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Students' Proficiency In Basic Arithmetic Through Project Sharp: (Sharpening And Honing Arithmetic Proficiency) In Tanauan City Integrated High School

Marlon U. Amante [1]
1 – Golden Gate Colleges
marlon_amante015@yahoo.com.ph

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Abstract

This study examined the effectiveness of PROJECT SHARP (Sharpening and Honing Arithmetic Proficiency) in improving the arithmetic proficiency of Grade 7 students at Tanauan City Integrated High School, Tanauan City, Batangas, during School Year 2025–2026. The study addressed the persistent problem of low mastery in basic arithmetic operations among junior high school learners, which affects their readiness for higher mathematical concepts.

Specifically, the study aimed to determine the students' baseline arithmetic proficiency, describe their levels of engagement, motivation, and interest during the implementation of PROJECT SHARP, and evaluate the effectiveness of the intervention in improving computational speed, accuracy, and retention.

A mixed-methods research design was employed, combining quantitative and qualitative approaches. The participants were eighty-four (84) Grade 7 students selected through purposive sampling based on diagnostic test results. Data were gathered using a researcher-made 40-item Arithmetic Proficiency Test, survey questionnaires, and semi-structured interviews. Quantitative data were analyzed using descriptive statistics and paired samples t-test, while qualitative data were analyzed through Interpretative Phenomenological Analysis (IPA).

Findings revealed that students initially demonstrated an Average Mastery level in arithmetic (M = 19.47, MPS = 48.67%). After the implementation of PROJECT SHARP, students showed very high levels of engagement (M = 3.34), motivation (M = 3.33), and interest (M = 3.34). Results further indicated significant improvement in students' speed, accuracy, and retention in solving arithmetic problems. Qualitative data revealed challenges such as math anxiety, limited learning resources, instructional pacing issues, and unequal peer participation.

The study concludes that PROJECT SHARP is an effective and contextually appropriate numeracy intervention that significantly enhances arithmetic proficiency and learner engagement. It is recommended that the program be sustained and institutionalized as part of school-based numeracy initiatives aligned with the DepEd MATATAG Curriculum and Learning Recovery Framework.

Keywords: *PROJECT SHARP, Arithmetic Proficiency, Numeracy Intervention, Grade 7 Students, Computational Skills, Learner Engagement, Motivation, Math Anxiety, Learning Recovery, MATATAG Curriculum*

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I. INTRODUCTION

Background of the Study

Numeracy decline among Filipino learners remains one of the major concerns in Philippine education. Results from national and international assessments such as PISA revealed that many students struggle with basic mathematical skills and problem-solving abilities.

At Tanauan City Integrated High School, many Grade 7 students exhibited weak arithmetic foundations, affecting their performance in higher mathematical concepts. In response to this concern, the researchers developed PROJECT SHARP (Sharpening and Honing Arithmetic Proficiency), a remedial intervention program designed to improve students' arithmetic proficiency through drills, collaborative learning, gamified activities, and feedback mechanisms.

The study aimed to determine the effectiveness of PROJECT SHARP in improving arithmetic proficiency, engagement, motivation, and retention among Grade 7 students.

Research Questions

This study sought to determine the effectiveness of PROJECT SHARP in enhancing the arithmetic proficiency of Grade 7 students at Tanauan City Integrated High School.

Specifically, it aimed to answer the following questions:

1. What is the baseline proficiency level of Grade 7 students in basic arithmetic operations before the implementation of PROJECT SHARP?
2. How may the implementation of PROJECT SHARP be described in terms of:
    - student engagement;
    - academic motivation; and
    - interest in arithmetic-related tasks?
3. How effective are the teaching strategies in PROJECT SHARP in enhancing:
    - speed;
    - accuracy; and
    - retention?
4. What challenges and difficulties do students encounter during the implementation of PROJECT SHARP?
5. Based on the results, what enhancement activities may be proposed?

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Significance of the Study

This study is beneficial to:

- students,
- teachers,
- school administrators,
- DepEd policymakers,
- and future researchers

as it provides an effective framework for improving arithmetic proficiency and strengthening numeracy intervention programs.

II. METHODOLOGY

Research Design

The study utilized a mixed-methods research design combining quantitative and qualitative approaches.

The quantitative method measured students' arithmetic performance through pretest-posttest assessments and survey questionnaires, while the qualitative method explored students' lived experiences using interviews analyzed through Interpretative Phenomenological Analysis (IPA).

Participants of the Study

The participants were 84 Grade 7 students from Tanauan City Integrated High School during School Year 2025–2026.

They were selected through purposive sampling based on low arithmetic proficiency results from diagnostic assessments.

Research Instruments

The study utilized:

1. Arithmetic Proficiency Test
2. Student Engagement and Motivation Survey
3. Teaching Strategies Effectiveness Questionnaire
4. Semi-Structured Interview Guide

All instruments underwent validation and reliability testing.

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Data Gathering Procedure

The study followed three phases:

1. Pre-implementation
2. Implementation
3. Post-implementation

PROJECT SHARP was implemented for six weeks using:

- arithmetic drills,
- collaborative learning,
- peer tutoring,
- and gamified activities.

Statistical Treatment

The study used:

- Mean
- Mean Percentage Score (MPS)
- Standard Deviation
- Paired Samples t-test
- Weighted Mean
- Interpretative Phenomenological Analysis (IPA)

III. RESULTS

Baseline Proficiency

The pretest revealed a mean score of 19.47 out of 40 with an MPS of 48.67%, interpreted as Average Mastery.

Most students belonged to the Low Mastery category, indicating the need for remediation.

Student Engagement

Students demonstrated a Very High level of engagement with a composite mean of 3.34.

They actively participated in arithmetic drills and collaborative learning activities.

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Academic Motivation

Students showed a Very High level of motivation with a composite mean of 3.33.

They developed confidence and recognized the importance of mathematics in daily life.

Interest in Arithmetic Tasks

Students manifested a Very High level of interest with a composite mean of 3.34.

Gamified activities and real-life applications increased students' enjoyment and curiosity.

Effectiveness of Teaching Strategies

PROJECT SHARP effectively improved:

- speed,
- accuracy,
- and retention.

Students demonstrated better computational fluency, reduced errors, and improved recall of arithmetic concepts.

Challenges Encountered

The major challenges identified were:

- math anxiety,
- limited resources,
- fast lesson pacing,
- low self-confidence,
- and unequal peer participation.

IV. DISCUSSION

The findings revealed that PROJECT SHARP significantly enhanced students' arithmetic proficiency and affective engagement.

The use of contextualized instruction, collaborative learning, and gamified strategies positively influenced students' participation, confidence, and motivation.

The findings also support previous studies emphasizing the importance of formative feedback, peer collaboration, and mastery learning in mathematics education.

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Despite the positive outcomes, challenges such as math anxiety and limited learning resources continue to affect students' learning experiences, highlighting the need for continuous support and differentiated instruction.

V. CONCLUSION

Based on the findings, the study concluded that PROJECT SHARP is an effective numeracy intervention program for Grade 7 students.

The intervention significantly improved students' engagement, motivation, speed, accuracy, and retention in arithmetic operations.

The study further revealed that contextualized and collaborative learning activities help reduce learners' anxiety and improve confidence in mathematics.

Overall, PROJECT SHARP proved to be a pedagogically sound and contextually appropriate intervention aligned with the DepEd MATATAG Curriculum and Learning Recovery initiatives.

RECOMMENDATIONS

1. Teachers may continuously implement PROJECT SHARP during remediation and enrichment activities.
2. School administrators may institutionalize PROJECT SHARP as part of the school's Numeracy Development Program.
3. Teachers may undergo professional development on differentiated instruction and formative assessment.
4. Digital and gamified learning tools may be integrated to further improve engagement.
5. Peer tutoring and parental involvement activities may be strengthened.

Future researchers may conduct longitudinal studies to determine the long-term effectiveness of PROJECT SHARP.