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MATHEMATICS PROFICIENCY OF LEARNERS IN GRADES 1 TO 3: INSIGHTS FROM THE RAPID MATHEMATICS ASSESSMENT (RMA) OUTCOMES

Mae Caroline J. Tolibas
Department of Education (DepEd)- Schools Division of Tacloban City
Bayanihan Elementary School, Tacloban City 6500, Leyte, Philippines

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ABSTRACT

Mathematical proficiency in early grades is critical for foundational learning. This study assessed the mathematical proficiency of learners in Grades 1 to 3 at a public elementary school in the DepEd Tacloban City Division using Rapid Mathematics Assessment (RMA) outcomes. Using a descriptive survey design, data were gathered from 222 students through the RMA, categorizing learners into five proficiency levels: Highly Proficient, Proficient, Nearly Proficient, Low Proficient, and Non-Proficient. Results revealed that most students were in the Emerging (Low Proficient and Non-Proficient) categories, with few attaining Highly Proficient levels. Grade 1 learners showed better outcomes than Grades 2 and 3, but proficiency levels generally declined. The findings underscore the need for targeted interventions to address gaps in mathematical proficiency. The study concludes that early intervention programs are essential to enhance foundational mathematics skills, ensuring learners are equipped for higher-level concepts.

Keywords: Department of Education, Mathematics Proficiency, Rapid Mathematics Assessment (RMA).

1. INTRODUCTION

Mathematics education is a cornerstone of cognitive and problem-solving development, particularly during the formative years of schooling. Early-grade mathematics proficiency lays the groundwork for future academic success and real-world applications (Braak et al., 2021; Nguyen et al., 2016; Rittle-Johnson et al., 2017). Over the last decade, research has increasingly underscored the importance of developing foundational mathematical skills (Evans et al., 2015; Park et al., 2016), focusing on understanding early proficiency indicators (Claessens & Engel, 2013; Onoshakpokaiye, 2023; Ticoy et al., 2024). Despite this emphasis, persistent challenges continue to hinder progress, including limited teacher capacity, inconsistent instructional strategies, and socioeconomic disparities that affect learners' performance globally.

In the Philippine context, the state of mathematics proficiency among elementary learners remains a critical concern. Studies have highlighted systemic issues such as inadequate instructional materials, insufficient teacher training in mathematics pedagogy, and large class sizes, all of which impede effective instruction (Gordienko et al., 2019; Graham, 2023; Panthi & Belbase, 2017; Wittmann, 2020). These barriers often result in learners struggling with fundamental mathematical concepts, ultimately affecting their readiness to tackle more complex topics in higher grades.

In view of the issues, the Rapid Mathematics Assessment (RMA) is a diagnostic tool designed to provide an efficient and comprehensive evaluation of learners' mathematical proficiency. Based on research benchmarks, the RMA assesses foundational skills such as number recognition, basic operations, and problem-solving, which are critical for early-grade learners

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(DepEd Pangasinan, 2024; DepEd SDO Bukidnon, n.d.). Its structure categorizes students into distinct proficiency levels—Highly Proficient, Proficient, Nearly Proficient, Low Proficient, and Non-Proficient—enabling educators to identify specific strengths and weaknesses. By employing a rapid and reliable framework, the RMA facilitates timely interventions, ensuring that struggling learners receive targeted support before their challenges compound (Crannell & Brasel, 2020; Willis et al., 2019; Zepeda et al., 2020). This makes the RMA particularly suited for contexts like the Philippines, where resource constraints and large class sizes necessitate efficient tools for measuring academic performance.

Recognizing these challenges, this study aims to evaluate the mathematical proficiency of Grades 1 to 3 learners in a public elementary school within the DepEd Tacloban City Division. Using the Rapid Mathematics Assessment (RMA), the study identifies learners' strengths and areas for improvement, categorizing them into five proficiency levels: Highly Proficient, Proficient, Nearly Proficient, Low Proficient, and Non-Proficient. The assessment provides valuable insights into how well learners master foundational skills and highlights trends across grade levels.

The findings from this study are expected to inform targeted interventions that address gaps in early mathematics proficiency. Beyond diagnosing current challenges, the research aims to contribute to broader educational reforms by guiding curriculum developers, educators, and policymakers. By prioritizing early intervention programs and evidence-based instructional strategies, the study advocates for a more equitable and effective mathematics education system in Philippine public schools, ensuring learners are well-prepared for the demands of higher education and beyond.

1.1 Study Objectives

This study generally assessed the mathematical proficiency of learners in Grades 1 to 3 based on their Rapid Mathematics Assessment (RMA) outcomes at a public elementary school in the DepEd Tacloban City Division, Leyte, Philippines.

2. METHODOLOGY

2.1 Research Design

This study employed a descriptive survey design to evaluate the mathematical proficiency of Grades 1 to 3 learners. This design was appropriate for the study's context as it provided a systematic approach to describing proficiency levels and identifying patterns and trends in the data.

2.2 Locale and Study Respondents

The study was conducted at a public elementary school in the DepEd Tacloban City Division, Leyte, Philippines. This locale was selected due to its diverse student population and participation in the RMA program, making it an ideal setting for evaluating proficiency outcomes. The respondents included 222 Grades 1 to 3 learners, 139 males and 83 females. Grades 1 to 3 were chosen as these are the critical years for developing foundational mathematics skills.

2.3 Research Instrument

The Rapid Mathematics Assessment (RMA) was used as the primary instrument. The RMA categorizes learners into five levels of mathematical proficiency: Highly Proficient, Proficient, Nearly Proficient, Low Proficient, and Not Proficient. Scoring involves evaluating learners'

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performance in basic mathematical tasks, with results interpreted against established benchmarks for each proficiency level.

2.4 Data Gathering Procedure and Ethical Considerations

The data collection followed a structured and ethical framework to ensure reliability and integrity. Before administering the Revised Mathematics Assessment (RMA), informed consent was obtained from parents and guardians, and teachers were oriented on the proper assessment procedures. The assessments were conducted within the learners' classrooms, providing a familiar and supportive environment. Each session lasted approximately one hour per grade level and was supervised by the respective classroom teachers to ensure consistency.

After the assessments, teachers recorded the results, which were subsequently consolidated for analysis. Ethical guidelines were rigorously observed throughout the study, including maintaining the confidentiality of learners' data and ensuring voluntary participation. By adhering to established ethical standards, the study safeguarded the rights and welfare of all participants, mainly as it involved minors.

2.5 Data Analysis

Descriptive statistics, including frequency counting and percentages, were used to analyze the data. Microsoft Excel was employed for data summarization, with results presented in tables and textual descriptions.

3. RESULTS AND DISCUSSION

The learner population comprised 139 males (62.61%) and 83 females (37.39%). Grade 1 had the highest number of learners (81, 36.49%), followed by Grade 2 (73, 32.88%) and Grade 3 (68, 30.63%). The learners were distributed across seven sections, with Gold and Diamond having the highest enrollment (38 each, 17.12%). The demographic distribution highlights the need for differentiated instruction tailored to varied learner characteristics.

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Table 1. Profile Distribution of Learners

Variables	Frequency	Percent (%)
Sex		
Male	139	62.61
Female	83	37.39
Grade Level		
Grade 1	81	36.49
Grade 2	73	32.88
Grade 3	68	30.63
Section		
Gold	38	17.12
Silver	29	13.06
Copper	14	6.31
Diamond	38	17.12
Emerald	35	15.77
Agate	33	14.86
Garnet	35	15.77

Note: No. of Cases=222

The results for Grade 1 learners reveal that 8.64% were Highly Proficient and 14.81% were Proficient, suggesting that some learners are achieving grade-level expectations. However, the majority were in the Emerging categories, with 30.86% classified as Low Proficient and 25.93% as Not Proficient. Male learners had a higher percentage in the Emerging (Low Proficient) category, while female learners performed better in the Proficient level. These findings indicate that gender differences in proficiency levels require attention.

The prevalence of learners in the Emerging categories aligns with related literature emphasizing the importance of foundational numeracy skills during early education (Bernabini et al., 2020; Cabuquin & Abocejo, 2024; Nelson & McMaster, 2019; Purpura & Napoli, 2015). These studies suggest that early interventions, such as targeted remedial programs and differentiated instruction, can significantly improve mathematical proficiency in young children (Clements et al., 2023; Watts et al., 2017), particularly when they include components like exposure to mathematical language and counting with 1-to-1 correspondence, and are of short duration. However, the effects may vary based on the level of risk for math difficulties and socioeconomic status (Myers et al., 2021; Nelson et al., 2023; Svane et al., 2023). These results highlight the need for immediate and sustained support to address gaps in foundational mathematics skills among Grade 1 learners.

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Table 2. Frequency Distribution of the RMA Outcomes among Grade 1 Learners

Level	Male		Female		Overall	
	F	%	F	%	F	%
At a Grade Level *(Highly Proficient)*	4	7.84	3	10.00	7	8.64
Transitioning *(Proficient)*	5	9.80	7	23.33	12	14.81
Developing *(Nearly Proficient)*	12	23.53	4	13.33	16	19.75
Emerging *(Low Proficient)*	17	33.33	8	26.67	25	30.86
Emerging *(Non-Proficient)*	13	25.49	8	26.67	21	25.93

Note: Male= 51; Female= 30

These findings further emphasize the critical role of early childhood education in building foundational numeracy skills. The higher prevalence of male learners in the Emerging (Low Proficient) and Non-Proficient categories suggests potential disparities that may be linked to factors such as learning environment, teaching strategies, or sociocultural influences. On the other hand, the relatively higher performance of female learners in the Proficient category underscores the need for a closer examination of gender-specific learning dynamics. Addressing these gaps requires a holistic approach that includes engaging parents, integrating play-based and contextually relevant learning materials, and providing professional development for teachers to implement effective, inclusive teaching practices.

Table 3. Frequency Distribution of the RMA Outcomes among Grade 2 Learners

Level	Male		Female		Overall	
	F	%	F	%	F	%
At a Grade Level *(Highly Proficient)*	0	0.00	0	0.00	0	0.00
Transitioning *(Proficient)*	8	20.51	7	20.59	15	20.55
Developing *(Nearly Proficient)*	17	43.59	7	20.59	24	32.88
Emerging *(Low Proficient)*	5	12.82	12	35.29	17	23.29
Emerging *(Non-Proficient)*	9	23.08	8	23.53	17	23.29

Note: Male= 39; Female= 34

Grade 2 learners showed no representation in the Highly Proficient category, with only 20.55% reaching the Proficient level. Most learners were Nearly Proficient (32.88%) or in the Emerging categories, with 23.29% Low Proficient and 23.29% Not Proficient. Female learners were more represented in the Emerging (Low Proficient) category, while males showed slightly better outcomes at the Proficient level. These results suggest a decline in proficiency levels compared to Grade 1, reflecting cumulative learning gaps. Research on mathematics education

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stresses the importance of consistent skill reinforcement across grade levels to prevent performance declines (Fuchs et al., 2018; Nguyen et al., 2016; Pellegrini et al., 2021). Addressing these gaps requires a focus on continuous assessment and tailored instructional strategies to support learners who struggle with core mathematical concepts.

The findings underscore the need for targeted interventions to address the diverse proficiency levels among learners. The higher representation of females in the Low Proficient category and the slightly better performance of males at the Proficient level highlight potential gender differences in learning outcomes, warranting further investigation. Additionally, the absence of Highly Proficient learners signals a pressing need to enhance instructional strategies that promote mastery and higher-order thinking skills in mathematics. Fostering a classroom environment that supports differentiated instruction and early remediation can be crucial in addressing these challenges and improving overall proficiency levels.

Table 4. Frequency Distribution of the RMA Outcomes among Grade 3 Learners

Level	Male		Female		Overall	
	F	%	F	%	F	%
At a Grade Level *(Highly Proficient)*	1	2.04	1	5.26	2	2.94
Transitioning *(Proficient)*	7	14.29	1	5.26	8	11.76
Developing *(Nearly Proficient)*	8	16.33	5	26.32	13	19.12
Emerging *(Low Proficient)*	18	36.73	3	15.79	21	30.88
Emerging *(Non-Proficient)*	15	30.61	9	47.37	24	35.29

Note: Male= 49; Female= 19

Further, Grade 3 results indicate a further decline in proficiency, with only 2.94% of learners categorized as Highly Proficient and 11.76% as Proficient. Most learners (66.17%) were in the Emerging (Low Proficient and Not Proficient) categories. Male learners showed a higher percentage in the Low Proficient category, while female learners were more represented in the Not Proficient category. The decrease in proficiency levels underscores the need for early and sustained interventions. The literature emphasizes the role of teacher training and adaptive learning materials in addressing these challenges (Chen et al., 2017; Marienko et al., 2020; Moore et al., 2021). Ensuring that instructional strategies are responsive to learners' needs is crucial for preventing further declines and building a strong foundation in mathematics.

Additionally, collaboration among teachers, parents, and stakeholders plays a vital role in creating a supportive learning environment. Implementing regular assessments and targeted remediation programs can help identify and address specific areas of difficulty (Buagayan et al., 2024; Dietrichson et al., 2021; Poppe et al., 2020), particularly for those in the Emerging categories. These efforts are essential to mitigate learning gaps and promote equity in mathematics achievement among Grade 3 learners.

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4. CONCLUSION AND RECOMMENDATIONS

The study concludes that mathematical proficiency among Grades 1 to 3 learners remains critical, as most students are categorized as Low Proficient or Non-Proficient. The findings reveal significant gaps in foundational skills, with proficiency levels declining across grade levels. These results highlight the importance of early and continuous interventions to strengthen learners' mathematical abilities. Gender differences in proficiency levels also indicate the need for differentiated instructional strategies to address diverse learner needs effectively. Enhancing early-grade mathematics education is vital to ensuring learners are prepared for more advanced concepts.

Based on the results, it is recommended that schools implement focused remedial programs targeting foundational numeracy skills. Teachers should receive professional development training to employ evidence-based strategies and adapt instruction to meet learners' needs. Additionally, incorporating interactive and engaging mathematics activities can help address proficiency gaps and motivate learners. Policymakers should consider allocating resources to support early-grade mathematics programs and ensure the availability of learning materials. Lastly, regular monitoring and assessment should be conducted to track learners' progress and refine interventions as necessary.

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