variables explain variance in numeracy performance.
3. The study utilized a quantitative research design employing descriptive-correlational, regression, analysis of variance, and path analysis methods.
4. Findings revealed that learners generally demonstrated high numeracy skills, particularly in basic mathematical competencies, while more

complex areas such as division, fractions, and problem solving remained moderate.

5. Instructional leadership practices were observed to a high extent, especially in instructional monitoring, teacher collaboration, feedback provision, and learner progress monitoring.
6. Significant positive relationships existed between instructional leadership practices and learners' numeracy performance.
7. Moreover, clear instructional direction, regular coaching, professional learning priority, data-driven decision-making, and consistent supervision significantly predicted numeracy achievement.
8. Results further revealed significant differences in numeracy performance across schools according to leadership practices, with schools exhibiting stronger instructional leadership obtaining higher numeracy performance.
9. Path analysis also confirmed that instructional leadership variables significantly explained variance in numeracy performance and that the proposed model demonstrated good to excellent fit indices.
10. Therefore, strengthening instructional leadership practices, professional development initiatives, instructional supervision, and data-driven instructional systems is recommended to further improve numeracy performance among elementary learners.

CONCLUSION AND RECOMMENDATIONS

Conclusions

Elementary learners possess satisfactory foundational numeracy skills; however, they still require intervention and reinforcement in higher-order and abstract mathematical competencies.

Instructional leadership practices are strongly evident in schools and contribute positively to instructional quality and mathematics education.

Effective instructional leadership significantly enhances learners' numeracy performance and plays an important role in improving mathematics achievement.

Human-centered instructional leadership practices, particularly clear instructional direction and professional support, are stronger predictors of numeracy achievement than material resource allocation.

Schools with stronger instructional leadership practices achieve significantly higher numeracy performance compared with schools exhibiting weaker leadership practices.

Instructional leadership variables substantially explain learners' numeracy achievement, confirming that effective leadership directly influences teaching effectiveness and learner outcomes in mathematics.

Recommendations

- 1.** Schools should strengthen intervention programs focusing on multiplication, division, fractions, and problem-solving skills through differentiated and contextualized numeracy activities.
- 2.** School leaders should sustain and further enhance instructional leadership practices by intensifying classroom supervision, feedback systems, and collaborative instructional initiatives.
- 3.** Educational administrators should continue strengthening instructional leadership programs because effective leadership significantly improves learners' numeracy performance.
- 4.** School leaders should prioritize clear instructional direction, continuous coaching, professional development, and data-driven practices to further improve numeracy achievement.
- 5.** Schools with lower leadership practices should implement leadership enhancement and capacity-building programs to improve instructional quality and learner performance.
- 6.** Policymakers and educational stakeholders should institutionalize instructional leadership development programs to sustain effective mathematics instruction and improve numeracy outcomes across schools.

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