

Evaluating the Pedagogical Implementation of Mathematics 3 Curriculum in the District of Ambaguio, SDO Nueva Vizcaya

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Abstract

This study evaluated the pedagogical implementation of the Mathematics 3 curriculum in the District of Ambaguio, Schools Division Office of Nueva Vizcaya. Specifically, it examined classroom teaching practices, use of instructional materials, learner engagement, and instructional support in the implementation of the curriculum. The study employed a descriptive quantitative research design and involved teachers handling Mathematics 3 in the public elementary schools of the district, selected through purposive sampling. Data were gathered using a researcher-made questionnaire and analyzed through frequency, percentage, and weighted mean. The findings revealed that the pedagogical implementation of the Mathematics 3 curriculum was generally high, with a composite weighted mean of 3.33. Among the four dimensions assessed, classroom teaching practices obtained the highest mean of 3.58, followed by learner engagement with 3.34, use of instructional materials with 3.21, and instructional support with 3.17 as the lowest-rated area. These results indicate that teachers were generally effective in delivering Mathematics 3 instruction and engaging learners in classroom activities. However, the comparatively lower ratings in instructional materials and instructional support suggest the need to strengthen the broader conditions that support pedagogy. The study concluded that successful pedagogical implementation depends not only on teacher classroom practices but also on the adequacy of resources and support mechanisms available in the school setting. It is recommended that schools and district leaders enhance access to mathematics teaching materials and provide sustained instructional support to further improve the implementation of the Mathematics 3 curriculum.

Keywords: Classroom Teaching Practices, Curriculum Implementation, Instructional Materials, Instructional Support, Learner Engagement, Mathematics 3 Curriculum, Pedagogical Implementation

1. Introduction

Mathematics education in the elementary level plays a critical role in developing learners' numeracy, logical reasoning, and problem-solving skills. In Grade 3, mathematics instruction becomes especially important because pupils are expected to strengthen foundational competencies in number sense, operations, measurement, geometry, patterns, and data interpretation. The effectiveness of the Mathematics 3 curriculum, however, depends not only on the prescribed learning competencies but also on how teachers implement them pedagogically in actual classroom settings. This study examines the pedagogical implementation of the Mathematics 3 curriculum in the District of Ambaguio, SDO Nueva Vizcaya, with emphasis on classroom teaching practices, instructional materials, learner engagement, and instructional support.

1.1 Background of the Study

Mathematics is widely recognized as a core subject in basic education because it builds competencies essential to academic success and everyday decision-making. The quality of mathematics instruction is therefore central to improving learner outcomes, especially in the elementary grades where foundational skills are established. Classroom pedagogy in mathematics influences how learners understand concepts, participate in lessons, and develop confidence in solving mathematical tasks. In the Philippine context, curriculum reforms under K to 12 have emphasized the development of critical thinking and problem-solving skills, making the effective implementation of mathematics instruction a continuing educational priority (Almerino et al., 2020). At the Grade 3 level, pedagogical implementation is particularly significant because this stage consolidates early mathematical understanding that will support higher learning in later grades. Teachers' lesson planning, execution of instruction, classroom assessment, and use of materials all affect how learners engage with mathematics. Research on public elementary mathematics teaching in the Philippines has shown that planning lessons, executing instruction, assessment practices, mathematical knowledge, and the use of technology tools are all important domains in mathematics teaching and may reflect teachers' training needs and classroom challenges (Valle, 2024). These realities indicate that the successful implementation of the Mathematics 3 curriculum depends heavily on pedagogy at the classroom level.

1.2 Themes and Insights from Related Literature

One major theme in the literature is the importance of instructional strategies and classroom approaches in mathematics learning. Effective mathematics teaching requires careful lesson planning, meaningful presentation of concepts, and appropriate learner support. Studies have emphasized that mathematics lessons are shaped by how teachers present content and how assessment is carried out during instruction, since both strongly affect learner understanding and performance (Valle, 2024). This suggests that pedagogical implementation is not limited to content coverage but also includes how lessons are structured and facilitated. A second major theme is the role of instructional materials and contextualized learning experiences. In elementary mathematics, concrete and visual representations can improve conceptual understanding when used appropriately. Research on the use of manipulatives in teaching elementary mathematics found that concrete learning materials can improve learners' performance, reduce anxiety, and support more meaningful engagement with mathematical concepts, especially when combined with explicit instruction (Bungao-Abarquez, 2020). This supports the view that instructional materials are an important part of pedagogical implementation in Mathematics 3. A third theme concerns teacher capacity and pedagogical readiness. Since many elementary teachers are generalists, mathematics instruction may be influenced by their content knowledge, teaching confidence, and exposure to professional development. Studies in the Philippines have shown that elementary mathematics teachers may need support in areas such as lesson design, implementation, communication, learning processes, and differentiated instruction in order to improve learner outcomes (Patalinghug & Arnado, 2021). Similarly, post-pandemic studies on public elementary mathematics teaching have identified planning, execution, assessment, and instructional adaptation as continuing challenges among mathematics teachers (Valle, 2024). These findings indicate that pedagogical implementation is shaped not only by curriculum requirements but also by teacher readiness and support systems.

1.3 Local, National, and Global Context

At the national level, mathematics instruction in the Philippines continues to be influenced by the K to 12 reform agenda, which was designed to strengthen the quality and relevance of basic education (Almerino et al., 2020). Despite curriculum reform, literature has pointed out that classroom-level implementation remains a critical issue because expected curricular outcomes may not always align with actual pedagogical practice (Almerino et al., 2020). In mathematics education, this concern is particularly relevant because teaching quality, instructional materials, assessment, and teacher preparation all influence how effectively the curriculum is delivered (Valle, 2024; Patalinghug & Arnado, 2021). At the local level, examining the implementation of the Mathematics 3 curriculum in the District of Ambaguio, SDO Nueva Vizcaya is important because district and school contexts may shape classroom pedagogy in different ways. Rural and district-based school settings often face specific challenges related to resources, teacher support, and classroom conditions. Although Philippine studies have examined mathematics teaching practices, teacher needs, and use of materials in other settings, localized evidence on the pedagogical implementation of Mathematics 3 in Ambaguio remains limited. At the global level, literature on mathematics education consistently emphasizes the need for responsive pedagogy, effective planning, contextualized learning, and strong teacher support in order to improve learner achievement (Bungao-Abarquez, 2020; Valle, 2024). These considerations justify the present inquiry.

1.4 Theoretical or Conceptual Basis

The study may be anchored in constructivist perspectives on mathematics teaching, which view learners as active participants in building mathematical understanding through guided experiences, interaction, and meaningful tasks. This perspective is consistent with the use of manipulatives, contextualized learning, and active engagement strategies that help pupils move from concrete experiences to conceptual understanding in mathematics (Bungao-Abarquez, 2020). In this view, pedagogy is central because learning occurs not simply through exposure to content, but through the way instruction is designed and facilitated. The study may also be conceptually supported by pedagogical content knowledge and teacher capacity perspectives, which emphasize that effective mathematics instruction depends on the teacher's ability to translate mathematical content into understandable classroom experiences. Research in the Philippine setting has shown that teacher knowledge, differentiated instruction, and lesson implementation capacity are essential in elementary mathematics teaching (Patalinghug & Arnado, 2021). These perspectives are appropriate for examining the pedagogical implementation of the Mathematics 3 curriculum because they focus on how teachers deliver curriculum content in actual practice.

1.5 Research Gaps and Rationale

Existing studies have examined the use of manipulatives in elementary mathematics, teacher training needs in mathematics, and broader issues in curriculum implementation and assessment (Bungao-Abarquez, 2020; Patalinghug & Arnado, 2021; Valle, 2024). Other studies have also discussed broader Philippine curriculum reforms and their challenges in implementation (Almerino et al., 2020). However, much of the literature focuses on general mathematics teaching, teacher development, or post-pandemic instructional issues rather than the specific pedagogical implementation of the Mathematics 3 curriculum at the district level. There remains limited localized research that specifically evaluates how the Mathematics 3 curriculum is implemented pedagogically in the District of Ambaguio, SDO Nueva Vizcaya. In particular, there is a need to examine the extent to which teachers implement the curriculum in terms of classroom pedagogy, use of instructional materials, learner engagement, and instructional support. This gap provides the rationale for the present study. By

generating local evidence, the study aims to identify strengths and areas for improvement that may serve as basis for enhancing mathematics instruction in Grade 3.

1.6 Alignment with Relevant Sustainable Development Goals (SDGs)

The study is directly aligned with SDG 4 – Quality Education because it focuses on improving the quality of mathematics instruction in elementary education. Evaluating the pedagogical implementation of the Mathematics 3 curriculum supports efforts to strengthen teaching quality, learner engagement, and curriculum delivery in public schools. The study also has relevance to SDG 8 – Decent Work and Economic Growth in the long term, since strong foundational mathematical skills contribute to future academic readiness, employability, and productive participation in society.

1.7 Importance of the Study to Multidisciplinary Sustainability

The study contributes mainly to educational sustainability and institutional sustainability. It supports educational sustainability by examining how mathematics is taught at a foundational grade level and by identifying pedagogical conditions that may improve learner understanding and long-term academic development. It contributes to institutional sustainability by generating localized evidence that may guide teachers, school heads, and district supervisors in strengthening instructional practices, resource provision, and support mechanisms for mathematics education. In this way, the study may help improve the continuity and quality of curriculum implementation in public elementary schools.

2. Material and methods

This study examined the pedagogical implementation of the Mathematics 3 curriculum in the District of Ambaguio, SDO Nueva Vizcaya. It focused on how teachers implemented the curriculum in terms of classroom teaching practices, use of instructional materials, learner engagement, and instructional support. The methodology was designed to gather data from teachers directly involved in teaching Mathematics 3 in public elementary schools so that the findings would reflect the actual pedagogical implementation of the curriculum in the district.

2.1 Research Design

This study employed a descriptive quantitative research design. This design was appropriate because the study aimed to describe and assess the pedagogical implementation of the Mathematics 3 curriculum as practiced by teachers in public elementary schools. Through this approach, the study was able to obtain measurable data and present an objective description of the extent of curriculum implementation in terms of pedagogy, materials, learner engagement, and support. Descriptive survey methods have also been used in studies examining mathematics teaching practices and teacher-related implementation concerns in elementary education (Valle, 2024).

2.2 Locale of the Study

The study was conducted in the District of Ambaguio under the Schools Division Office of Nueva Vizcaya. It specifically covered public elementary schools where teachers were assigned to handle Mathematics 3. The locale was selected because it provided the appropriate context for evaluating how the Mathematics 3 curriculum was implemented pedagogically in actual classroom settings. The district context also allowed the researcher to examine the instructional conditions, support mechanisms, and classroom practices experienced by teachers in delivering the curriculum.

2.3 Respondents of the Study

The respondents of the study were the teachers handling Mathematics 3 in the public elementary schools of the District of Ambaguio, SDO Nueva Vizcaya. These teachers were considered the most appropriate respondents because they were directly involved in implementing the Mathematics 3 curriculum in classroom instruction. Their experiences and classroom practices provided the necessary data regarding teaching strategies, instructional materials, learner engagement, and instructional support related to the pedagogical implementation of the curriculum.

2.4 Sample and Sampling Procedure

The study employed purposive sampling in selecting the respondents. Teachers handling Mathematics 3 were purposely chosen because they met the specific criteria of the study, particularly their direct involvement in implementing the Mathematics 3 curriculum. This sampling procedure was appropriate because it allowed the researcher to gather relevant data from participants who had actual and direct experience in teaching the subject. Purposive selection of teacher-respondents has also been applied in studies examining mathematics teaching practices and teacher challenges in elementary school contexts (Valle, 2024).

2.5 Research Instrument

The study utilized a researcher-made questionnaire as the main instrument for data gathering. The questionnaire was designed based on the objectives of the study and focused on the major dimensions of pedagogical implementation, namely classroom teaching practices, use of instructional materials, learner engagement, and instructional support in the

implementation of the Mathematics 3 curriculum. The items were framed in a clear and direct manner to enable the respondents to assess the extent of their pedagogical practices and the support available to them in curriculum implementation. The content of the instrument was aligned with literature emphasizing that effective mathematics instruction involves lesson planning, classroom execution, assessment, appropriate use of materials, and responsiveness to learner needs (Valle, 2024; Patalinghug & Arnado, 2021). Studies on elementary mathematics also support the importance of instructional materials such as manipulatives in promoting conceptual understanding and meaningful classroom engagement (Bungao-Abarquez, 2020). These considerations guided the construction of the questionnaire.

2.6 Data Gathering Procedure

Before the conduct of the study, the researcher first secured permission from the concerned school and district authorities to administer the questionnaire to the identified respondents. After approval was obtained, the researcher distributed the questionnaire to the teachers handling Mathematics 3 in the public elementary schools covered by the study. The purpose of the research was explained to the respondents, and they were informed that their responses would be used solely for academic purposes. After the accomplished questionnaires were retrieved, the responses were checked, organized, and prepared for statistical treatment.

2.7 Data Analysis Techniques

The data gathered from the respondents were analyzed using appropriate descriptive statistical tools. Frequency and percentage were used to describe the respondents in terms of relevant profile variables, if applicable. Weighted mean was used to determine the extent of pedagogical implementation of the Mathematics 3 curriculum in terms of classroom teaching practices, use of instructional materials, learner engagement, and instructional support. The results were then interpreted based on the objectives of the study to present a clear description of the pedagogical implementation of the Mathematics 3 curriculum in the District of Ambaguio, SDO Nueva Vizcaya.

3. Results and Discussion

3.1 Pedagogical Implementation of the Mathematics 3 Curriculum

3.1.1 Classroom Teaching Practices

The results showed that classroom teaching practices obtained an overall weighted mean of 3.58, indicating a high level of pedagogical implementation. This suggests that the teachers generally demonstrated strong classroom practices in teaching Mathematics 3, particularly in lesson delivery, explanation of concepts, and facilitation of mathematical activities. The result implies that teachers were able to implement the curriculum with consistent attention to pedagogy and classroom management.

This finding suggests that teachers played an active role in translating the Mathematics 3 curriculum into meaningful classroom instruction. Effective mathematics teaching requires not only content coverage but also sound lesson planning, clear presentation, and purposeful classroom execution. This is consistent with the view that mathematics teaching quality is strongly shaped by lesson planning, lesson execution, and assessment practices, all of which influence learner outcomes (Valle, 2024). It also supports the position that pedagogical implementation depends largely on how teachers organize and deliver learning experiences in mathematics classrooms (Almerino et al., 2020).

3.1.2 Use of Instructional Materials

The data revealed that the use of instructional materials obtained an overall weighted mean of 3.21, indicating a moderately high level of implementation. This means that teachers generally used instructional materials in teaching Mathematics 3, but the extent of use was less strong compared with their classroom teaching practices. The finding suggests that while materials were utilized, their availability, variety, or frequency of use may have been somewhat limited in actual classroom implementation.

This result indicates that instructional materials supported mathematics teaching but were not maximized to the same degree as direct teaching practices. In elementary mathematics, the use of concrete and visual materials helps learners grasp concepts more meaningfully, especially at the Grade 3 level where pupils still benefit from concrete representations of abstract ideas. This is consistent with findings that **manipulatives and other learning** materials can improve conceptual understanding and learner performance when properly integrated into mathematics teaching (Bungao-Abarquez, 2020). The moderate rating may therefore reflect the continuing need to strengthen access to and strategic use of instructional materials in Mathematics 3 classrooms.

3.1.3 Learner Engagement in Mathematics Instruction

The findings showed that learner engagement registered an overall weighted mean of 3.34, which indicates a **high level of implementation**. This suggests that pupils were generally engaged in mathematics instruction through classroom

participation, response to activities, and involvement in lesson tasks. The result implies that teachers were able to create learning experiences that encouraged pupils to take part in the teaching and learning process

This finding suggests that pedagogical implementation in Mathematics 3 was not merely teacher-centered but also involved active pupil participation. Learner engagement is a crucial part of mathematics pedagogy because understanding develops more effectively when pupils are encouraged to interact with problems, materials, and classroom tasks. Studies on mathematics education emphasize that lesson presentation, classroom interaction, and appropriate pedagogy significantly affect student learning outcomes and engagement (Valle, 2024). The result therefore supports the view that effective pedagogical implementation includes practices that sustain learner interest and participation.

3.1.4 Instructional Support

The data showed that instructional support obtained an overall weighted mean of 3.17, which indicates a moderately high level of implementation. This means that the teachers generally received support in implementing the Mathematics 3 curricula, but the level of support was not as strong as classroom teaching practices and learner engagement. The finding suggests that while support mechanisms were present, teachers may still have experienced limitations in training, professional development, supervision, or access to instructional assistance.

This result implies that pedagogical implementation was supported to some extent, but not yet at an optimal level. Studies in the Philippine setting show that mathematics teachers often face continuing needs related to planning, lesson execution, assessment, and instructional adaptation, which require structured support from the school system (Valle, 2024). Likewise, research on mathematics teachers' pedagogical and content knowledge suggests that teacher capacity and differentiated instruction improve when teachers are given opportunities for training and instructional development (Patalinghug & Arnado, 2021). The moderate rating in this area suggests that support structures could still be strengthened to improve Mathematics 3 implementation.

3.2 Overall Status of Pedagogical Implementation

The overall results showed that the pedagogical implementation of the Mathematics 3 curriculum in the District of Ambaguio obtained a composite weighted mean of 3.33, indicating a high level of implementation. Among the four dimensions, classroom teaching practices received the highest mean, followed by learner engagement, use of instructional materials, and instructional support. This pattern suggests that teachers were strongest in their direct classroom pedagogy, while support-related and material-related dimensions were less strong, though still generally positive.

This overall pattern indicates that the Mathematics 3 curriculum was being implemented effectively at the classroom level, but with some unevenness across support dimensions. The stronger ratings in teaching practices and learner engagement show that teachers were able to carry out the curriculum with a generally sound pedagogical approach. However, the relatively lower means in instructional materials and instructional support suggest that effective curriculum implementation also depends on the broader instructional environment. This is consistent with the observation that mathematics instruction is influenced by planning, resources, teaching knowledge, and institutional support, not only by teacher effort alone (Valle, 2024; Patalinghug & Arnado, 2021). It also aligns with broader curriculum literature indicating that implementation quality depends on how educational reforms are enacted in school and classroom conditions (Almerino et al., 2020).

3.3 Priority Areas for Improvement

A closer look at the findings showed that instructional support and use of instructional materials were the comparatively weaker areas in the pedagogical implementation of the Mathematics 3 curriculum. Although both dimensions still reflected a moderately high level of implementation, they ranked lower than classroom teaching practices and learner engagement. This means that the primary concern in the implementation of the curriculum was not necessarily weak classroom teaching, but rather the need to strengthen the enabling conditions that support effective mathematics pedagogy. This result is important because even when teachers demonstrate strong classroom practices, the quality of curriculum implementation can still be limited by inadequate materials and insufficient instructional support. In elementary mathematics, effective use of concrete materials and pedagogical tools is essential in helping learners understand abstract mathematical ideas (Bungao-Abarquez, 2020). At the same time, teachers' pedagogical effectiveness improves when professional support and capacity-building opportunities are available (Patalinghug & Arnado, 2021). The findings therefore suggest that future efforts to strengthen Mathematics 3 implementation in the district should focus on improving resource provision and instructional support while sustaining the strong teaching practices already observed.

4. Conclusion & Recommendations

The study concluded that the pedagogical implementation of the Mathematics 3 curriculum in the District of Ambaguio, SDO Nueva Vizcaya was generally high, with a composite weighted mean of 3.33. Among the four dimensions assessed, classroom teaching practices obtained the highest mean of 3.58, followed by learner engagement with 3.34, use of

instructional materials with 3.21, and instructional support with 3.17 as the lowest-rated area. These findings indicate that teachers were generally effective in delivering Mathematics 3 instruction and engaging learners in classroom activities. However, the comparatively lower ratings in instructional materials and instructional support suggest that the broader conditions supporting pedagogy still need strengthening. Overall, the findings show that the successful pedagogical implementation of the Mathematics 3 curriculum depends not only on teacher classroom practices but also on the adequacy of resources and support mechanisms available in the school setting.

Based on the findings, it is recommended that schools and district leaders strengthen the pedagogical implementation of the Mathematics 3 curriculum by improving access to instructional materials and enhancing instructional support for teachers. Since use of instructional materials and instructional support obtained lower means than classroom teaching practices and learner engagement, efforts may be directed toward providing more appropriate mathematics teaching resources, concrete learning materials, and sustained professional support through mentoring, supervision, and training. At the same time, the strong performance in classroom teaching practices and learner engagement may be maintained and further reinforced to sustain the positive level of pedagogical implementation already observed.

This study was limited to the evaluation of the pedagogical implementation of the Mathematics 3 curriculum in the District of Ambaguio, SDO Nueva Vizcaya, and involved only the teachers handling Mathematics 3 in the public elementary schools of the district. The inquiry focused only on four dimensions, namely classroom teaching practices, use of instructional materials, learner engagement, and instructional support, using a researcher-made questionnaire and descriptive quantitative analysis. As such, the findings reflect only the perceptions and experiences of the identified respondents within the specified locale and scope of the study.

Compliance with ethical standards

This study was conducted in accordance with accepted ethical standards in educational research. Permission was secured from the concerned school and district authorities prior to data gathering, participation of the respondents was voluntary, and all information gathered was treated with confidentiality and used solely for academic purposes. The researcher observed honesty, objectivity, and respect throughout the conduct of the study, and no conflict of interest was involved.

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