Assessment Tools Used in Teaching Mathematics

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Abstract*— This study explored the assessment tools used by elementary mathematics teachers in the Gubat North District. The primary aim was to investigate the types of assessment tools used, their perceived effectiveness, and the variations in practice across grade levels, while also identifying challenges and proposing innovative approaches among Kindergarten, Grade 1, and Grade 4 teachers. A total of 30 respondents from 10 public elementary schools participated in the study, with one teacher per grade per school serving as the primary data source. Employing a mixed-method research design, quantitative data were gathered through survey questionnaires analyzed using ranking, while qualitative insights were obtained from open-ended responses and thematic analysis. Findings revealed that worksheets, performance tasks, and game-based assessments were the most utilized tools across grade levels, reflecting both traditional and emerging practices. Kindergarten teachers primarily utilized play-based and manipulative tasks; Grade 1 teachers relied on written quizzes and diagnostic tests; and Grade 4 teachers emphasized performance tasks and portfolio assessments. Teachers recognized the effectiveness of these tools in enhancing mathematical understanding, learner engagement, and formative evaluation. A key theme that emerged is that children often do not realize they are being assessed, demonstrating the effectiveness of play-based and performance-based assessment tools in promoting natural engagement. Although variation in tools was evident, portfolios consistently appeared across all grade levels. Challenges included limited training, lack of materials, and large class sizes. The study concludes that while teachers in the Gubat North District effectively employ diverse assessment tools aligned with MATATAG principles, gaps remain in the integration of innovative, technology-driven methods due to limited access and training. Strengthening professional development and resource support is recommended to maximize assessment for learning. The goal of this research is to promote the use of assessment not merely as a measure of learning, but as a meaningful process that drives understanding, creativity, and growth. In support of the MATATAG Curriculum's thrust for formative, inclusive, and learner-centered education, this study proposes exemplar lessons integrating innovative assessment tools to empower teachers in designing assessments that are engaging, authentic, and competency-based. By transforming assessment into a tool for learning rather than a test of learning, teachers can ensure that every child experiences success, mastery, and mathematical confidence.

***Index Terms*— assessment Tools, mathematics, MATATAG, elementary teachers, mixed method, Gubat North District**

I. INTRODUCTION

Teaching young people can be a rewarding career. But this profession comes with many challenges. One problem faced by many educators is how to maintain a productive learning environment for pupils and how to measure their skills and abilities to become effective citizens in our community. Measuring students' performance is a challenge for teachers, especially in choosing the right and appropriate assessment tools for specific students. Assessment is one of the important things a teacher should master, not only for the sake of having inputs for them to compute students' grades, but also to determine whether their students have learned or not. In other words, assessing the knowledge and skills of students is a very crucial role being portrayed by a teacher.

Then came the MATATAG Curriculum, a new curricular entry that, full of promise but also full of new challenges. It emphasizes formative and performance-based assessment aligned with the Goal of Mathematics Education and DepEd Order No. 8, s. 2015, which promotes learning through active engagement and continuous feedback. Teachers now require new tools to assist in the measurement of learning outcomes, which take the curriculum and every student's requirement into consideration. Just like in this instance, without the right tools, outcomes would be impossible to achieve. With the right assessment tools, this study seeks to assert that with appropriate assessment strategies, a remarkable phenomenon occurs. Students start learning for reasons beyond examinations. They gain higher self-esteem, and a lot of them start enjoying mathematics, sometimes for the first time. This is the core of the research: empowering teachers to enable their students to achieve profound learning and sustained affection for mathematics.

Change is inevitable when it comes to education. Every second, schools and teachers are adjusting to new challenges brought by technology, globalization, and the lasting effects of the COVID-19 pandemic. This results in thinking more deeply about how students learn and how their learning should be measured. As Darling-Hammond and her team (2019) highlight in their global study, an important message: "Assessment is not just about memorizing facts or passing tests. Instead, it should help students think clearly, solve problems, and truly understand what they are learning." The researchers emphasized how students think; when students are given the chance to think critically and through real problems, they become more engaged and enjoy learning (Darling-Hammond et al. 2019).

Globally, education systems always help students to grow not just in knowledge but also in self-confidence and motivation. OECD (2020), a global study, discovered how students learn best in different countries. They highlighted the formative assessment, where teachers give feedback during and after learning, and it results in better performance of the students who feel more motivated. "Feed forward" strategies are also emphasized. It is not only for what was wrong but also for how to improve. It's like giving students a map to get to where they want to go. The study also shows the "self-regulated learning", where students are taught to learn on their own. It is powerful when students reflect on their progress and make changes on their own because they become more independent and have the eagerness to learn.

Another relevant study by UNESCO (2022), "From Disruption to Recovery", found that countries that use adaptive and inclusive assessments make students perform better in mathematics during and after the pandemic. Over 40 countries, investigated those traditional tests frequently failed during times of crisis, leading to poor decisions in helping students. Finland is one of the countries studied that used formative assessments to make a backup for those who were falling behind. Flexible tools helped find learning gaps, while inclusive practices gave every student a fair chance to succeed. It led to better results, happier classrooms, and more students

having an interest in staying in school. In contrast, countries that depend on traditional tests saw bigger learning gaps and more dropouts.

There are key provisions from the 1987 Constitution of the Republic of the Philippines related to education in Article XIV. According to section 1, the state should provide quality education; from the researcher's point of view, quality teachers are needed to attain the goal. The global learning crisis is a teaching crisis. The quality of teachers has the greatest impact on improving student learning outcomes. Most developing countries in Asia and the Pacific face major challenges in recruiting the best candidates for a long-term teaching career. New models of teacher education are needed in developing countries to enhance their competencies. For instance, if the learning level is poor, greater control of how teaching practices are applied is important, while greater teacher autonomy is needed where the quality of learning is already improving (The 1987 Constitution of the Republic of the Philippines, 1987).

Important laws and policies of the Philippines guide the proper assessment tools used in the country. According to Republic Act Claim No. 10533, or the Enhanced Basic Education Act of 2013, section 7 aims to ensure that we have excellent teachers and school leaders. It mandates that the Department of Education (DepEd) and the Commission on Higher Education (CHED) collaborate with various partners to offer training programs for both new and experienced teachers, as well as school leaders. Ideally, this means teachers in the Philippines should receive continuous training and professional development, but unfortunately, many still struggle with insufficient resources and support.

According to section 5(5), the state shall allocate a higher budget for education. But in reality, most of the public schools lack teaching resources and buildings. Governments must make sure that excellent teachers are not just recruited and trained but also sent to the places where they're needed the most. To motivate these skilled educators to work in rural or underprivileged areas, they should be offered fair salaries, extra bonuses, and opportunities for growth and career advancement. Selection of teachers through a transparent and rigorous process, combined with local recruitment with good incentive packages, can also ensure that quality teachers reach children in remote areas (The 1987 Constitution of the Republic of the Philippines, 1987).

In the Bicol Region, curriculum changes like K to 12 and MATATAG comes with their fair share of opportunities and challenges. Dela Cruz (2021) discovered that a lot of elementary teachers in Sorsogon still prefer using traditional tests, even with options like observation, which is less difficult and more efficient and would work better. In actuality, these students are being evaluated on many concepts at the same time without proper scaffolding. The study highlighted the ineffectiveness of teachers having proper professional development training that focuses on the design and implementation of various assessment types. Teachers could be over-reliant on traditional methods because they are used to them or face intimidation from standardized testing.

A regional study discovered that a lot of teachers in public schools of the Bicol Region need additional training in using authentic assessments or real-world assessments in Mathematics (Mendoza & Villanueva, 2023). Most of the teachers still rely on traditional tests and are hesitant about taking risks in using projects, portfolios, or performance-based activities. Guidance on creating rubrics and feedback is needed because these gaps affect the assessment process, where teachers can't manage to appropriately assess the students. The researchers suggested that DepEd focus on training programs to help teachers build these important skills.

Among the more progressive towns of the province of Sorsogon is the municipality of Gubat. As identified by the Department of Education (DepEd), the Gubat North District received different awards when it comes to academics, in reading, sports, and especially in mathematics contests. According to the Gubat School Board Assessment Test (Primary) or GSBAT – P (2023), in Mathematics Dita Elementary School received the Rank 1 with an average score of 61.54%, followed by the Patag Elementary School – Rank 2 (54.17%), Ogao Elementary School – Rank 3 (52.87%) and so on. This is proof that Gubat North District Teachers a well-mannered and dedicated teachers when it comes to the learning of the students. The researcher's alma mater is part of the top schools in mathematics, which is the Ogao Elementary School. The researcher witnessed the quality of the teachers back then (Ogao Elementary School, 2023).

The researcher had decided to choose this particular study due to her profound interest in Mathematics. For her, nurturing the love and passion for Mathematics begins with the teacher. It is almost impossible to motivate learners when they are afraid of or dislike the subject. On the other hand, learners, especially children, are likely to enjoy Mathematics if it is taught to them with excitement and willingness by their teachers. As the often quoted saying goes, "In the eyes of the students, their teacher is perfect, and they often imitate what their teacher is doing." Teachers are not only academic instructors but also role models. With this study, she intends to provide fellow educators with strategies on teaching Mathematics in the context of the Revised K-12 Curriculum, which enhances assessment literacy. It is hoped that teachers will be supported in their work, and thereby, students will learn from quality teaching.

This study was conducted to determine the most suitable assessment tools for elementary mathematics teachers. Specifically, it sought to answer the following questions:

1. What are the assessment tools commonly used by Elementary teachers in Gubat North District in teaching mathematics?
2. How do teachers perceive the effectiveness of these assessment tools in evaluating students' mathematical understanding?
3. How do assessment practices vary across different grade levels?
4. What challenges do teachers face in implementing the assessment tools in Mathematics?
5. What innovative assessment tools can be proposed for mathematics?

II. Literature Review

Theoretical Framework

This study is anchored on Lev Vygotsky's Sociocultural Theory, particularly the Zone of Proximal Development (ZPD), supported by the Constructivist Learning Theory of Jean Piaget and Jerome Bruner, and further strengthened by the Assessment for Learning Theory of Black and Wiliam and the Mastery Learning Model of Benjamin Bloom. These are all aligned and unified through the Researcher's Theory, which suggested that appropriateness of assessment tools develops the best performance of the learners.

Lev Vygotsky's Sociocultural Theory (1978) emphasized that learning occurs most effectively within a learner's Zone of Proximal Development (ZPD) the range between what a learner can accomplish independently and what they can achieve with guidance and support. This zone highlighted the teacher's role in scaffolding instruction and designing tasks that challenge students slightly beyond their current abilities. The Constructivist Learning Theory proposed by Jean Piaget (1970) and Jerome Bruner (1966)

asserts that learners construct knowledge actively through experiences, reflection, and interaction with their environment. Learning, therefore, is not the passive reception of information but an active process of meaning-making. The Assessment for Learning Theory (AfL) developed by Black and Wiliam (1998) further extends the role of assessment beyond evaluation toward enhancing the learning process itself. This theory emphasizes the use of formative assessments such as diagnostic tests, exit slips, checklists, feedback sessions, and self-assessment to inform instruction and promote continuous improvement. The Mastery Learning Model proposed by Benjamin Bloom (1968) posits that all students can achieve mastery of a given concept when provided sufficient time, clear objectives, and effective instructional strategies. Assessment plays a pivotal role in this model, it is used diagnostically to identify mastery levels and to determine the need for remediation or enrichment.

Together, they emphasized that the effectiveness of assessment tools lies in their alignment with learners' developmental levels, instructional goals, and opportunities for feedback and mastery. When assessment tools are carefully selected and properly implemented, they not only measure learning but actively enhance it, guiding learners through progressive stages of understanding and ensuring mastery of mathematical concepts.

Integrating these theories provided a strong foundation for the present study, which investigated how elementary teachers from the Gubat North District utilize assessment tools in teaching mathematics. This theoretical framework underscores that the appropriate and intentional use of assessment tools leads to improved learning experiences, supports cognitive growth, and ultimately develops the best performance among learners.

Relevant Concepts

Assessment significantly influenced the methods in which mathematics is taught and the ways students learn it. As per the Revised K to 12 Curriculum, MATATAG, assessment is more than a grading standard; it is an integral part of instruction, supporting learning, shaping teaching methods, and ensuring alignment with the curriculum. The Revised K to 12 Curriculum (MATATAG Curriculum), marking the end of K-12 education in the Philippines, fosters an inclusive, learner-centered, and competency-based education, which requires unique innovation and appropriateness of the developmental level of the assessment tools in all grade levels.

This study rests on the effectiveness of assessment practices regarding developmentally appropriate levels and instructional goals. It also operates on the principles of assessment, requiring such evaluations to involve not only the students' knowledge but also their application of mathematical concepts in real-life scenarios.

The idea is also based on Lev Vygotsky's Zone of Proximal Development (ZPD) 1978, which says that learners do best when assessment is used to guide learning, not when it's a final judgment. The difference in how students are assessed in Kindergarten, Grade 1, and Grade 4 also reflects the need to adapt the tools to students' cognitive and developmental levels. As teachers deal with large classes, limited resources, unfamiliar digital tools, and other pressing difficulties, the current study seeks to provide applicable and insightful models that assist teachers in implementing innovative curriculum-based formative assessments.

Previous Research Findings

Karta et al. (2023) explained that assessment is how we find out what students have learned based on what they were supposed to learn. It's like collecting information to see how well students are doing and how much they've improved. Assessment is about gathering information to see how students are doing in their learning. The authors said, it helped measure their progress and success. The main idea is to check where students are in their learning and how they've grown over time. By using assessment, teachers can see what needs to be better. They can change how they teach to fit what students need and make learning more effective. It helps teachers understand how well students are learning and how they can help them learn even better.

Elementary mathematics education is critically shaped by assessment methods, influencing both procedural fluency and conceptual understanding. Recent research highlights the ongoing debate between traditional and authentic assessment approaches. Dairo et al. (2024) contrasted traditional methods' structured efficiency with activity-based learning's (ABL) engagement, while Yudha et al. (2019) directly compared traditional assessments, heavily reliant on multiple-choice formats, with the development of authentic, performance-based tools. Despite Dairo et al. advocating for a blended approach and Yudha et al. championing authentic assessments, both underscore the necessity of valid and reliable tools.

Mutarutinya et al. (2024) focused on the impact of formative assessments in a global context, examining methods like performance-based tasks and portfolios, whereas Koerunnisa et al. (2024) investigated Realistic Mathematics Education (RME) and its effect on critical thinking. Although Mutarutinya et al. emphasized formative assessments' role in developing problem-solving skills, Koerunnisa et al. highlighted RME's success in connecting mathematical concepts to real-world applications; both agree on the need for assessments that foster critical thinking and align with practical skills. Ngunjiri (2022) also found that high-quality assessments integrated with teaching lead to better performance in mathematics.

In conclusion, current research emphasizes the need for a balanced and thoughtful approach to assessment in elementary mathematics. While traditional methods have their place, authentic and formative assessments, particularly within frameworks like RME, are increasingly recognized for their ability to promote deeper conceptual understanding, critical thinking, and real-world problem-solving skills, ultimately contributing to improved student performance (Ngunjiri, 2022).

Current research emphasized the critical role of assessment tools in mathematics education, with a focus on enhancing learning outcomes and teaching practices. Hwang et al. (2024) aimed to develop assessment tools for affective domains, such as self-efficacy and interest, at the GyeongNam Mathematics Culture Center, while Alfageh et al. (2024) explored the perceptions and use of adaptive diagnostic assessments by elementary teachers in Midwestern schools. Although Hwang et al. focused on affective factors and Alfageh et al. investigated diagnostic tools, both studies underscore the importance of assessments in guiding learning and improving teaching strategies.

Research Gaps

The present study filled a gap by focusing on the assessment tools used by math teachers in the Gubat North District, offering a local perspective that broader studies might miss. The above-mentioned studies showed parallelism with the present study in the sense that all is talking about assessment. The present study can build on this by seeing how these factors play out with teachers using

the Revised K–12 Curriculum in the given district. By understanding these connections, the present study can highlight the specific needs and strengths of teachers in the Gubat North District.

Other studies discussed the best ways to assess students, like using both traditional tests and real-world tasks. Some say real-world tasks are better for understanding, while others like the structure of traditional tests. The present study can add to this by finding out which methods work best for teachers in the selected area (Gubat North District) and what problems they face. Research also showed teachers need more support and materials for the new curriculum, and the present study can help find out exactly what they need to succeed.

This literature and studies are similar to the present study as they are all concerned with assessing the pupils' performances through appropriate assessment practices. However, they differ from the present study because although they all talked about assessment practices of teachers, they differ in the range covered by the study. The present study only focused on the assessment tools used by the mathematics teachers in the Revised K-12 Curriculum. These were the gaps bridged by the study.

Despite the highly informative literature on assessment tools and practices, there are still gaps that this study seeks to fill.

There has been little emphasis on research concerning the Revised K-12 Curriculum. Due to the Revised K-12 Curriculum (MATATAG's) recent implementation, most research still centers on the K to 12 programs. There is a need to study assessment procedures specifically under the Revised K-12 Curriculum (MATATAG), particularly in mathematics.

Instructional game assessments are rarely featured in local studies. Even though some international studies endorse the use of games for teaching, there is little local research on their application in the Filipino classroom, especially at the elementary level.

There is a lack of applied research. The majority of studies finish by stating the findings without providing viable alternatives or action plans. This gap is what the researcher wishes to address with my proposed plan for teachers in the Gubat North District.

These gaps further highlight the relevance and urgency of this study, not only to describe current practices. The goal is also to provide practical recommendations to enhance assessment in mathematics instruction within the Revised K-12 Curriculum (MATATAG).

III. METHODOLOGY

Research Design

This research design aimed to investigate the assessment tools utilized by the elementary mathematics teachers in Gubat North District in the teaching-learning process of the Revised K to 12 Curriculum (MATATAG). This study employed a descriptive research design. This implied that the researcher just described and interpreted what are happening in the field and what the data are telling (Hassan, 2024). In this case, the researcher strived to analyze the situation where elementary mathematics teachers are utilizing various assessment tools in their classes. No attempt was made to alter or control anything; only observation and reporting of what exists was made. A survey was conducted to collect data on usual conditions. A survey questionnaire that included a list was developed to check the consistency of the answers provided by the respondents (Hassan, 2024).

This study also adopted a mixed-method approach, which included quantitative and qualitative data (Ahmed et al. 2024). This approach allowed the researcher to understand the problem more deeply.

The Respondents

The respondents of this study are elementary mathematics teachers. They are selected from different schools within a specific area or district. The researcher ensured that teachers of various ages, sexes, years in teaching, and educational attainment are included to give a clear and balanced result. The respondents of the study were the thirty (30) Mathematics teachers in the elementary level, coming from Gubat North District, specifically 10 schools at Aguinaldo Elementary School, Bagacay Elementary School, Bonifacio Elementary School, Cogon Elementary School, Gubat North Central School, Nato Elementary School, Ogao Elementary School, Patag Elementary School, Tagaytay Elementary School, and Tiris Elementary School. Three (3) teachers in each school, with a total of thirty (30) teachers who were handling the mathematics subject under the Revised K-12 Curriculum (MATATAG), only kindergarten, grade one, and grade four mathematics teachers were the respondents of this study. The number of respondents is a total enumeration due to the limited number of Mathematics teachers who comprise the study.

Research Instruments

To gather comprehensive data for the study entitled "Assessment Tools Used in Teaching Mathematics," the researcher developed a structured survey questionnaire as the primary research instrument (Taherdoost, 2022). The tool was carefully constructed to collect both quantitative and qualitative data relevant to the study's objectives and was validated by experts in mathematics education and research. The questionnaire was divided into five parts, each targeting a specific aspect of the research problem.

Part I of the questionnaire for Kindergarten, Grade 1 and Grade 4 teachers are different but it all aims to determine the evaluation methods that teachers use for their lessons in mathematics. Respondents are provided with a checklist where they can mark all the tools used in class. The list for kindergarten teachers comprises traditional and non-traditional tools such as play-based performance tasks, story-based math tasks, manipulative-based tasks, matching and sorting activities, observation checklists, portfolio assessment, math journals (drawing-based), anecdotal records, thumbs-up/thumbs-down card, and one-on-one interviews. Then the list for grade 1 and grade 4 teachers comprises also traditional and non-traditional tools such as written quizzes and seatwork, flashcard drills and oral recitation, diagnostic tests, performance tasks, math journals, exit slips, rubrics, interactive games and digital quizzes, portfolio assessment, peer and self-assessment. The goal of this section is to evaluate the magnitude and diversity of assessment strategies used by teacher from different grade levels as a reflection of their knowledge and preferences in classroom practice. Part II assesses the teachers' perceived effectiveness of the assessment tools in measuring students' progress. Responding to a five-point Likert scale "Strongly Agree" to "Strongly Disagree," teachers evaluate statements regarding the effectiveness of their assessment tools in measuring learning. Understanding how confident teachers are with assessment methods and their alignment with the goals of the Revised K–12 Curriculum is crucial, and this section provides insight into that. Part III explores the assessment practices by grade level using the guiding open-ended questions framework. Teachers are prompted to explain the assessment tools they use at a particular grade level, as well as whether they have used different tools at other grade levels. If so, they are asked to describe the

reasons for the changes in their assessment strategies. This part aims to capture the differences and developmental factors that are contextual in assessments, looking into how flexible, resourceful, and responsive teachers are in using appropriate tools in Kindergarten, Grade 1, and Grade 4. Part IV is dedicated to concerns and problems teachers encounter concerning the use of assessment tools within the context of the Revised K–12 Curriculum. It has a checklist format where respondents can mark all the intersecting restrictions they have, such as lack of professional development, materials, limited time, large classes, and difficulty aligning assessments with curriculum competencies. This section helps to define systemic barriers that may negatively impact the effective adoption of assessment practices, enabling the researcher to make informed suggestions concerning the need for support and improvement. Part V discovers the assessment tools more deeply and uses them more creatively. It starts with a simple yes/no question as to whether the teacher has attempted to innovate using non-traditional tools, such as digital, game-based, or technology-enhanced assessments. If the answer is affirmative, the respondents are prompted to provide a detailed enumeration of all the tools they have utilized. They may also propose additional tools or revisions aimed at improving the teaching of mathematics under the Revised K–12 Curriculum. This part gives an opportunity for teachers to use their creativity and experiences, which will later be used to create exemplar lesson plans as one of the outputs of the study.

To ensure that every teacher's feedback is captured, each subproblem is framed within a specific section of the questionnaire so that responses will be reliable, truthful, and relevant. The instrument was checked and verified by experts for content, relevance, clarity, accuracy, and relevance. It was also pilot tested among a small group of non-responding teachers to establish its reliability and ease of use. Responses obtained from the validation and pilot testing informed the final version of the instrument so that it is reliable and aligned with the purpose of the study.

IV. Results

I. The Assessment Tools Commonly Used by Elementary Teachers in Gubat North District in Teaching Mathematics

The study revealed that elementary teachers across Kindergarten, Grade 1, and Grade 4 utilized a combination of traditional and innovative assessment tools in teaching Mathematics. These tools reflected their efforts to balance formative and summative assessments while adapting to learners' developmental levels.

In Kindergarten, the most commonly used assessment tools are Manipulative-Based Tasks and Play-Based Performance Tasks, both ranking first with a frequency of 10. These tools emphasize hands-on and experiential learning appropriate for young learners. Portfolio Assessment ranks third with a frequency of 9, allowing teachers to track developmental progress over time. One-on-One Interviews and Matching and Sorting Activities follow closely, both ranking fourth with a frequency of 8. Moderately used tools include Math Journals and Thumbs-Up/Thumbs-Down Cards with a frequency of 7, which help assess conceptual understanding in simple, engaging ways. The least utilized assessment tools are Story-Based Math Tasks (frequency 6), Observation Checklists (frequency 5), and Anecdotal Records (frequency 4). Overall, these findings indicate that Kindergarten teachers prioritize hands-on, play-based, and observational forms of assessment suited for the developmental nature of early childhood learning.

For Grade 1, the most frequently used assessment tool is Written Quizzes and Seatwork, ranking first with a frequency of 10. This shows a strong preference for traditional and structured evaluation methods. Portfolio Assessment, Diagnostic Tests, and Flashcard Drills/Oral Recitation all share the third rank with a frequency of 9, reflecting a balance between formative and summative evaluation practices. Performance Tasks rank fifth with a frequency of 8, showing that teachers also incorporate applied assessments. Meanwhile, Math Journals (rank 6, frequency 6) and Peer/Self-Assessment (rank 7, frequency 5) are less frequently used. The least utilized tools are Exit Slips and Interactive Games/Digital Quizzes (both rank 8.5, frequency 2), as well as Rubrics (rank 10, frequency 1). These results suggest that Grade 1 teachers still rely heavily on conventional paper-based assessments, with limited use of innovative and technology-based tools.

In Grade 4, both Written Quizzes/Seatwork and Portfolio Assessment are identified as the most frequently used assessment tools, sharing the top rank (1.5) with a frequency of 10. This indicates that teachers value both traditional and reflective assessment approaches. Performance Tasks follow closely, ranking third with a frequency of 9, demonstrating an emphasis on application and skill-based learning. Flashcard Drills/Oral Recitation (rank 4, frequency 8) and Diagnostic Tests (rank 5, frequency 6) are also commonly utilized. Moderately used tools include Rubrics (rank 6, frequency 5), Math Journals, and Interactive Digital Quizzes (rank 7.5, frequency 4). The least used are Peer/Self-Assessment and Exit Slips (rank 9.5, frequency 3). Overall, these findings suggest that Grade 4 teachers maintain a balanced approach, combining traditional written assessments with more progressive, portfolio-based and performance-oriented evaluation methods.

II. Teachers' Perceptions of the Effectiveness of the Assessment Tools in Evaluating Learners' Mathematical Understanding

Kindergarten teachers perceive the effectiveness of various assessment tools in evaluating students' mathematical understanding. Their insights reveal that effective assessment goes beyond testing, it involves engaging children in meaningful, playful, and hands-on learning experiences. The teachers' exact words were analyzed and organized into key themes that reflect shared beliefs and values about how young learners best demonstrate their understanding in mathematics.

Learning Through Play and Engagement

Teachers consistently emphasized the importance of play-based and manipulative tasks as the most effective assessment tools for young learners. Participant 1 shared, "Children don't even realize they're being assessed," while Participant 10 added, "They show their true understanding when they're having fun." These statements reveal that authentic learning and assessment occur when children are joyfully engaged and unaware of formal evaluation.

Capturing Growth Over Time

Portfolio assessments were praised for their ability to show progress. Participant 2 remarked, "it's about how their thinking evolves," suggesting that teachers value tools that document developmental changes rather than isolated performance. This theme reflects a long-term view of learning, where understanding is built gradually and meaningfully.

In summary, Kindergarten teachers perceive assessment as a dynamic, child-centered process. Their language reveals a strong preference for tools that are playful, expressive, and reflective of individual growth. These themes affirm that effective math assessment in early education is not just about measuring skills, it's about understanding how children think, feel, and learn.

Grade 1 teachers' perceptions of the effectiveness of various assessment tools in evaluating students' mathematical understanding. By capturing their exact words and organizing them into themes, teachers gain insight into how these tools are valued in practice.

Mastery through Traditional Tools

Grade 1 teachers consistently emphasized the reliability of written quizzes and seatwork. Participant 1 shared, "It shows what they really know," highlighting how these tools provide a direct measure of concept mastery. Teachers appreciate the clarity and structure these assessments offer, with Participant 2 adding, "Quizzes are my main tool. They're quick and reliable." Flashcard drills were also praised for building fluency, described by Participant 1 as something used "almost every day" to reinforce number facts and boost confidence.

Valuing Portfolios and Long-Term Progress

Portfolio assessments were seen as powerful tools for tracking development over time. Participant 3 noted, "You can see their growth, not just scores, but how they think and solve problems over time." This sentiment was echoed by Participant 4, who said, "A worksheet from June compared to one from September shows how far they've come." These responses reflect a belief in the importance of documenting students' evolving mathematical thinking.

Based on the Grade 4 mathematics assessment data from the Gubat North District, teachers' perceptions of effectiveness reveal four key themes, each grounded in their classroom experiences. Below is a thematic analysis using direct quotes from 10 Grade 4 teachers.

Traditional Tools Ensure Mastery and Accountability

Teachers continue to rely on written quizzes and seatwork to assess computation and concept mastery. These tools are valued for their clarity and efficiency. Participant 1 said, "Quizzes help me see who really understands the steps, it's easy to check and gives me a clear picture." This reflects a shared belief that traditional assessments provide reliable evidence of individual performance. Participant 2 added, "Seatwork shows who can work independently and who still needs guidance," emphasizing its role in monitoring student accountability during instruction.

Portfolios and Performance Tasks Reveal Growth and Application

Teachers equally prioritize portfolio assessments, recognizing their value in tracking progress over time. Participant 1 also said, "Portfolios show how their thinking changes, not just the final answer but the process." This highlights the tool's effectiveness in capturing conceptual development. Performance tasks are also widely used, with Participant 3 noting, "When they solve real problems, I see how they think and explain their answers." These tools support deeper learning by encouraging students to apply math in authentic contexts, reinforcing critical thinking and problem-solving.

This analysis shows that Grade 4 teachers in the Gubat North District value a balanced assessment approach combining traditional tools for mastery, portfolios and tasks for growth, diagnostics for planning, and rubrics for structured evaluation. Across all grade levels, teachers in the Gubat North District view effective assessment as one that combines traditional accuracy with developmental, reflective, and performance-based approaches. Kindergarten teachers emphasize play and engagement, Grade 1 teachers value structure and progress tracking, and Grade 4 teachers focus on balanced evaluation and application. Collectively, their insights highlight that effective assessment in mathematics is dynamic, learner-centered, and aligned with the MATATAG Curriculum's goals for holistic learning.

III. Assessment Practices Vary Across Different Grade Levels

The findings reveal that assessment practices in teaching mathematics vary particularly across grade levels, showing a developmental progression from informal and play-based methods in kindergarten to more structured and performance-oriented tools in Grade 1 and Grade 4. Despite these differences, portfolio assessment remains a consistent feature across all three grade levels, serving as an essential means of documenting learners' growth, understanding, and progress over time.

Kindergarten: Playful and Observational Assessment

In Kindergarten, assessment is predominantly experiential and informal, with tools like manipulative-based tasks, play-based performance activities, and one-on-one interviews ranking highest. Teachers rely heavily on hands-on exploration to assess understanding, as these methods allow children to demonstrate learning naturally. As one participant noted, "children don't even realize they're being assessed," emphasizing that authentic understanding surfaces through playful and engaging experiences.

Portfolios and anecdotal records serve as important documentation tools, capturing students' developmental growth over time. Meanwhile, structured tools such as rubrics and exit slips are rarely utilized, as they are less appropriate for the developmental stage of young learners. This suggests that Kindergarten assessment emphasizes observation, engagement, and holistic documentation rather than formal testing.

Grade 1: Structured Foundations with Emerging Variety

By Grade 1, teachers begin incorporating more structured and formal assessment tools. Written quizzes, flashcard drills, and seatwork remain dominant, serving as key instruments for evaluating computational skills and foundational math concepts. However, the introduction of portfolio assessment, diagnostic tests, and performance tasks reflects a gradual shift toward understanding student learning progress and differentiating instruction.

Teachers described these tools as ways to "know where to start" and "see how their thinking evolves," highlighting an increasing focus on learning processes rather than mere outcomes. Although technology-based assessments and reflective tools like math journals are not widely practiced due to time and resource constraints, their emerging use signifies teachers' growing openness to varied and learner-centered assessment methods.

Grade 4: Balanced and Purposeful Assessment

In Grade 4, assessment practices reflect a mature balance between traditional, performance-based, and diagnostic tools. Written quizzes and portfolios are equally prioritized, showing that teachers value both accuracy and growth. Performance tasks are used to assess problem-solving, while diagnostic tests and flashcard drills support differentiated instruction. Rubrics are moderately used to clarify expectations, though time constraints remain a barrier. Teachers describe portfolios as showing "how their thinking changes," and rubrics as helping them "explain scores clearly."

Across the three grade levels investigated; Kindergarten, Grade 1, and Grade 4, there is a clear variation in assessment practices that aligns with learners' developmental stages. Kindergarten emphasizes playful and observational assessments, Grade 1 incorporates structured and diagnostic tools, and Grade 4 achieves a balanced and purposeful mix of traditional and modern

approaches. Despite these variations, the consistent presence of portfolio assessment in all three grade levels stands out as a unifying practice. This consistency underscores teachers' recognition of the portfolio as a valuable tool for capturing learning progress, fostering reflection, and providing authentic evidence of mathematical understanding across different stages of education.

IV. The Challenges Teachers Face in Implementing the Assessment Tools in Mathematics

The data gathered from teacher responses revealed several challenges encountered in implementing assessment tools in teaching mathematics. These challenges were analyzed, summarized, and ranked based on their frequency. Ranking highlights which factors are most prevalent and have the greatest impact on teachers' assessment practices across grade levels.

The most prevalent challenge faced by mathematics teachers is the limited availability of K to 12-aligned assessment materials, frequency = 30, rank 1. Teachers reported difficulty in finding or developing materials that are fully aligned with the competencies of the revised curriculum. This lack of ready-to-use and curriculum-appropriate assessment tools often forces teachers to rely on traditional methods, limiting opportunities for innovation and contextualization.

The second most common challenge is time constraint, frequency = 22, rank 2. Teachers indicated that the process of creating, administering, and checking multiple assessment tools consumes considerable instructional time. This affects their ability to provide immediate feedback and conduct frequent formative assessments. The third major challenge is the lack of training on assessment tool crafting that is compliant with the K to 12 framework, frequency = 20, rank 3. Many teachers expressed the need for continuous professional development and capacity-building activities that would help them design authentic, performance-based, and differentiated assessments suited to diverse learners.

Large class size, frequency = 12, rank 4, also poses a significant challenge. With numerous students to assess, individualized and performance-based evaluations become difficult to manage effectively. Teachers find it challenging to provide detailed feedback or conduct one-on-one assessments, especially in resource-limited settings.

Another emerging issue is teachers being unfamiliar with the latest trends in assessing numeracy skills, frequency = 8, rank 5. While some educators are aware of innovative and technology-integrated assessment tools, many admit to limited exposure and training, which restricts their confidence in using such methods. Lack of support in terms of financial resources and materials, frequency = 6, rank 6, was also identified as a constraint. Teachers mentioned insufficient funds for printing assessment materials, purchasing manipulatives, or accessing digital tools that could enhance mathematics assessment practices.

Finally, the least frequent but still notable challenge is the difficulty in aligning assessment tools with focused numeracy skills, frequency = 5, rank 7. This reflects teachers' ongoing struggle to ensure that the tools they use accurately measure the intended learning outcomes and competencies within the MATATAG or K to 12 curriculum framework.

Overall, the findings reveal that teachers face multiple and interconnected challenges in implementing effective assessment tools in mathematics instruction. The most pressing concern lies in the lack of K to 12-aligned assessment materials, followed by time constraints and insufficient training in crafting appropriate tools. Despite these barriers, teachers demonstrate adaptability and dedication by continuing to assess learners through available means. Addressing these challenges through curriculum-aligned resources, professional development, and institutional support will enhance assessment quality and better align classroom practices with the MATATAG curriculum's goals.

V. Proposed Innovative Assessment Tools

Rationale

The MATATAG Curriculum emphasizes experiential, child-centered, and developmentally appropriate learning. Mathematics instruction in early grades prioritizes foundational numeracy, problem-solving, and reasoning through meaningful activities. Innovative assessment tools provide teachers with ways to measure learning authentically, monitor progress over time, and identify gaps to guide instruction. These tools also support the development of creativity, communication, and critical thinking.

Objectives

- To provide developmentally appropriate assessment tools for Kindergarten, Grade 1, and Grade 4 learners.
- To capture students' mathematical understanding beyond traditional quizzes.
- To monitor learning progress over time and identify areas for intervention.
- To promote active, collaborative, and reflective learning through hands-on and interactive activities.
- To align classroom assessment practices with the MATATAG Curriculum and DepEd standards.

Under the Revised K to 12 Curriculum, mathematics instruction in kindergarten emphasizes foundational numeracy, problem-solving, and experiential learning. To support these goals, several innovative assessment tools can be proposed that are developmentally appropriate, engaging, and aligned with early childhood pedagogy:

Play-Based Performance Tasks

These are structured activities where children demonstrate math skills through play. For example, sorting objects by shape or color, building patterns with blocks, or counting items during pretend shopping. Teachers observe and document how learners apply concepts in real-life scenarios, making assessment both authentic and enjoyable.

Activity: *"Market Day Math"*

- Set up a pretend market with toy fruits and vegetables labeled with prices (e.g., ₱1, ₱2, ₱5).
- Children "buy" items using play money and count their total.
- Teacher observes how they count, compare quantities, and make choices.

Assessment Focus: Counting, number recognition, one-to-one correspondence, basic addition.

Rationale: Play promotes engagement and authentic learning, helping teachers assess conceptual understanding in a natural context.

Sources: This tool is anchored in the MATATAG Curriculum emphasis on play-based learning (DepEd, 2024), supported by Vygotsky's (1978) sociocultural theory and studies showing the value of experiential assessment (Aspiranti et al., 2020; Mutarutinya et al., 2024).

Photo and Video Documentation

Teachers can capture moments of mathematical thinking during classroom activities such as a child explaining how they grouped items or solved a puzzle. These visual records serve as evidence of learning and can be reviewed with parents or used for portfolio assessment.

Activity: *"Shape Hunt"*

- Children explore the classroom or school grounds to find real-world shapes (e.g., circles in clocks, rectangles in books).
- Teacher takes photos or short videos of each child identifying and describing the shapes.
- These are compiled into a digital or printed portfolio.

Assessment Focus: Shape recognition, spatial awareness, verbal explanation.

Rationale: Visual documentation provides authentic evidence of learning and supports portfolio assessment.

Sources: Portfolio-based documentation is aligned with DepEd (2024) standards and supported by research emphasizing authentic assessment through observation and visual evidence (Hwang et al., 2024; Koerunnisa et al., 2024).

Grade 1 innovative assessment activities in Mathematics, each with a detailed explanation and a plus activity, a bonus or extension task that deepens learning or adds variety. These are aligned with the K to 12 Curriculum and designed to be fun, meaningful, and developmentally appropriate.

Math Adventure Stations

Main Activity: *"Math Quest Challenge"*

- Learners rotate through stations with tasks like counting objects, solving addition problems, identifying shapes, and measuring items.
- Purpose: Promotes active learning and allows assessment across multiple domains in a playful setting.

Activity: *"Treasure Map Math"*

- Learners follow a classroom map with math clues at each stop (e.g., "Solve 3 + 2 to find the next clue").
- Combines math with spatial reasoning and storytelling.

Rationale: Math Adventure Stations engage learners in rotating, hands-on activities that develop multiple mathematical skills simultaneously. By combining spatial reasoning, problem-solving, and active exploration, learners experience mathematics in an enjoyable and meaningful way. This approach encourages independent thinking, collaboration, and application of concepts in real-life scenarios.

Sources: Inspired by learning-station approaches grounded in experiential learning (Kolb, 1984) and validated by research emphasizing activity-based mathematics assessment (Dairo et al., 2024; Luzano et al., 2024).

Manipulative-Based Problem Solving

Main Activity: *"Build and Solve"*

- Learners use counters or blocks to model and solve word problems.
- Purpose: Strengthens conceptual understanding through hands-on exploration.

Activity: *"Math Story Builders"*

- Learners create their own math problems using manipulatives, then swap with a partner to solve.
- Encourages creativity and peer learning.

Rationale: Manipulatives allow learners to visualize and model mathematical problems, making abstract concepts concrete. Activities like "Build and Solve" enhance conceptual understanding and foster creativity while encouraging peer learning and cooperative problem-solving.

Sources: Manipulative-supported problem solving is supported by studies showing improved conceptual understanding (Gonzales, 2023; Oli, 2018).

A rich and engaging set of innovative assessment activities for Grade 4 Mathematics, each with a clear explanation and a plus activity to extend learning. These are aligned with the K to 12 Curriculum and designed to assess competencies in number operations, measurement, geometry, patterns, and data representation, while keeping learners curious and motivated.

Math Escape Room Challenge

Main Activity: *"Unlock the Math Vault"*

- Learners solve a series of math puzzles (e.g., multi-step word problems, pattern recognition, measurement conversions) to unlock clues and "escape" the room.
- Tasks are grouped by skill and scaffolded in difficulty.
- Purpose: Encourages critical thinking, collaboration, and application of multiple math concepts.

Activity: *"Design Your Own Puzzle"*

- Learners create their own math challenge for classmates to solve.
- Builds creativity and deepens understanding of problem structure.

Rationale: Escape room challenges encourage critical thinking, problem-solving, and application of multiple math concepts in a collaborative environment. Learners actively engage in scenario-based tasks that strengthen analytical and reasoning skills.

Sources: Inspired by problem-based learning and gamified assessment approaches (Mutarutinya et al., 2024; Lagbao, 2024).

Geometry in the Real World

Main Activity: *"Shape Detectives"*

- Learners take photos or draw objects from their environment that show geometric concepts (e.g., angles, symmetry, polygons).
- They classify and describe properties of each shape.
- Purpose: Connects geometry to everyday life and strengthens spatial reasoning.

Activity: *"Build a Geometric City"*

- Using paper, cardboard, or digital tools, learners design a city using geometric shapes and label features (e.g., "This building has parallel lines and right angles").
- Integrates math with design and creativity.

Rationale: Applying geometric concepts to real-life objects fosters spatial reasoning and helps learners understand the relevance of math outside the classroom. Activities like building geometric cities enhance observation, classification, and creativity.

Sources: Supported by studies linking geometry learning with real-world application (Wabangga & Tomakin, 2024; Aminah & Wahyuni, 2018).

V. DISCUSSION

1. The results from the Gubat North District reveal a strong preference for developmentally appropriate assessment strategies in kindergarten mathematics. These include manipulative-based tasks, play-based performance activities, portfolio assessments, and one-on-one interviews. Such practices align with contemporary research emphasizing the importance of child-centered, experiential learning in early mathematics education.

2. The thematic insights drawn from kindergarten teachers in the Gubat North District reflect a deeply child-centered philosophy of assessment. Their emphasis on play, engagement, and individualized feedback aligns with contemporary research that advocates for developmentally appropriate, formative, and holistic approaches to early mathematics education. The insights from Grade 1 teachers in the Gubat North District reveal a thoughtful and multifaceted approach to assessing young learners' mathematical understanding. Their reflections, organized into thematic categories, align with contemporary research on developmentally appropriate, formative, and differentiated assessment strategies in early childhood mathematics education. The thematic analysis of Grade 4 teachers' perceptions in the Gubat North District revealed a nuanced understanding of assessment as both a tool for measuring mastery and a mechanism for supporting growth. Their insights reflect a balanced approach that aligns with contemporary research on effective mathematics assessment.

3. The development of mathematics assessment practices across early childhood and primary grades in the Gubat North District reflects a thoughtful alignment with developmental readiness, instructional goals, and pedagogical shifts. Teachers' perceptions and classroom strategies reveal a continuum, from experiential, play-based approaches in kindergarten to structured, performance-oriented tools in Grade 4, mirroring global trends in mathematics education research.

4. The challenges identified in Table 4 reflect persistent systemic gaps in the Philippine education system's capacity to fully realize the goals of the K to 12 curriculum. These issues ranging from resource scarcity to professional development deficits are not isolated but interconnected, requiring coordinated policy and institutional responses. Addressing these challenges requires a multi-pronged strategy:

- *Standardized Assessment Materials:* Develop and distribute K to 12-aligned tools with clear exemplars.
- *Sustained Professional Development:* Offer ongoing training in modern assessment design and implementation.
- *Class Size Reduction:* Implement policies to reduce overcrowding and support differentiated instruction.
- *Resource Investment:* Ensure equitable access to technology, manipulatives, and instructional materials.
- *Innovation Culture:* Promote reflective and tech-integrated assessment practices through institutional support.

5. Under the Revised K to 12 Curriculum, the integration of innovative assessment tools in mathematics instruction for Kindergarten, Grades 1, and 4 reflects a paradigm shift from traditional testing toward more learner-centered, developmentally appropriate, and competency-based evaluation. In Kindergarten, assessment is conceptualized as a formative and experiential process, emphasizing observation and play-based learning to gauge early numeracy and problem-solving skills. This aligned with early childhood pedagogical principles that prioritize holistic development and contextual understanding (Casimiro, Atrido, & Calahat, 2024). As learners progress to Grade 1, assessments begin to incorporate visual, manipulative, and communicative strategies that allow students to express mathematical thinking through drawings, verbal explanations, and real-life scenarios. These tools served not only to measure understanding but also to foster metacognition and collaborative learning (Agawin & Alferez, 2024). By Grade 4, the curriculum encourages the use of performance-based tasks, digital simulations, and problem-based learning activities that promote higher-order thinking and real-world application. Such assessments are designed to bridge classroom instruction with authentic contexts, enabling learners to demonstrate mathematical reasoning and adaptability (Simpal, 2025).

Theoretical Implications

The theoretical implications of the study suggest a significant shift in how educational assessment is conceptualized within the K to 12 frameworks. It reinforces developmental learning theories by demonstrating that assessment tools must evolve in tandem with students' cognitive and emotional growth. This supports the idea that learning is not a static process but one that requires dynamic, age-appropriate evaluation strategies. The study also contributes to constructivist theory, emphasizing that meaningful learning occurs when assessments are integrated with real-life tasks, creativity, and student engagement. Furthermore, it challenges traditional notions of standardized testing by advocating for a more holistic, learner-centered approach one that values process over mere outcomes. These insights can inform future researchers on assessment design, curriculum development, and pedagogical models that prioritize developmental appropriateness and responsiveness to learners' needs.

Practical Implications of the Study

The practical implication of the study is that it offers a clear and actionable framework for improving assessment practices within the K to 12 curriculum. By highlighting the developmental development of learners, the study encourages educators to adopt age-appropriate tools that evolve from exploratory, hands-on methods to more structured evaluations. This ensures that assessments not only measure mastery but also support meaningful learning experiences. Teachers are empowered to blend traditional and developmental approaches, fostering both academic rigor and student engagement. Furthermore, the study underscores the need for systemic reforms, such as enhanced training, adequate resources, and institutional support, to enable effective implementation of responsive assessment strategies. Ultimately, it promotes the integration of innovative, learner-centered activities, especially in subjects like mathematics, to deepen understanding and stimulate creativity. These insights can guide educators, administrators, and policymakers in creating more inclusive, effective, and developmentally aligned assessment systems.

Limitations of the Study

The findings of the study, while insightful, come with several limitations that should be acknowledged. First, the scope may be restricted to specific grade levels or educational contexts, limiting the generalizability of the results across diverse school settings or regions. Second, the reliance on teacher-reported data or classroom observations might introduce subjective bias, as individual perspectives and practices can vary widely. Third, the study may not fully account for external factors such as socioeconomic

disparities, resource availability, or policy constraints that influence assessment implementation. Additionally, the evolving nature of curriculum reforms and pedagogical trends means that the findings may require periodic re-evaluation to remain relevant. Lastly, the study may have focused more on theoretical alignment than on long-term student outcomes, leaving room for further research on the impact of these assessment practices on actual learning achievement and growth.

Future Research Direction\

These limitations point to important directions for future research. Subsequent studies should expand to include more schools and districts, covering a broader range of grade levels to capture a more comprehensive view of assessment practices across elementary education. Researchers are also encouraged to investigate student learning outcomes about the specific assessment tools used, enabling a more direct link between practice and performance. Future inquiries should include classroom-based observations and documentation of tool usage to validate and enrich teacher-reported data. Longitudinal research comparing the long-term effectiveness of traditional assessments versus innovative, gamified, or project-based assessments would provide deeper insights into the sustainability and impact of these practices.

Implementation studies should also be conducted at a regional or national level to explore scalability, while evaluating the effects of professional development programs specifically focused on digital and game-based assessment strategies. Finally, there is a need to develop and pilot culturally localized game-based tools in mathematics, ensuring they are contextually appropriate, accessible, and aligned with the Revised K to 12 Curriculum.

VI. Conclusion

1. Manipulative and play-based activities dominate in Kindergarten, written and performance tasks prevail in Grade 1, and performance tasks and portfolios are most common in Grade 4.
2. Teachers' preferences reveal a commitment to blending traditional and developmental assessments to support both mastery and meaningful learning.
3. The evolving practices demonstrate a responsive approach to student needs, aligning assessment strategies with age-appropriate instructional goals.
4. The top-most challenge face by teachers is the lack of standardized assessment materials, while the least-most challenge is the difficulty aligning assessment tools with curriculum standards. These findings clearly identify the priority areas where support is most needed to strengthen assessment implementation in the MATATAG Curriculum.
5. Innovative assessment tools foster engagement, creativity, and deeper understanding through developmentally appropriate, learner-centered assessment practices.

Recommendations

1. Develop grade-specific assessment guides that scaffold from play-based tools in early years to structured evaluations in upper grades, ensuring alignment with cognitive development stages. In kindergarten: Play-based and manipulative assessments such as counting objects, sorting activities, matching shapes, oral questioning, and guided observational tasks. In Grade 1: Structured written assessments including short quizzes, labeled seatwork, flashcard drills, and simple performance tasks like measuring classroom items or demonstrating basic addition and subtraction. In Grade 4: More advanced tools such as multi-step performance tasks, portfolio entries showing problem-solving processes, written quizzes on higher-order thinking skills, and data interpretation activities. Developing these grade-specific assessment guides will provide teachers with clearer directions on selecting appropriate tools and ensure that assessment practices remain aligned with learners' developmental stages and curriculum expectations.
2. To enhance teachers' ability to evaluate both skills, mastery and conceptual understanding, it is recommended to strengthen professional learning communities where teachers can collaboratively refine blended assessment strategies. These may include LAC sessions (Learning Action Cells), peer mentoring, classroom observation feedback, and sharing of best practices in implementing performance-based, play-based, and digital assessments. Engaging in this structured collaborative activities will help teachers consistently improve their assessment literacy and classroom practices.
3. Provide flexible and innovative assessment frameworks that allow teachers to adapt tools based on students' developmental readiness and instructional goals.
4. Encouraged teacher training, resource development, and classroom support systems to bridge gaps in implementing K to 12-aligned assessments.
5. To improve assessment practices, teachers are encouraged to utilize innovative assessment tools by incorporating performance-based assessments, game-based assessment tools, storytelling-based evaluation, and real-life problem-solving tasks as part of regular classroom evaluation. The proposed output, which is the compilation of exemplar lessons with innovative assessment tools, should be actively used as a practical guide to support consistent implementation across grade levels.

Significance of the Present Study

This study contributes to the growing body of knowledge on assessment practices in Philippine basic education. It emphasizes the critical role of developmental appropriateness, teacher readiness, and resource availability in the successful implementation of mathematics assessment under the Revised K to 12 Curriculum (MATATAG Curriculum). The study serves as a baseline for future innovations and policy improvements in assessment literacy among elementary teachers. It highlights the diversity and creativity of teachers in implementing assessments and underscores the urgent need for institutional backing in terms of materials, training, and policy.

By providing empirical evidence and teacher insights, this study contributes to the ongoing discourse on 21st-century assessment strategies. Its findings may inform teacher development programs, curriculum revisions, and local school innovations. Moreover, the suggested exemplar lessons and tools can serve as practical guides for educators seeking to implement more engaging and meaningful assessment practices in their classrooms.

In essence, the study bridges the gap between curriculum intentions and classroom realities, offering both theoretical and applied contributions to the field of educational assessment in elementary mathematics.

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