

TEACHPLAY HUB: ENHANCING MATHEMATICAL PROFICIENCY OF GRADE 3 LEARNERS THROUGH GAME-BASED STRATEGIES

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INTRODUCTION

Mathematics is a fundamental component of education worldwide, fostering essential skills such as logical reasoning, problem-solving, and critical thinking (Akhter, 2018). However, despite its importance, global trends reveal persistent challenges in mathematics education. Many countries, including the Philippines, face a troubling decline in students' participation and performance in the subject (Beaudhamp & Parkinson, 2018). This alarming trend raises pressing concerns about the effectiveness of current teaching methods, the adaptability of education systems to evolving demands, and the collective responsibility of stakeholders in addressing these issues. While much of the existing research focuses on digital game-based learning, this study introduces an alternative approach: a non-digital, teacher-led game-based intervention that directly addresses foundational mathematical skills. The TeachPlay Hub, designed by the researcher, is a structured, game-based intervention program tailored to the specific numeracy challenges identified in EGMA assessments. The TeachPlay Hub was implemented over four weeks during remediation hours, with a structured rotation of activities and weekly formative assessments to measure student progress. This approach seeks to transform traditional numeracy instruction into an engaging, student-centered learning experience, ensuring that non-numerate learners build confidence, develop foundational math skills, and foster a positive attitude toward learning. By assessing the impact of this intervention, the study aimed to provide evidence-based insights for improving mathematics remediation programs, equipping teachers with effective, replicable strategies to support struggling learners.

DISCUSSION OF RESULTS

This study employed a pretest–posttest action research design to evaluate the effectiveness of game-based instructional strategies, particularly non-digital games, in improving learners' mathematics performance. Data were collected using the Early Grade Mathematics Assessment (EGMA) to assess learners' fluency and accuracy. The results obtained before and after the intervention are presented in the succeeding tables.

Table 1
Overall Performance of Participants Before the Intervention

Learner	Subtraction	Missing Number	Word Problem	Overall Score	Percentage	Interpretation
	HPS (20)			HPS (35)	Percentage	
A	5	3	1	9	26%	Non-Numerates
B	12	5	3	20	57%	Non-Numerates
C	8	3	1	12	34%	Non-Numerates
D	8	4	1	13	37%	Non-Numerates
E	7	2	2	11	31%	Non-Numerates
F	13	3	2	18	51%	Non-Numerates
G	4	3	3	10	29%	Non-Numerates
H	11	4	2	17	49%	Non-Numerates
I	6	6	2	14	40%	Non-Numerates
J	8	5	1	14	40%	Non-Numerates

Legend: 0%-74% (Non-Numerates) 75%-100% (Numerates)

Table 1 shows the pretest results of ten identified learners across three numeracy skill areas: subtraction, missing number, and word problem solving. The overall scores ranged from 9 to 20 out of a possible 35, equivalent to percentages between 26% and 57%. Based on the given legend, all learners fall under the Non-Numerate category (0%–74%), indicating that none of the learners met the expected level of numeracy proficiency prior to the intervention.

In terms of specific skills, subtraction scores were generally low, with several learners obtaining less than half of the highest possible score, suggesting weak mastery of basic subtraction concepts and procedures. Performance in the missing number tasks also reflected limited number sense and difficulty in recognizing numerical patterns and relationships. Moreover, word problem solving yielded the lowest scores among the three skill areas, highlighting learners' challenges in

mathematical reasoning, and application of operations to real-life situations.

Overall, the consistently low performance across all learners and skill domains underscores significant learning gaps in foundational numeracy skills. These results emphasize the need for targeted instructional interventions focusing on strengthening subtraction strategies, enhancing number sense, and developing problem-solving skills. The pretest findings served as the basis for identifying learners' learning needs and for designing appropriate remedial activities to improve their numeracy performance.

Table 2
Overall Performance of Participants After the Intervention

Learner	Subtraction HPS (20)	Missing Number HPS (10)	Word Problem HPS (5)	Overall Score (35)	Percent- age	Interpretation
A	13	7	3	23	66%	Non-Numerates
B	16	9	4	29	83%	Numerates
C	17	8	3	28	80%	Numerates
D	11	6	3	20	57%	Non-Numerates
E	17	9	4	30	86%	Numerates
F	17	8	4	29	83%	Numerates
G	16	9	4	29	83%	Numerates
H	18	9	4	31	89%	Numerates
I	12	6	2	20	57%	Non-Numerates
J	18	8	4	30	86%	Numerates

Legend: 0%-74% (Non-Numerates) 75%-100% (Numerates)

The posttest results revealed varying levels of numeracy competency among the learners, reflecting both the effectiveness of the intervention and the differing learning needs of the students. Out of the ten participants, seven learners (B, C, E, F, G, H, and J) achieved overall scores ranging from 28 to 31 out of 35, corresponding to percentages between 80% and 89%, and were classified as Numerates, demonstrating strong proficiency in subtraction, missing number identification, and word problem-solving skills. In contrast, three learners (A, D and I) scored between 20 and 23 out of 35, with percentages ranging from 57% to 66%, and were identified as Non-Numerates, indicating that they still face challenges in foundational numeracy areas.

The intervention, which involved three non-digital math games over a four-week period, appears to have contributed to the improved performance of the numerate learners by providing a hands-on, interactive approach to practicing mathematical concepts. Activities such as Math Bingo, Number Sequence Memory Match, and Picture Puzzle likely enhanced engagement, motivation, and

conceptual understanding, allowing learners to apply subtraction, missing number, and problem-solving skills in a playful yet structured context. However, the continued difficulties observed among the non-numerate learners highlight that while game-based interventions are effective for many, some learners require additional scaffolding, repeated practice, and individualized support to reach mastery.

From an educational perspective, these findings underscore the importance of differentiated instruction and the incorporation of interactive learning strategies that cater to varying learner abilities. Teachers should consider using non-digital games as a complementary tool to traditional instruction, while also implementing targeted remedial activities for learners who need extra reinforcement. Regular monitoring through formative assessments can help identify learners at risk of falling behind and guide instructional planning, ensuring that all students develop the foundational numeracy skills necessary for success in more complex mathematical tasks.

Table 3
Significant Difference Between the Pretest and Posttest Scores

Learner	Pre-test			Post-test			Comparative Analysis	
	Score	%	Interpretation	Score	%	Interpretation	Difference	%
A	9	26%	Non-Numerates	23	66%	Non-Numerates	14	40%
B	20	57%	Non-Numerates	29	83%	Numerates	9	26%
C	12	34%	Non-Numerates	28	80%	Numerates	16	46%
D	13	37%	Non-Numerates	20	57%	Non-Numerates	7	20%
E	11	31%	Non-Numerates	30	86%	Numerates	19	54%
F	18	51%	Non-Numerates	29	83%	Numerates	11	31%
G	10	29%	Non-Numerates	29	83%	Numerates	19	54%
H	17	49%	Non-Numerates	31	89%	Numerates	14	40%
I	14	40%	Non-Numerates	20	57%	Non-Numerates	6	17%
J	14	40%	Non-Numerates	30	86%	Numerates	16	46%
Average	13.8	39.4		26.1	74.7		12.3	35.1

The pre-test results show that all learners were classified as Non-Numerates, with scores ranging from 9 to 20 and an average score of 13.8 (39.4%). This indicates that prior to the intervention, the learners generally demonstrated low numeracy skills and had difficulty in the assessed mathematical competencies.

In contrast, the post-test results reveal a marked improvement in learner performance. Scores increased to a range of 20 to 31, with an average score of 26.1 (74.7%). Notably, seven



out of ten learners (B, C, E, F, G, H, and J) progressed from being Non-Numerates to Numerates, suggesting that the intervention was effective in improving their numeracy skills. Although four learners (A, D and I) remained classified as Non-Numerates, their post-test scores still showed substantial gains compared to their pre-test performance.

The comparative analysis further highlights these improvements. All learners exhibited positive differences in scores, with increases ranging from 6 to 19 points, and percentage gains from 17% to 54%. Learner E demonstrated the highest improvement, with a 19-point (54%) increase, while Learner I recorded the least improvement at 6 points (17%). On average, learners improved by 12.3 points or 35.1%, reflecting a significant overall gain in performance.

The table clearly indicates that the intervention had a positive and significant impact on learners' numeracy skills, as evidenced by the substantial increase in post-test scores and the shift of the majority of learners from the Non-Numerate to Numerate classification.

CONCLUSIONS, RECOMMENDATIONS, AND REFLECTIONS

Based on the quantitative data obtained from the implementation of the TeachPlay Hub, which utilized structured non-digital game-based activities for Grade 3 learners, several key conclusions were drawn regarding the effectiveness of the intervention and its impact on learners' mathematical proficiency. The findings clearly indicated that the integration of TeachPlay Hub as a game-based instructional strategy served as a highly effective and well-structured intervention in enhancing the mathematical abilities of Grade 3 learners. The use of non-digital games provided an engaging and learner-centered learning environment that supported active participation, conceptual understanding, and skill development. As a result, learners demonstrated improved performance in mathematics, affirming the value of incorporating play-based and experiential learning strategies in elementary mathematics instruction.

In light of the favorable findings and conclusions of this study, the researcher put

forward the following recommendations to institutionalize the TeachPlay Hub intervention and to further enhance its effectiveness and sustainability in improving the mathematical performance of Grade 3 learners.

It is strongly recommended that the use of TeachPlay Hub be institutionalized as a structured instructional intervention in Grade 3 mathematics. The school is encouraged to develop and produce game-based instructional materials that are aligned with learners' needs, interests, and local context. The creation of these materials will promote learner engagement, cultural relevance, and meaningful learning experiences, thereby strengthening the impact of the TeachPlay Hub intervention.

Reflecting on the implementation of this action research, the integration of non-digital games proved to be highly effective not only in enhancing learners' mathematical skills but also in building their confidence and active participation during rhythmic activities. Learners became more motivated, engaged, and willing to participate, which contributed to a more positive and supportive learning environment. This experience highlights the significance of adopting innovative, learner-centered instructional approaches as effective strategies in addressing persistent mathematical difficulties in elementary education and in fostering holistic learner development.

REFERENCES

- Akinsola, M. (2007). The effect of simulation-games environment on students' in and attitude to mathematics in secondary schools. University Botswana, Gaborone, Botswana.
- Akhter, N., & Akhter, N. (2018). Learning in Mathematics: Difficulties and Perceptions of Students. *Journal of Educational Research* (1027-9776), 21(1).
- Al-Maqbali, H. (2010). Educational games. Department of Instructional & Learning Technology. <http://www.slidehare.net/guestbO9f79/educational-games>.



- DepED Order No. 36, s. 2013, "Our Department of Education Vision, Mission, and Core Values."
- DepED Order No. 39, s. 2016, "Adoption of the Basic Education Research Agenda."
- DepED Order No. 57, s. 2015, "Utilization of the Early Grade Reading Assessment (EGRA) and Early Grade Math Assessment (EGMA) Tools for System Assessment"
- Guo, S. W., & Liao, S. H. (2022). The role of opportunity to learn on student mathematics anxiety, problem-solving performance, and mathematics performance. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2022.829032>
- Hussein, M. H., Ow, S. H., Elaish, M. M., & Jensen, E. O. (2022). Digital game-based learning in K-12 mathematics education: A systematic literature review. *Education and Information Technologies*, 27(2), 2859-2891. <https://doi.org/10.1007/s10639021-10721-x>
- Kurniasih, A.W., Hidayah, I., and Asikin, M. (2020). Developing mathematics learning materials of fifth grade of elementary school integrating mathematics game, problem posing, and manipulative. *J. Phy.* 1567, 022089. doi: 10.1088/1742-6596/1567/2/022089
- Liu, Y.C., Wang, W.-T., and Lee, T.-L. (2021). An integrated view of information feedback, game quality, and autonomous motivation for evaluating game-based learning effectiveness. *J. Educ. Comput. Res.* 59, 3-40. doi: 10.1177/0735633120952044
- Segarino, G. M., Labisig, J., Calmerin, L., & Cabello, C. (2022). SIMS as Intervention in Enriching the Teaching of Fundamental Operations in Mathematics: An Action Research. *Psychology and Education: A Multidisciplinary Journal*, 5(1), 11-20.
- Vankúš, P. (2021). Influence of game-based learning in mathematics education on students' affective domain: a systematic review. *Mathematics* 9, 9. doi:10.3390/math9090986
- Zou, D. (2020). Gamified flipped EFL classroom for primary education: student and teacher perceptions. *J. Comput. Educ.* 7, 213-228. doi: 10.1007/s40692-02000153-w



07 MONITORING AND EVALUATION (M&E) FORM: RESEARCH SUSTAINABILITY

Post-BERF Implementation Phase

I. GENERAL INFORMATION

- **Research Title:** TEACHPLAY HUB: Enhancing Mathematical Proficiency of Grade 3 Learners Through Game-Based Strategies
- **Researcher:** Dianne Claire C. Pulvera (2025)
- **Station:** Cadaruhan Elementary School, SDO Cebu Province
- **Q-BEDP Outcome:** Outcome 4 (Improved Education Quality) & Outcome 1 (Teacher Quality)
- **Monitoring Date:** _____

II. SUSTAINABILITY CHECKLIST

Instructions: Mark (X) the appropriate column based on current school operations.

Sustainability Indicators	Evident	Not Evident	Means of Verification (MOV)
1. Institutionalization: Is the TeachPlay Hub integrated into the school's Mathematics Intervention Plan or the Annual Implementation Plan (AIP)?	/		Approved SIP/AIP / Math Project Proposal
2. Technical Assistance: Does the teacher/school head provide coaching on how to use game-based kits during LAC sessions?	/		Attendance Sheets / LAC Minutes
3. Utilization of Tools: Are the Math Bingo, Memory Match, and Picture Puzzle kits still being utilized during remediation hours?	/		Inventory of Game Kits / Remediation Logs
4. Active Learning Culture: Is there a dedicated "Math Hub" or game corner in the classroom where learners can access the materials?	/		Classroom Observation / Photo Documentation
5. Resource Support: Is there a budget or partnership (PTA/LGU) for the maintenance and reproduction of worn-out game components?			School MOOE / Liquidation Reports

III. PERFORMANCE MONITORING (Q-BEDP BASECAMPS)

Compare current data against the 2025 BERF study results.

Metric	BERF Study Result (2025)	Current Status (2026)	Remarks (Progress/Regression)
Mean Score (Post-test)	17.90		Progress
Mean Gain Score	13.30 points increase		Progress
Non-Numerate Recovery	100% (10 out of 10)		Progress

IV. STRATEGIC LEVER EVALUATION (Q-BEDP PART III)

1. DECENTRALIZATION (Empowerment): How has the school head or the Math Coordinator expanded the TeachPlay Hub model to other grade levels (e.g., Grade 1 or 2) to prevent numeracy gaps early on?

2. DIGITALIZATION (Data-Driven): Is the school using a simple digital dashboard (e.g., Excel-based tracker) to record the weekly scores of learners as they progress through the different game-based levels?

V. ISSUES, GAPS, AND RECOMMENDATIONS

Identified Issue / Barrier	Proposed Intervention	Responsible Person
Ex: Physical wear and tear of game cards	Lamination of materials using school supplies	Property Custodian / Teacher
Ex: Limited time for game rotation	Integration of games during the first 10 mins of Math class	Subject Teacher

VI. OVERALL RATING & STATUS

[] **SUSTAINED:** TeachPlay Hub is the primary numeracy intervention; learners show high engagement and mastery.
 [] **THREATENED:** Games are used only occasionally; materials are incomplete or not being updated.
 [] **INACTIVE:** Game-based learning has stopped; the teacher has returned to purely traditional textbook instruction.

Prepared by: _____
 Research Manager/ M&E Personnel

Conforme: DIANNE CLAIRE C. PULVERA
 School Head / Lead Proponent



PRP-BERF on Track: *Devolving Instructional Innovation Through the TeachPlay Hub to Achieve Q-BEDP Numeracy Outcomes*

Research Title	Research Theme	Q-BEDP Reform Outcome (SPT Agenda)	Strategic Lever Applied	Results Utilization / Concrete Evidence	Research Impact	Key Highlights for Research Monitoring Report:
TEACHPLAY HUB: Enhancing Mathematical Proficiency of Grade 3 Learners Through Game-Based Strategies	Teaching and Learning. The study focused on numeracy improvement, specifically addressing challenges in subtraction, missing numbers, and word problems through active learning.	Outcome 4: Improved Education Quality through Upgraded Curriculum, Modernized Assessments, and Digitally Enabled Schools. The research addresses the numeracy gap by modernizing traditional instruction with game-based pedagogy to improve learner proficiency.	First Lever: Decentralization. Empowerment of the classroom teacher to create a localized "TeachPlay Hub" and contextualized non-digital games (Math Bingo, Memory Match) tailored to the specific needs of the school's non-numerate learners. Third Lever: Digitalization (Implicit). While the core games are non-digital to ensure accessibility, the strategy utilizes data-driven pre-test/post-test analysis to inform instructional pivots.	1. Instructional Innovation: Implementation of the TeachPlay Hub, featuring a structured rotation of Math Bingo (Subtraction), Memory Match (Word Problems), and Picture Puzzles (Missing Numbers). 2. Resource Development: Production of a Game-Based Instruction Kit including localized math manipulatives and visual aids. 3. Professional Development: Disseminated through School-Based LAC sessions to promote game-based learning as a viable intervention for struggling learners.	Numerical Proficiency: Significant statistical improvement in math scores, with the mean score increasing from 4.60 (Pre-test) to 17.90 (Post-test). Learner Performance: 100% of the identified non-numerate participants showed marked improvement, successfully bridging the gap in basic mathematical operations.	Gamified Mnemonics: The study demonstrates that associating difficult words with song melodies provides a "mental hook" that significantly improves retention and recall. Low-Cost/High-Impact: The intervention requires minimal resources (basic audio/video equipment) but yields high engagement, making it highly sustainable for public schools. Contextual Relevance: By using music that students already listen to, the researchers bridged the gap between academic requirements and the learners' daily cultural experiences.



Republic of the Philippines
Department of Education
Region VII – Central Visayas
Schools Division of CEBU PROVINCE

CERTIFICATE OF UTILIZATION

This is to certify that this Office, through the Schools Division Research and Innovation Committee (SDRIC), has reviewed and validated that the **Research and Innovation** titled **TeachPlay Hub: Enhancing Mathematical Proficiency of Grade 3 Learners Through Game-Based Strategies** submitted by Dianne Claire C. Pulvera, of Cadaruhan Elementary School/ Borbon District/ SDO- Cebu Province was **SUCCESSFULLY UTILIZED** in Borbon District/ SDO- Cebu Province to improve the mathematical proficiency of Grade 3 learners through game-based strategies, which resulted to be effective among target learners, and helpful for teachers in conducting enhancement classes to improve learners' math performance.

Issued and signed this 2nd day of June 2026 in SDO- Cebu Province, Philippines.

SENEN PRISCOLO P. PAULIN, CESO V

Schools Division Superintendent
Head of Office/ SDRIC Adviser



Republic of the Philippines
Department of Education
Region VII – Central Visayas
Schools Division of CEBU PROVINCE

CERTIFICATE OF ADOPTION

This is to certify that this Office, through the Schools Division Research and Innovation Committee (SDRIC), has reviewed and validated that the **Research and Innovation** titled **TeachPlay Hub: Enhancing Mathematical Proficiency of Grade 3 Learners Through Game-Based Strategies** submitted by Dianne Claire C. Pulvera, of Cadaruhan Elementary School/ Borbon District/ SDO- Cebu Province was **SUCCESSFULLY ADOPTED** in Borbon District/ SDO- Cebu Province to improve the mathematical proficiency of Grade 3 learners through game-based strategies, which resulted to be effective among target learners, and helpful for teachers in conducting enhancement classes to improve learners' math performance from November 2025- December 2025/1 month in Borbon District/ SDO Cebu Province.

Issued and signed this 2nd day of June 2026 in SDO-
Cebu Province, Philippines.

SENEN PRISCOLO P. PAULIN, CESO V

Schools Division Superintendent
Head of Office/SDRIC Adviser

DISSEMINATION AND UTILIZATION ADVOCACIES

PRE-IMPLEMENTATION PHASE

During the pre-implementation phase, the researcher administered the Early Grade Mathematics Assessment (EGMA) to establish a baseline of the learners' mathematical abilities. The results of this assessment provided a clear picture of the learners' current level of proficiency and helped identify those who were experiencing difficulties in fundamental mathematical skills. Based on the gathered data, the researcher was able to determine which learners required targeted intervention to improve their performance and address specific learning gaps. Following this assessment, the researcher conducted an orientation with both the learners and their parents to inform them about the purpose and significance of the proposed action research. The discussion focused on how the study aims to enhance the learners' mathematical proficiency through appropriate strategies and interventions tailored to their needs.



Conducted EGMA Assessment to Establish Baseline Result



Conducted Action Research Orientation of learner Participants and Parents



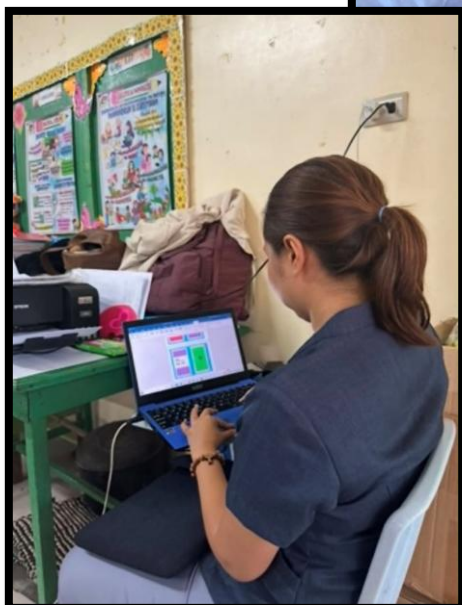
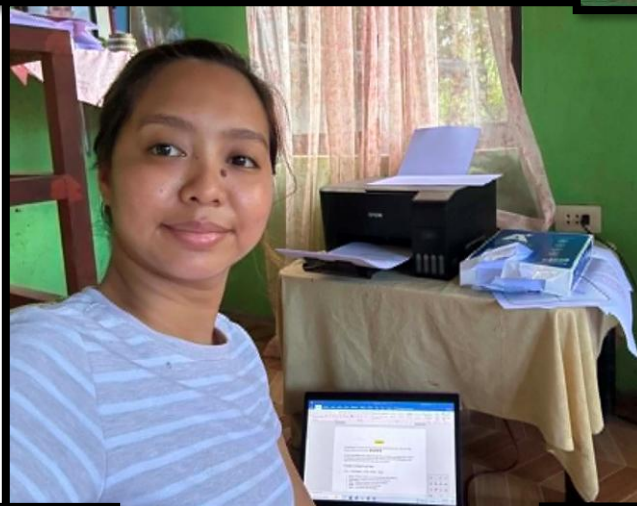
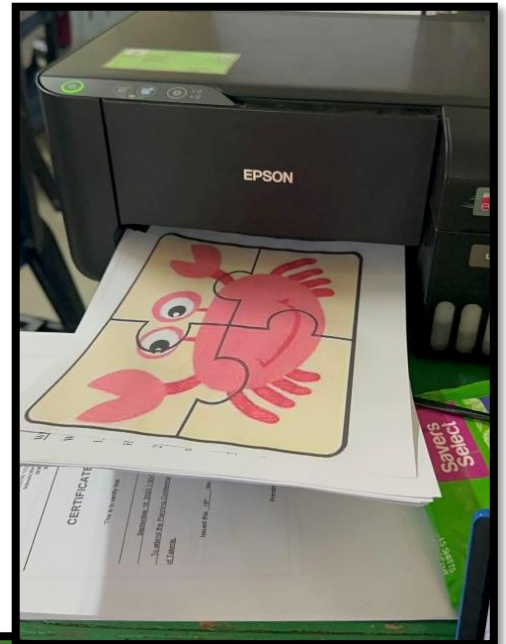
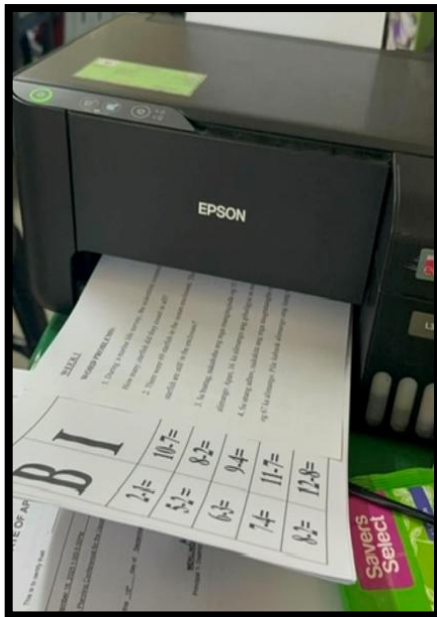
Administration and/or Conduct of the Pre-test





RESEARCH BULLETIN

Procurement of Materials



Developing of Instructional Materials/Tools

[illegible]

The Materials

IMPLEMENTATION PHASE

The TeachPlay Hub facilitated these activities during remediation hours from 3:00 to 4:00 PM, Monday through Thursday, over a one-month period. Fridays were dedicated to brief formative assessments through quizzes. The intervention plan included structured game-based learning strategies such as Math BINGO (for Subtraction Level 2), Memory Match (for Missing Numbers), and Picture Puzzle (for Word Problems).



Facilitating the conduct of the in-school Action Research Learning Session Using Game-based Strategies



Utilization of Non-digital Games Materials/Tools

POST-IMPLEMENTATION PHASE

The outcomes of the intervention were assessed and analyzed based on the post-assessment results. A comprehensive comparison between the pre-assessment and post-assessment data was conducted to evaluate the effectiveness of the game-based strategies. Additionally, qualitative feedback was collected through structured interviews with participating learners, parents, and teachers. To ensure sustainability and potential replication of the program, the researcher disseminated the findings through a Learning Action Cell (LAC) session.



Administration and/or Conduct of the Posttest



Checking of Assessment and Analyzing Results



Discussed the results of the study to the teachers of Cadaruhan ES during LAC Session





AR Advocacy Materials shared during the Regional ManCom last January 2026 at

DepEd Ecotech Center, Cebu



Republic of the Philippines
Department of Education
REGION VII – CENTRAL VISAYAS

RESEARCH MANAGEMENT: TRANSMITTAL LETTER FOR RESEARCH IMPLEMENTATION

October 27, 2025

DR. SENEN PRISCOLO PAULIN
Schools Division Superintendent
Division of Cebu Province
IPHO Bldg., Sudlon, Lahug, Cebu City

Sir:

Greetings!

The undersigned will be conducting an **action research study** with the title “**TeachPlay Hub: Enhancing Mathematical Proficiency of Grade 3 Learners Through Game-Based Strategies**” to address the **gap of unsolved the non-numerates learners** of Cadaruhan Elementary School, Cadaruhan, Borbon, Cebu of Borbon District.

In this regard, the researcher would like to ask approval from your good office to conduct the study in Cadaruhan Elementary School, Cadaruhan, Borbon, Cebu of Borbon District. Rest assured that the documents taken from the study participants/respondents and research setting will be kept confidential.

I am looking forward for a favorable approval on this matter.

Very truly yours,

DIANNE CLAIRE C. PULVERA

Approved:

SENEN PRISCOLO P. PAULIN
Schools Division Superintendent
SDO-Cebu Province



Republic of the Philippines
Department of Education
Region VII, Central Visayas
SCHOOLS DIVISION OF CEBU PROVINCE
DISTRICT OF BORBON

C E R T I F I C A T I O N

RE: RESEARCH IMPLEMENTATION

This is to certify that the Action Research results and findings of conducted by:

Name of the researcher Proponents/ BERF Grantees	Insert Proponent's Position/Designation	Official School/ Station
1.Dianne Claire C. Pulvera	Teacher 3	Cadaruhan Elementary School
Titled		

TeachPlay Hub: Enhancing Mathematical Proficiency of Grade 3 Learners Through Game-Based Strategies

Funded under the Basic Education Research Fund (BERF) CY 2025 Grant Facility, the research project has been implemented in accordance with the approved research work plans and timelines, and in compliance with the provisions stipulated in DepEd Order No. 16, s. 2017, otherwise known as the "Research Management Guidelines."

This further certifies that the research proponent and/or BERF grantee ethically conducted and completed all research activities across the different phases of implementation, and duly prepared and submitted all required research deliverables based on the approved research proposal as reviewed and endorsed by the Schools Division Research Committee (SDRC).

This certification is issued this 16th day of December 2025 in compliance with the requirements of the Department of Education Regional Office VII – Policy, Planning, and Research Division (PPRD) under the Policy and Research Program (PRP).


OLIVER A. MAGDADARO
School Principal



Republic of the Philippines
Department of Education
Region VII, Central Visayas
SCHOOLS DIVISION OF CEBU PROVINCE
DISTRICT OF BORBON

C E R T I F I C A T I O N

RE: RESEARCH UTILIZATION

This is to certify that the Action Research results and findings of conducted by:

Name of the researcher Proponents/ BERF Grantees	Insert Proponent's Position/Designation	Official School/ Station
1.Dianne Claire C. Pulvera	Teacher 3	Cadaruhan Elementary School

Titled

**TeachPlay Hub: Enhancing Mathematical Proficiency of Grade 3 Learners
Through Game-Based Strategies**

Funded under the Basic Education Research Fund (BERF) for CY 2025, the grant facility was effectively utilized to improve the mathematical proficiency of Grade 3 learners. The findings clearly indicated that the integration of TeachPlay Hub as a game-based instructional strategy served as a highly effective and well-structured intervention in enhancing learners' mathematical abilities. The use of non-digital games provided an engaging, learner-centered environment that supported active participation, conceptual understanding, and skill development. As a result, learners demonstrated improved performance in mathematics, affirming the value of incorporating play-based and experiential learning strategies in elementary mathematics instruction.

Specifically, the researcher maximized the utilization of the study's findings and recommendations by integrating non-digital, game-based strategies into daily classroom instruction. This purposeful application of play-based learning approaches provided learners with engaging and meaningful opportunities to actively participate in the learning process.

Furthermore, the results affirmed that teachers, particularly those handling Grade 3, were encouraged to consistently utilize and appropriately adapt this game-based strategy to enhance learners' mathematical skills, especially in subtraction, missing numbers, and word problem-solving. To ensure uniformity, effectiveness, and fidelity in implementation, training programs and Learning Action Cell (LAC) sessions were conducted for all teachers. These professional development initiatives equipped educators with the necessary knowledge, skills, and pedagogical strategies to implement the intervention effectively and align it with curriculum standards.

This certification is issued this 16th day of March 2026 in compliance with the requirements of the Department of Education, Regional Office VII – Policy, Planning, and Research Division (PPRD) under its Policy and Research Program (PRP).


OLIVER A. MAGDADARO
School Principal



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SCHOOLS DIVISION OF CEBU PROVINCE
DISTRICT OF BORBON

C E R T I F I C A T I O N

RE: RESEARCH DISSEMINATION

This is to certify that the Action Research results and findings of conducted by:

Name of the researcher	Insert Proponent's	Official	School/
Proponents/ BERF Grantees	Position/Designation	Station	
1.Dianne Claire C. Pulvera	Teacher 3	Cadaruhan	Elementary School

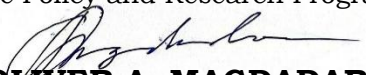
Titled

TeachPlay Hub: Enhancing Mathematical Proficiency of Grade 3 Learners Through Game-Based Strategies

Funded under the Basic Education Research Fund (BERF) for CY 2025, the grant facility was effectively disseminated through various platforms and settings across governance levels in accordance with the approved research work plans and timelines, and in adherence to the provisions of DepEd Order No. 16, s. 2017, otherwise known as the "Research Management Guidelines."

In particular, the researchers presented and discussed the research results and recommendations during the School Learning Action Cell (LAC) Session. The dissemination activities were attended by the school head and teachers across grade levels of Cadaruhan Elementary School, thereby strengthening awareness and utilization of the research findings among educational leaders and teachers within the school. Furthermore, the action research results and findings were formally disseminated which encouraged teachers to analyze, evaluate, consider, and integrate the research-based strategies and interventions into their instructional practices to improve learners' academic performance.

This certification is issued this 16th day of March 2026 in compliance with the requirements of the Department of Education Regional Office VII – Policy, Planning, and Research Division (PPRD) under the Policy and Research Program (PRP).


OLIVER A. MAGDADARO
School Principal