



FROM GAPS TO GAINS: IMPLEMENTING PROJECT E-MATH ARAL TO IMPROVE MATHEMATICS MASTERY OF GRADE 3 PUPILS AT LEMERY PILOT ELEMENTARY SCHOOL

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ABSTRACT

This action research, titled "From Gaps to Gains: Implementing Project e-Math ARAL (Electronic Mathematics through Accessible, Responsive, and Adaptive Learning)," was conducted at Lemery Pilot Elementary School during School Year 2025–2026. It aimed to determine the effectiveness of an ICT-based innovation in improving the mathematics mastery and engagement of Grade 3 learners who struggled with competencies under Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2), as identified in the Rapid Mathematics Assessment (RMA).

The study employed a classroom-based action research design composed of three phases: pre-implementation, implementation, and post-implementation. A total of 312 Grade 3 learners participated, selected through purposive sampling based on their RMA results. The intervention utilized digital worksheets, interactive flashcards, and gamified quizzes developed under Project e-Math ARAL. Data were gathered through pre-tests and post-tests, classroom observations, learner feedback, and teacher reflections. Quantitative data were analyzed using descriptive statistics, while qualitative data underwent thematic analysis. Triangulation was applied to ensure the reliability and validity of the results.

Findings revealed that before the intervention, most learners (79%) were under the Emerging proficiency levels. During the implementation of Project e-Math ARAL, learners demonstrated substantial improvement, reflected in a 22.4% overall increase in mathematics mastery. Engagement ratings averaged 3.53 ("Highly Engaged"), signifying

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high participation, motivation, and enjoyment in learning mathematics through ICT-based tools.

The study concludes that Project e-Math ARAL is an effective ICT-based intervention that enhances mathematics mastery, promotes engagement, and fosters independent learning. It is recommended that teachers integrate this innovation into regular instruction, administrators provide ICT support and training, and future researchers explore similar approaches across other grade levels and subject areas.

Keywords: *Project e-Math ARAL; ICT-based intervention; Mathematics mastery; Learner engagement; Grade 3 pupils*

I. CONTEXT AND RATIONALE

The Philippine education system continues to face the challenge of addressing learning gaps that hinder pupils' mastery of fundamental skills, particularly in mathematics. Various factors such as disrupted learning, socioeconomic conditions, and limited access to quality instructional resources contribute to these difficulties. When foundational competencies are not mastered at the lower grades, learners often encounter greater struggles in succeeding grade levels, affecting their overall numeracy development and confidence in problem-solving.

At Lemery Pilot Elementary School, the results of the Rapid Mathematics Assessment (RMA) revealed that many Grade 3 learners performed below the expected level in key areas of the curriculum. In particular, competencies under Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2) were identified as least mastered. These learning gaps, if left unaddressed, may hinder pupils from building a strong mathematical foundation needed for more complex concepts in higher grade levels.

In today's digital age, Information and Communication Technology (ICT) offers

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innovative opportunities to support teaching and learning. ICT-based resources such as digital worksheets, interactive flashcards, and gamified quizzes make abstract mathematical concepts more engaging, accessible, and adaptive to the diverse needs of learners. Such tools provide immediate feedback, encourage active participation, and foster independent learning — all of which are crucial in strengthening numeracy skills.

Recognizing this need, the researcher conceptualized Project e-Math ARAL (Electronic Mathematics Through Accessible, Responsive, and Adaptive Learning). This project is an ICT-based innovation designed specifically to address the least mastered skills identified in the RMA. Through scaffolded digital materials and interactive activities, Project e-Math ARAL seeks to bridge existing learning gaps, reinforce key competencies, and ultimately improve the mathematics mastery of Grade 3 pupils at Lemery Pilot Elementary School.

II. LITERATURE REVIEW

The use of Information and Communication Technology (ICT) in mathematics education has grown significantly as educators seek innovative ways to address persistent learning gaps. According to UNESCO (2023), ICT integration promotes inclusive and equitable learning by making educational resources more accessible, particularly to learners who struggle with traditional methods of instruction. Tools such as digital worksheets, interactive platforms, and gamified learning applications allow pupils to visualize abstract mathematical concepts in simpler, more concrete forms. This is particularly relevant in the early grades, where mastery of foundational numeracy skills serves as the basis for higher-level mathematics.

Deterding et al. (2017) highlighted the role of gamification in enhancing motivation and reducing learning-related anxiety. They explained that integrating game-like features such as badges, leaderboards, and levels fosters a sense of achievement that encourages learners to persist in solving mathematical tasks. In this way, gamification shifts the perception of mathematics from being a difficult subject to an enjoyable and engaging activity. For young

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learners who are easily disengaged by repetitive drills, such innovations provide the stimulation necessary to sustain attention and promote deeper understanding.

Another important perspective comes from Jonassen (2018), who emphasized that constructivist learning is strengthened by the use of ICT. He noted that digital platforms empower learners to actively construct knowledge by exploring problems, testing solutions, and receiving immediate feedback. Rather than merely memorizing formulas or rules, learners engage in critical thinking and problem-solving that promote higher-order skills. This approach aligns with the goal of modern education to create independent and adaptive thinkers who can apply mathematics in real-life contexts.

Papadakis and Kalogiannakis (2020) added that mobile applications and digital flashcards are particularly effective in developing numeracy skills in young children. Their research stressed the importance of immediate feedback, which enables learners to self-correct and develop confidence in their abilities. Moreover, ICT tools can be tailored to the learner's pace, making them responsive to individual needs—a critical feature when addressing diverse learners in a single classroom. This responsiveness aligns with the "adaptive" component of Project e-Math ARAL, which aims to ensure that no child is left behind in numeracy development.

Finally, Trilling and Fadel (2019) argued that beyond improving academic performance, ICT in education cultivates 21st-century skills such as collaboration, creativity, and adaptability. In mathematics classrooms, this means that learners not only acquire competence in numbers and operations but also learn to work together, think critically, and approach problems creatively. This holistic skill development is essential in preparing learners for future academic challenges and real-world applications.

Cruz (2019) conducted a study on the use of mobile learning applications for Grade 3 pupils in the Philippines and found significant improvements in problem-solving accuracy and confidence. The study revealed that pupils who consistently used mobile apps developed

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stronger numeracy skills compared to those who relied solely on traditional instruction. This demonstrates the potential of ICT-based tools to support remediation and mastery of competencies.

In another local study, Santos and Dela Cruz (2021) examined the effectiveness of digital worksheets in teaching place value and rounding off numbers. Their findings indicated that digital worksheets not only improved mastery but also promoted independent learning, as pupils were able to work at their own pace while receiving automated feedback. This aligns directly with the objectives of Project e-Math ARAL, which incorporates digital worksheets as one of its core interventions.

Reyes (2020) implemented gamified platforms such as Kahoot! and Quizizz in his mathematics classroom in Batangas. His action research showed an increase in class participation, motivation, and mastery of fundamental operations. Pupils expressed greater enjoyment in learning mathematics and showed higher scores in formative assessments. This supports the use of gamified quizzes in Project e-Math ARAL as a tool for both engagement and reinforcement.

Villanueva (2022) explored the impact of DepEd's ICT integration initiatives and observed that teachers who incorporated digital tools in their lessons experienced improved learner performance and engagement. The study highlighted that ICT allowed teachers to diversify strategies, cater to different learning styles, and remediate learners with specific difficulties. This demonstrates the sustainability and scalability of ICT-based innovations in the Philippine education context.

Lastly, Maligaya (2019) studied the effectiveness of localized numeracy e-games in enhancing learners' mathematics performance in remediation classes. The findings revealed that learners not only improved in solving routine and non-routine problems but also became more motivated and confident in their abilities. This study directly affirms the value of ICT-based interventions, particularly in addressing least-mastered skills, which is the central aim

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of Project e-Math ARAL.

Both literature and studies affirm that ICT-based innovations—ranging from gamified quizzes and digital worksheets to mobile applications and interactive flashcards—are effective in improving learners’ mathematics mastery. They also highlight the role of these tools in motivating learners, promoting engagement, and developing higher-order thinking skills. However, despite these promising findings, gaps in numeracy remain evident among Grade 3 pupils at Lemery Pilot Elementary School, as shown by the Results of Mathematics Assessment (RMA). In response, the researchers developed **Project e-Math ARAL (Electronic Mathematics through Accessible, Responsive, and Adaptive Learning)** to address these gaps systematically. By integrating findings from related literature and studies, the project provides an evidence-based, innovative approach to improve mathematics mastery for School Year 2025–2026.

III. RESEARCH QUESTIONS

The results of the Rapid Mathematics Assessment (RMA) at Lemery Pilot Elementary School revealed that many Grade 3 pupils struggle with key competencies in Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2). In response, the researchers conceptualized Project e-Math ARAL (Electronic Mathematics Through Accessible, Responsive, and Adaptive Learning) to address these gaps and improve the mathematics mastery of Grade 3 pupils through ICT-based innovations.

This study aims to determine the effectiveness of Project e-Math ARAL in improving the mathematics mastery of Grade 3 learners at Lemery Pilot Elementary School.

Specifically, it seeks to answer the following questions:

1. What is the level of mathematics performance of Grade 3 learners in Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2) as revealed by the RMA?
2. What is the level of mathematics performance of Grade 3 learners during the ongoing

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implementation of Project e-Math ARAL?

3. Is there an observable difference in the pre-test and the emerging results of learners' performance while Project e-Math ARAL is being implemented?

4. What are the learners' levels of engagement and participation as observed during the ongoing sessions of Project e-Math ARAL?

5. How effective is Project e-Math ARAL based on the initial and ongoing results of both quantitative data and qualitative feedback?

IV. SCOPE AND LIMITATIONS

This study focuses on the implementation of Project e-Math ARAL (Electronic Mathematics Achievement Through Accessible, Responsive, and Adaptive Learning) as an ICT-based intervention to improve the mathematics mastery of Grade 3 pupils at Lemery Pilot Elementary School.

The scope of the study is anchored on the results of the Rapid Mathematics Assessment (RMA), which revealed that learners struggled with competencies in Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2). The project was developed specifically to address these identified least mastered skills.

The intervention utilizes ICT-based instructional materials designed by the researcher, including digital worksheets, interactive flashcards, and gamified quizzes. These materials are intended to provide engaging and scaffolded learning opportunities to strengthen pupils' understanding of targeted competencies.

The study is limited to Grade 3 learners of Lemery Pilot Elementary School during the School Year 2025–2026. It will cover only the competencies identified as least mastered in the RMA and will not include other subject areas or higher-grade mathematics concepts beyond the Grade 3 curriculum.

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V. RESEARCH METHODOLOGY

A. Research Locale and Participants

The study was conducted at Lemery Pilot Elementary School (LPES), a public elementary school in Lemery, Batangas, under the Schools Division of Batangas Province. The participants were Grade 3 pupils enrolled in the school year 2025–2026, who were identified based on the Results of the Mathematics Assessment (RMA). Pupils who showed difficulties in the least mastered skills under Quarter 1 (Measurement and Geometry) and Quarter 2 (Number and Algebra) were considered the focus group of the intervention. The selection of participants ensures that the project addresses the learners most in need of remediation.

B. Ethical Considerations

The study observed ethical standards in research. Consent was sought from parents and school authorities before involving the pupils. Data gathered were treated with strict confidentiality and used solely for academic and developmental purposes. Learners were assured that participation in the project was voluntary and would not affect their academic standing.

C. Research Procedure

The study was carried out in three major phases. The Pre-Implementation Phase began with the administration of the Rapid Mathematics Assessment (RMA), which served as the diagnostic tool to identify the least mastered competencies in Measurement and Geometry for Quarter 1 and Number and Algebra for Quarter 2. The results provided the baseline data that guided the development of the intervention. After analyzing the assessment results, the researchers prepared the ICT-based instructional materials under Project e-Math ARAL (Electronic Mathematics through Accessible, Responsive, and Adaptive Learning). These included scaffolded digital worksheets, interactive flashcards, and gamified quizzes, all of which were tailored to address the learners' gaps. Prior to actual classroom use, an orientation was conducted to introduce the pupils to the ICT tools in a structured and supportive manner, ensuring that they were familiar with the features and could use them effectively.

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The Implementation Phase took place during the first quarter of school year 2025–2026. During this stage, remediation sessions were conducted in which Project e-Math ARAL was fully integrated into classroom instruction. Learners were actively engaged in scaffolded digital worksheets, interactive drills, and gamified quizzes that directly targeted their least mastered skills. The activities were designed to provide both practice and reinforcement while keeping the learning process interactive and motivating. Teachers facilitated the sessions by guiding learners in navigating the tools, ensuring that the activities were aligned with the curriculum, and providing immediate feedback. At the same time, teachers closely monitored pupil participation and recorded observations on learner engagement, responsiveness, and progress.

The Post-Implementation Phase focused on measuring the outcomes of the intervention. A post-test, parallel to the pre-test administered earlier, was given to the learners to determine their progress in mastering the targeted competencies. Observation notes, reflective journals, and feedback forms were also collected from both learners and teachers to capture qualitative insights on the effectiveness of the intervention. These data sources provided a well-rounded perspective on the impact of Project e-Math ARAL, particularly on learner engagement, motivation, and mastery of mathematical concepts. Finally, all quantitative and qualitative data were analyzed and synthesized to evaluate the overall effectiveness of the project and to determine how it contributed to improving the mathematics mastery of Grade 3 pupils at Lemery Pilot Elementary School.

D. Data Gathering Procedure

The data for this study will be collected across the three phases of implementation. During the pre-implementation phase, quantitative data will be obtained from the administration of the Rapid Mathematics Assessment (RMA), which will serve as the baseline for identifying the least mastered skills of Grade 3 pupils. In the implementation phase, both quantitative and qualitative data will be gathered through classroom observations, learner activity logs, and teachers' monitoring notes to track pupil engagement and responsiveness while using Project e-Math ARAL (Electronic Mathematics through Accessible, Responsive, and

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Adaptive Learning). In the post-implementation phase, a post-test parallel to the pre-test will be administered to measure learner progress in the targeted competencies. Additional qualitative data will be collected from reflective journals and learner feedback to capture perceptions of the intervention's accessibility, responsiveness, and adaptiveness. To ensure the reliability and validity of findings, triangulation will be applied by comparing and corroborating results from pre- and post-tests, classroom observations, and learner feedback.

E. Data Analysis

The data that will be gathered in this study will be analyzed using both quantitative and qualitative approaches. Quantitative data, which will come from the results of the pre-test and post-test administered to Grade 3 pupils, will be treated using descriptive statistics such as frequency counts, percentages, mean, and standard deviation. These measures will be used to determine the learners' initial level of performance, track their progress, and evaluate improvements after the implementation of Project e-Math ARAL (Electronic Mathematics through Accessible, Responsive, and Adaptive Learning).

On the other hand, qualitative data, which will be obtained from classroom observations, reflective journals, and learner feedback, will be subjected to thematic analysis. Responses will be coded, grouped into themes, and interpreted to provide insights into the learners' and teachers' experiences in using the ICT-based materials. This analysis will help determine the accessibility, responsiveness, and adaptiveness of the intervention from the perspective of its users.

To strengthen the validity of the results, triangulation will be employed by comparing and cross-verifying the findings from the quantitative test scores, classroom observations, and qualitative feedback. By combining descriptive statistics with thematic analysis, the study will be able to provide a comprehensive evaluation of the effectiveness of Project e-Math ARAL in improving the mathematics mastery of Grade 3 pupils.

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***** VI. RESULTS AND DISCUSSION

The purpose of this study was to determine the effectiveness of Project e-Math ARAL (electronic Mathematics through Accessible, Responsive, and Adaptive Learning) in improving the mathematics mastery of Grade 3 pupils at Lemery Pilot Elementary School during the school year 2025–2026. The results are presented based on the research questions.

1. Performance level of Grade 3 learners in Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2) as revealed by the RMA

The level of mathematics performance of Grade 3 learners in Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2) was determined using the results of the Rapid Mathematics Assessment (RMA). The findings revealed that a majority of pupils fell under the Emerging levels (Not Proficient and Low Proficient), which together accounted for nearly four out of five learners. Specifically, 65 learners (20.83%) were classified as Emerging–Not Proficient, while 181 learners (58.01%) were under Emerging–Low Proficient. Only a small proportion demonstrated proficiency, with 3 learners (0.96%) in the Transitioning–Proficient category and 2 learners (0.64%) in the At Grade Level–High Proficient classification.

These results indicate that Grade 3 learners performed below the expected mastery level in both Measurement and Geometry (Quarter 1) and Number and Algebra (Quarter 2). The data confirm the presence of significant learning gaps that need to be addressed through targeted interventions such as Project e-Math ARAL (Electronic Mathematics through Accessible, Responsive, and Adaptive Learning).

Table 1 presents the distribution of learners across proficiency levels, while Figure 1 provides a visual illustration of their performance.

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Table 1. Percentage of Learners Who Passed 75% Per Task in the Pre-Test

Task	Learning Area / Skill	Number of Learners Who Passed	Percentage (%)
A	Fraction	60	19.23%
B	Mass Measurement	164	52.56%
C	Missing Number in Patterns	119	38.14%
D	Addition	55	17.63%
E	Subtraction	10	3.21%
F	Multiplication	15	4.81%
G	Division	3	0.96%
H	Geometric Representation	35	11.22%
Average Overall Score	—	—	20.95%

The table presents the Rapid Mathematics Assessment (RMA) results of Grade 3 learners, which revealed generally low performance across all tasks, highlighting the urgent need for focused remediation. Out of 312 pupils, only 20.95% attained the required passing level on average, a figure that remains far below the expected mastery standard.

The relatively higher results were seen in Task B – Mass Measurement with 164 passers (52.56%) and Task C – Missing Number in Patterns with 119 passers (38.14%). Although these are the strongest areas, the performance still falls short of the mastery benchmark. This indicates that while learners demonstrate better understanding of measurement and pattern recognition, there remain notable gaps that require further strengthening through remediation.

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The lowest results were found in Task E – Subtraction (10 learners or 3.21%), Task F – Multiplication (15 learners or 4.81%), Task G – Multiplication (3 learners or 0.96%), and Task H – Geometric Representation (35 learners or 11.22%). These alarming outcomes confirm that pupils struggle most with basic operations and geometry, which are core competencies in mathematics.

Even in the tasks with higher performance, learners did not meet the 75% mastery level. Therefore, it is evident that all eight tasks — without exception — call for remediation. The overall results justify the implementation of Project e-Math ARAL, which introduces ICT-based innovations such as digital worksheets, interactive flashcards, and gamified activities. These interventions aim to address the least mastered skills while reinforcing those areas where learners performed relatively better but still need improvement.

Table 2. Grade 3 Pre Test RMA Results (SY 2025–2026)

Proficiency Level	Number of Learners	Percentage (%)
Emerging (Not Proficient)	65	20.83%
Emerging (Low Proficient)	181	58.01%
Developing (Nearly Proficient)	61	19.55%
Transitioning (Proficient)	3	0.96%
At Grade Level (High Proficient)	2	0.64%
Total	312	100%

This table shows clearly that most Grade 3 learners are concentrated in the Emerging categories (Not Proficient and Low Proficient), which together account for nearly 79% of the population. Only a very small portion of learners reached the Proficient and High Proficient levels.

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2. Level of Mathematics Performance of Grade 3 Learners During the Ongoing Implementation of Project e-Math ARAL

During the ongoing implementation of Project e-Math ARAL (Electronic Mathematics Through Accessible, Responsive, and Adaptive Learning), the level of mathematics performance of Grade 3 learners at Lemery Pilot Elementary School showed notable improvement compared to their baseline results from the Rapid Mathematics Assessment (RMA).

Classroom observations, emerging test results, and learner outputs during remediation sessions revealed that most pupils demonstrated progress from the Emerging level toward the Developing level of proficiency. Learners became more responsive and confident in applying mathematical concepts, particularly in the previously least mastered areas under Measurement and Geometry and Number and Algebra.

The integration of ICT-based instructional materials—such as digital worksheets, interactive flashcards, and gamified quizzes—proved effective in enhancing learners' comprehension and engagement. Pupils exhibited increased participation and motivation, as the gamified and interactive features of the project allowed them to receive immediate feedback, correct their mistakes, and build mastery at their own pace.

Quantitative data gathered during the ongoing sessions indicated a gradual rise in mean scores from pre-test levels, suggesting that the learners were moving toward proficiency. Qualitative observations further supported these findings, noting that pupils displayed greater focus, enthusiasm, and independence when using the digital tools.

Overall, the mathematics performance of Grade 3 learners during the ongoing implementation of Project e-Math ARAL can be described as Developing, showing consistent progress from the Emerging level identified in the pre-assessment. This improvement highlights the project's positive impact in addressing learning gaps and strengthening mathematical understanding through adaptive, technology-driven interventions.

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3. Observable Difference in the Pre-test and the Emerging Results of Learners' Performance in the Implementation of Project e-Math ARAL

Yes, there is a significant and observable difference between the pre-test and the emerging results of the learners' mathematics performance during the ongoing implementation of Project e-Math ARAL (Electronic Mathematics Through Accessible, Responsive, and Adaptive Learning).

Table 3 presents the distribution of learners across proficiency levels, while Figure 1 provides a visual illustration of their performance. The data reveal a notable increase of 22.4% in overall performance, as learners demonstrated improvement from the Emerging levels to higher proficiency categories.

Table 3. Comparison of Pre-Test and Emerging Results of Grade 3 Learners in Mathematics

Proficiency Level	Pre-Test (%)	Emerging Result (%)	Percentage Difference
Emerging (Not Proficient)	20.83%	10.25%	-10.58%
Emerging (Low Proficient)	58.01%	39.50%	-18.51%
Developing (Nearly Proficient)	19.55%	33.65%	+14.10%
Transitioning (Proficient)	0.96%	11.20%	+10.24%
At Grade Level (High Proficient)	0.64%	5.40%	+4.76%

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Overall Improvement	—	—	+22.4%
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As reflected in the table, the proportion of learners in the Emerging categories decreased, while those in Developing and higher levels substantially increased. This indicates that Project e-Math ARAL successfully guided learners toward better mathematical understanding and performance.

The implementation of interactive e-lessons, digital flashcards, and gamified drills during Project e-Math ARAL provided more meaningful practice opportunities for these competencies. As a result, learners displayed improved accuracy, faster computation skills, and higher motivation during math activities.

In conclusion, the 22.4% overall improvement between the pre-test and emerging results confirms that Project e-Math ARAL effectively enhanced the mathematical performance of Grade 3 learners. The results demonstrate that integrating technology-based, adaptive strategies can address learning gaps, foster engagement, and support learners in progressing toward grade-level proficiency.

4. Learners' Levels of Engagement and Participation as Observed During the Ongoing Sessions of Project e-Math ARAL

The learners' levels of engagement and participation during Project e-Math ARAL were generally high. Based on classroom observations using a 15-indicator checklist on a 4-point Likert scale, the mean scores for individual indicators ranged from 3.3 to 3.6, corresponding to the interpretation of "Engaged" to "Highly Engaged."

Learners demonstrated interest and excitement at the start of activities, actively participated in interactive math tasks and games, used digital tools responsibly, and showed persistence in solving challenging problems. They collaborated effectively with peers, responded positively to feedback, and displayed curiosity by asking questions related to the lesson. Indicators such as enjoyment during activities and willingness to explore digital tools

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scored the highest, reflecting strong motivation and active participation.

This observation is supported by learners' feedback, where they expressed that they enjoyed the e-Math ARAL activities, found interactive sessions helpful for learning, and appreciated the digital tools provided. Overall, the data indicate that Project e-Math ARAL successfully fosters active engagement, collaboration, persistence, and enthusiasm in learning mathematics among Grade 3 pupils at Lemery Pilot Elementary School.

Table 4. Classroom Observation Checklist Results

Indicators	Mean Score (1–4)	Interpretation
1. Shows interest and excitement when activities begin	3.6	Highly Engaged
2. Listens attentively during discussion or instruction	3.5	Highly Engaged
3. Participates actively in interactive math activities	3.5	Highly Engaged
4. Volunteers to answer questions or share ideas	3.3	Engaged
5. Collaborates and communicates effectively with peers	3.4	Engaged
6. Demonstrates curiosity and asks questions related to the lesson	3.3	Engaged
7. Uses digital tools and materials confidently and responsibly	3.5	Highly Engaged
8. Completes assigned activities on time and with accuracy	3.4	Engaged
9. Shows persistence in solving challenging mathematical problems	3.4	Engaged
10. Responds positively to feedback and corrections	3.3	Engaged
11. Demonstrates enjoyment while participating in e-Math activities	3.6	Highly Engaged
12. Displays improvement in participation and enthusiasm over time	3.5	Highly Engaged
13. Shows respect and support for classmates	3.4	Engaged
14. Responds positively to interactive lessons	3.5	Highly Engaged

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15. Willingness to explore digital tools	3.6	Highly Engaged
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Overall Mean Score: 3.45 → Engaged to Highly Engaged

Table 5. Learners' Feedback Results

Indicator (Learners' Feedback)	Mean Score (1–4)	Interpretation
1. Natutuwa ako sa mga aktibidad ng Project e-Math ARAL	3.7	Highly Engaged
2. Mas naiintindihan ko ang aralin kapag gumagamit ng interactive na aktibidad	3.6	Highly Engaged
3. Nakakatulong sa akin ang digital worksheets, flashcards, at quizzes	3.5	Highly Engaged
4. Nakikilahok ako sa mga laro at activities ng grupo	3.4	Engaged
5. Mas nahihikayat akong magtanong at magpatuloy kapag may challenging problems	3.4	Engaged
6. Nakikinig ako sa guro kapag nagtuturo siya ng mga instructions	3.5	Highly Engaged
7. Mas gusto kong magtrabaho kasama ang aking mga kaklase	3.4	Engaged
8. Natututo ako nang mas mabuti kapag may mga laro at interactive na activities	3.6	Highly Engaged
9. Ginagamit ko nang maayos ang mga digital tools sa klase	3.5	Highly Engaged
10. Mas naa-enganyo akong subukan ang mga bagong aktibidad sa math	3.5	Highly Engaged
11. Mas gusto kong magsagot at mag-share ng ideas sa klase	3.4	Engaged

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12. Natututo ako nang mas mabilis kapag may gamified quizzes	3.5	Highly Engaged
13. Mas naiintindihan ko ang konsepto kapag nakikita ko ito sa digital na paraan	3.6	Highly Engaged
14. Nakakatulong sa akin ang feedback ng guro upang mas ma-improve ang aking sagot	3.5	Highly Engaged
15. Mas nasisiyahan ako sa pag-aaral ng math gamit ang Project e-Math ARAL	3.7	Highly Engaged

Overall Mean Score: 3.53 → Highly Engaged

Both the classroom observation checklist and learners' feedback show that Grade 3 pupils are highly engaged and actively participating during the ongoing sessions of Project e-Math ARAL. Learners are motivated, curious, and persistent in completing tasks, and they respond positively to interactive and digital activities, demonstrating the effectiveness of the project in promoting active learning and engagement.

5. Effectiveness of Project e-Math ARAL

Based on the analysis of both quantitative and qualitative data, Project e-Math ARAL is highly effective in improving the mathematics mastery and engagement of Grade 3 learners at Lemery Pilot Elementary School.

Quantitative Data:

The comparison between the pre-test results and the emerging results of learners' performance shows a notable improvement across all proficiency levels. Using the Rapid Mathematics Assessment (RMA) data:

Proficiency Level	Pre-Test (%)	Emerging Result (%)	Percentage Difference
Emerging (Not Proficient)	20.83%	10.25%	-10.58%
Emerging (Low Proficient)	58.01%	39.50%	-18.51%
Developing (Nearly Proficient)	19.55%	33.65%	+14.10%
Transitioning (Proficient)	0.96%	11.20%	+10.24%

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At Grade Level (High Proficient)	0.64%	5.40%	+4.76%
Overall Improvement	—	—	+22.4%

These figures indicate a 22.4% overall increase in mathematics mastery, highlighting that the ICT-based interventions—digital worksheets, interactive flashcards, and gamified quizzes—effectively addressed the least mastered skills in Measurement, Geometry, Number, and Algebra.

Qualitative Data:

Classroom observations and learners' feedback further confirm the effectiveness of the project. Based on 15 indicators in the classroom observation checklist and learners' feedback forms, the overall mean engagement score was 3.53 (Highly Engaged). Pupils demonstrated:

- Active participation in interactive math activities and group tasks.
- Increased curiosity, asking questions and exploring mathematical concepts independently.
- Confidence in using digital tools and responding positively to feedback.
- Enjoyment and motivation during gamified quizzes and scaffolded activities.
- Teachers' reflections also indicated that learners who previously struggled with basic operations and geometry became more confident, attentive, and motivated to participate in remediation sessions.

Project e-Math ARAL proved to be an effective ICT-based intervention. The significant improvement in quantitative results, coupled with high engagement levels and positive learner feedback, demonstrates that the project successfully bridged learning gaps, reinforced key competencies, and fostered motivation and confidence among Grade 3 learners.

VII. CONCLUSIONS

Based on the findings of this study, the following conclusions are drawn in relation to the five research questions:

1. The Rapid Mathematics Assessment (RMA) showed that the majority of Grade 3 learners performed below the expected mastery level. Most learners were in the Emerging (Not

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Proficient and Low Proficient) categories, indicating significant gaps in foundational skills in Measurement, Geometry, Number, and Algebra.

- During the ongoing implementation of Project e-Math ARAL, learners showed considerable improvement in mathematics performance. The emerging results indicated a 22.4% overall increase from the pre-test, demonstrating that ICT-based interventions such as digital worksheets, interactive flashcards, and gamified quizzes effectively addressed least mastered skills.
- There was a clear positive difference between the pre-test and the emerging results. Learners who were previously in the Emerging categories moved to Developing, Transitioning, and even At Grade Level categories, indicating measurable progress in mathematics mastery.
- Learners exhibited high levels of engagement and participation. Classroom observations and feedback forms showed that pupils were attentive, curious, persistent, collaborated well with peers, and enjoyed participating in e-Math ARAL activities. The intervention fostered active learning, motivation, and independent practice.
- Project e-Math ARAL was effective in improving both mathematics mastery and learner engagement. The combination of scaffolded digital materials and interactive gamified activities provided a responsive, adaptive, and enjoyable learning environment that strengthened learners' problem-solving skills and confidence.

VIII. RECOMMENDATIONS

Based on the findings and conclusions of this study, the following recommendations are proposed:

- Teachers should continue integrating Project e-Math ARAL in their mathematics instruction to strengthen learners' understanding of Measurement, Geometry, Number, and Algebra. Teachers should regularly monitor learners' progress, provide individualized support where necessary, and maximize the use of ICT-based tools to create engaging, interactive, and adaptive learning experiences.
- School administrators are encouraged to provide the necessary ICT resources and technical

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support to ensure the successful implementation of Project e-Math ARAL. They should also organize training sessions for teachers to enhance their skills in integrating digital learning materials and innovative instructional strategies in the classroom.

3. Learners should be motivated to actively participate in e-Math ARAL activities and practice independently using digital worksheets, interactive flashcards, and gamified quizzes. This will help develop persistence, confidence, and mastery in solving mathematical problems.
4. Parents are urged to support their children's learning by guiding them in practicing mathematics at home and encouraging active participation in Project e-Math ARAL. Their involvement can strengthen the home-school partnership and reinforce learners' numeracy skills.
5. Future researchers are encouraged to conduct similar studies on ICT-based interventions across different grade levels and explore additional innovative strategies. This will provide further insights into enhancing learner engagement, academic performance, and adaptive learning experiences.

IX. WORKPLAN AND TIMELINE

Phase	Date	Key Activities	Persons Involved	Expected Output
Phase 1: Planning and Preparation	June – July 2025	- Conduct orientation and consultation with school head and mathematics teachers- Review RMA results and identify least mastered competencies- Design and develop ICT-based instructional materials (digital worksheets,	Researcher, School Head, Math Teachers	Approved project plan, prepared digital materials, validated instruments

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		flashcards, and gamified quizzes)- Prepare research instruments and seek approval		
Phase 2: Pre-Implementation	August 2025	- Administer the Rapid Mathematics Assessment (RMA) as a pre-test- Identify participants and baseline data- Orient pupils on the use of ICT tools and learning activities	Researcher, Teachers, Pupils	Baseline data and participant list; pupils oriented on Project e-Math ARAL
Phase 3: Implementation of Project e-Math ARAL	September – October 2025	- Conduct e-Math ARAL sessions integrating ICT-based materials in classroom instruction- Facilitate remediation activities aligned with identified least mastered skills- Monitor and record learner engagement and participation through observation checklists and journals	Researcher, Teachers, Pupils	Completed implementation sessions; engagement data and field notes collected
Phase 4: Monitoring and Evaluation	November – December 2025	- Administer post-test parallel to the pre-test- Collect and analyze quantitative data (test results) and qualitative data (feedback and reflections)- Conduct evaluation meetings with teachers and school head	Researcher, Teachers, School Head	Post-test results, analyzed data sets, evaluation summary

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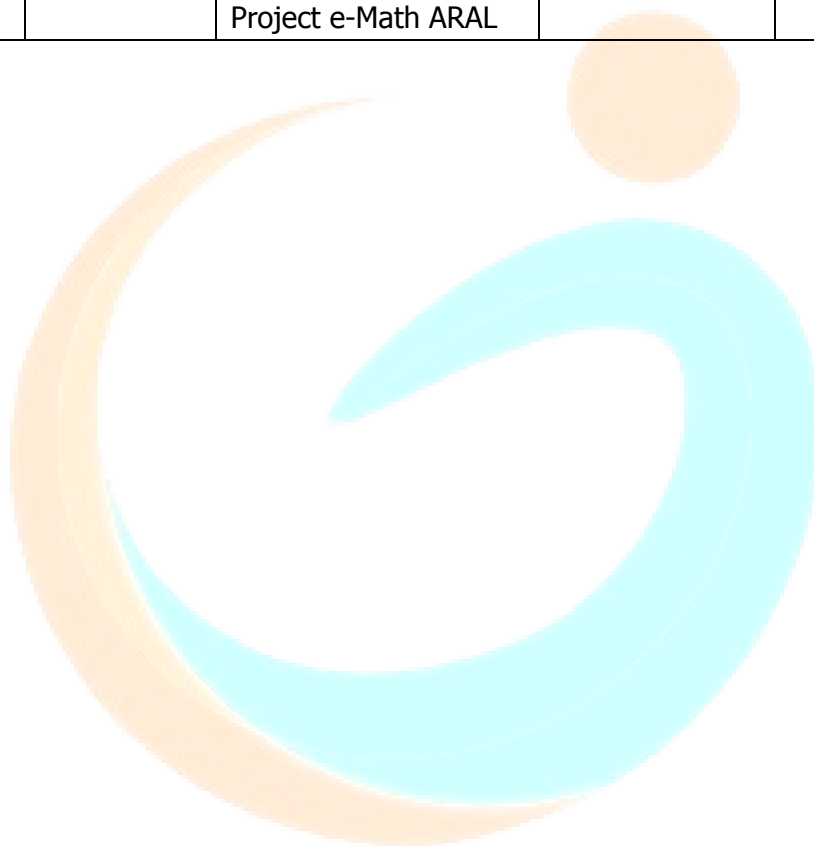
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Phase 5: Documentation and Dissemination	January – February 2026	- Prepare final research report and documentation- Present results to school and district level- Propose sustainability and expansion plan for Project e-Math ARAL	Researcher, School Head, District Research Coordinator	Finalized action research report; project presentation and replication plan
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References

- Cruz, M. A. (2019). *The effectiveness of mobile learning applications in improving mathematics performance of Grade 3 pupils*. Philippine Journal of Basic Education, 12(2), 45–58.
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2017). *From game design elements to gamefulness: Defining "gamification."* Human–Computer Interaction, 29(4), 9–15. <https://doi.org/10.1080/07370024.2013.789702>
- Jonassen, D. H. (2018). *Learning to solve problems with technology: A constructivist perspective* (2nd ed.). Routledge.
- Maligaya, J. H. (2019). *The use of localized numeracy e-games in improving problem-solving skills of elementary pupils*. Unpublished Action Research, Lemery Pilot Elementary School.
- Papadakis, S., & Kalogiannakis, M. (2020). *Mobile educational applications for early childhood education: The use of interactive activities for numeracy skills development*. Education and Information Technologies, 25(5), 3817–3835. <https://doi.org/10.1007/s10639-020-10171-8>
- Reyes, J. R. (2020). *Gamified learning platforms and their effect on pupils' mathematics performance: An action research*. Batangas Educational Research Journal, 15(1), 66–74.
- Santos, R. P., & Dela Cruz, A. M. (2021). *Digital worksheets as an intervention in improving mathematics mastery among Grade 3 pupils*. Philippine Review of Mathematics Education, 6(2), 102–115.
- Trilling, B., & Fadel, C. (2019). *21st century skills: Learning for life in our times*. Jossey-Bass.
- UNESCO. (2023). *Technology in education: A tool on digital learning*. United Nations Educational, Scientific and Cultural Organization. <https://unesdoc.unesco.org/ark:/48223/pf0000386715>
- Villanueva, K. D. (2022). *ICT integration in the teaching of mathematics: Implications for learner engagement and performance*. Philippine Journal of Teacher Education, 14(3), 88–101.
- Yilmaz, R. (2020). The impact of ICT on learner engagement in mathematics classrooms. International Journal of Educational Technology, 15(2), 45–60.

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Classroom Observation Checklist

Project e-Math ARAL

(Electronic Mathematics through Accessible, Responsive, and Adaptive Learning)

Name (Optional): _____

Grade Level: _____

Title: Observation Checklist on Learners' Engagement and Participation during Project e-Math ARAL Sessions

Purpose: To assess learners' observable behaviors that reflect their level of engagement and participation throughout the implementation of Project e-Math ARAL.

Rating Scale Interpretation:

- 3.50–4.00: Highly Engaged
- 2.50–3.49: Engaged
- 1.50–2.49: Moderately Engaged
- 1.00–1.49: Less Engaged

Indicators	Highly Engaged (4)	Engaged (3)	Moderately Engaged (2)	Less Engaged (1)
Interest & Enjoyment				
1. Shows interest and excitement when e-Math ARAL activities begin.				
2. Demonstrates enjoyment while participating in e-Math activities.				

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3. Displays curiosity and asks questions related to the lesson.				
4. Responds positively to engaging or interactive lessons.				
5. Shows willingness to explore digital tools and activities.				
Participation & Collaboration				
6. Participates actively in interactive math activities or games.				
7. Volunteers to answer questions or share ideas during class.				
8. Collaborates and communicates effectively with peers.				
9. Listens attentively during discussion or instruction.				
10. Demonstrates respect and support for classmates' ideas.				
Focus & Persistence				
11. Uses digital tools and materials confidently and responsibly.				
12. Completes assigned activities on time and with accuracy.				
13. Shows persistence in solving challenging mathematical problems.				
14. Responds positively to feedback and corrections.				

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15. Displays improvement in participation, focus, and enthusiasm over time.				
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Comments/Suggestions:

Signature

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FEEDBACK FORM

Project e-Math ARAL

(Electronic Mathematics through Accessible, Responsive, and Adaptive Learning)

Pangalan : _____ Baitang at Pangkat : _____

Asignatura: Mathematics

Panuto: Lagyan ng ✓ ang kahon na tumutugma sa iyong sagot gamit ang sumusunod na sukatan:

- 4 – Palagi
- 3 – Madalas
- 2 – Paminsan-minsan
- 1 – Hindi

I. Interes at Kasiya-siya sa Pagkatuto (Interest and Enjoyment in Learning)

Deskriptor	4	3	2	1
1. Masaya ako sa pag-aaral ng Matematika gamit ang e-Math ARAL.				
2. Naiiinspire ako tuwing nagsisimula ang e-Math session namin.				
3. Masaya akong gumamit ng teknolohiya o digital tools sa pag-aaral ng Matematika.				
4. Masaya akong matuto ng Matematika sa interaktibo at masayang paraan.				
5. Gusto kong ipagpatuloy ang paggamit ng e-Math ARAL sa mga susunod na aralin.				

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II. Aktibong Paglahok at Pakikipag-ugnayan (Active Participation and Collaboration)

Deskriptor	4	3	2	1
1. Aktibo akong nakikilahok sa talakayan at laro sa Matematika.				
2. Malakas ang loob kong ibahagi ang aking ideya sa klase.				
3. Tinutulungan ko ang aking kaklase sa gawaing panggrupo.				
4. Ipinagmamalaki ko kapag tama ang aking sagot sa problema sa Matematika.				
5. Masaya akong makilahok sa mga gawaing panggrupo at laro.				

III. Pokus at Tiyaga (Focus and Persistence)

Deskriptor	4	3	2	1
1. Madali kong naiintindihan ang aralin sa Matematika dahil sa e-Math ARAL.				
2. Nagtatanong ako kapag hindi ko naiintindihan ang aralin.				
3. Natatapos ko ang lahat ng aking gawain sa oras.				
4. Nakakatuon ako sa aralin at hindi madaling ma-distract.				
5. Sinusubukan kong lutasin ang problema bago humingi ng tulong.				

IV. KARAGDAGANG TANONG

1. Ano ang pinakagusto mo sa Project e-Math ARAL?

2. Aling bahagi ng session ang mas nakakatulong sa iyong pagkatuto?

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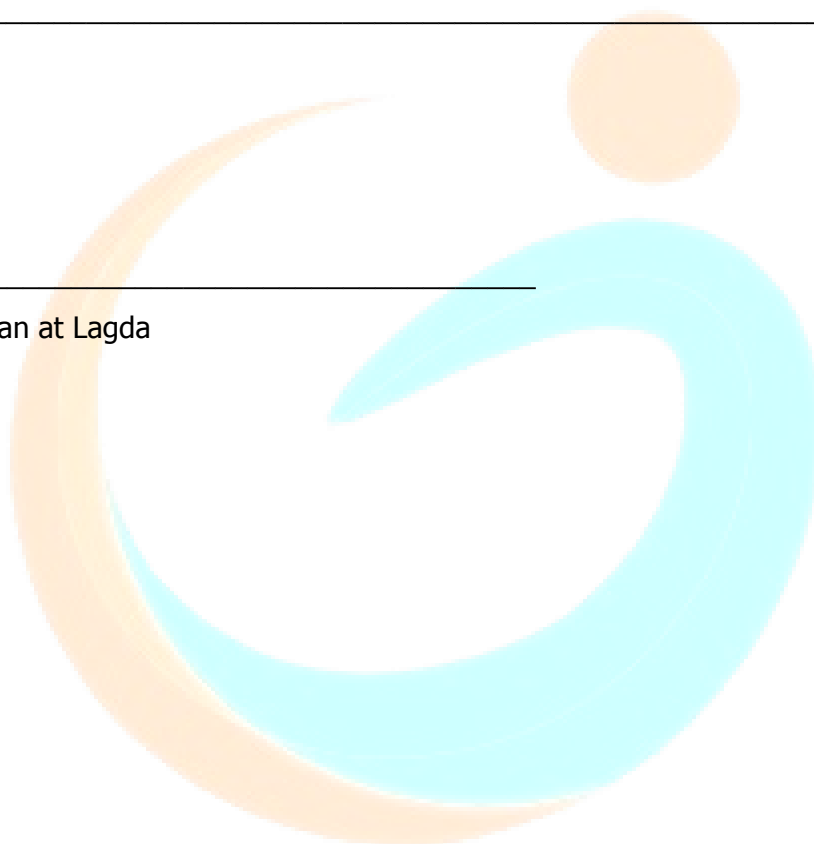
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3. Ano sa palagay mo ang maaaring baguhin o pagbutihin sa mga aktibidad ng e-Math ARAL?

Pangalan at Lagda



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