



Republic of the Philippines
Department of Education
REGION IV-A CALABARZON
CITY SCHOOLS DIVISION OF BIÑAN CITY

**“EFFECTIVENESS OF PROJECT BILANG AS REMEDIATION PROGRAM IN ADDRESSING
NUMERACY GAP BROUGHT BY THE COVID-19 PANDEMIC
AMONG GRADES 1-6 NON-NUMERATE STUDENTS”**



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ABSTRACT

Numeracy skill is one of the foundation skills a child must learn as he grows up. A child must know how important the numeracy for it will help them develop their logical thinking and reasoning strategies on their daily activities. Everything a person does on a daily basis has something to do with numeracy like checking what time is it, cooking using a recipe book, reading a map, checking a schedule, and many more.

Thus, this action research aimed to array the effectiveness of Project BILANG as intervention in enhancing the numeracy skills of identified non-numerate students of Ganado Elementary school during the School Year 2022-2023. The researcher utilized a quantitative true-experimental design with 30 non-numerate learners across all levels as participants. Participants were randomly selected wherein each level from grade 1-6 has 5 non-numerate participants. The results of the Early Grade Mathematics Assessment (EGMA) was used to identify the participants of the research.

This research used Project BILANG worksheet as intervention material to enhance the numeracy skills of the learners. This intervention material is anchored in the topics contained in the Early Grade Mathematics Assessment Tool which is the main tool used by SDO Binan to identify the levels of numeracy of the learners.

The results of the Early Grade Mathematics pre- and post-numeracy assessment served as the basis as to whether the numeracy levels of the learners enhance. It was shown in this research that there was an improvement in the numeracy level of the students using Project BILANG intervention materials. Twenty-four (24) or 80% of the participants showed significant

improvement. Among those 24, 9 achieved independent numeracy skill level while the remaining 15 achieved instructional numeracy skill level.

Keywords: *Effectiveness, Intervention Materials, Numeracy Assessment, Numeracy Gap, Numeracy Skills, Remediation Program,*

INTRODUCTION

Numeracy is the ability to see and use math concepts in all areas of life (raisingchildren.net.au). These capabilities allow students to respond to familiar and unfamiliar situations by employing mathematics to make informed decisions and solve problems efficiently (VCAA, 2017). According to Bisanz, 2023, Numerical skills emerge during infancy and the preschool years when children are exposed to different quantitative and spatial relations in everyday activities. But the pandemic brought by the Novel Corona Virus Disease (COVID-19) has made major impact on students learning. Due to the implementation of the 2-year modular distance learning (MDL) modality the students' mathematical foundation has become weak. Their knowledge of the four fundamental operations was not matched to the grade where they were enrolled in.

Even before COVID-19 pandemic emerged, students in Philippines has been experiencing difficulty on the subject Mathematics as well as Science. In fact, in 2019, Trends in International Mathematics and Science Study (TIMSS) gave the Philippines scores of 297 and 249 in mathematics and science, respectively, the lowest among the 58 countries involved in the study (Bernardo, 2020). Education implemented the limited face-to-face classes, mathematics experiences more difficulty in teaching mathematics. Due to 2 years of no in-person classes, students numeracy skills weakened. Ganado Elementary School is not spared from this situation. The pre-numeracy assessment using the early grade mathematics assessment (EGMA) tool conducted a week after the opening of classes revealed that out of 531 students, 121 or 22.79% were identified as non-numerate.

Having that much of identified non-numerate learners is quite alarming yet not surprising for it may be caused by the education gap that due to COVID-19.

Students find it hard to answer simple mathematics equation involving the four fundamental operations. Among the topics included in the assessment tool, solving word problems involving the fundamental operations was the most difficult. It was followed by subtracting simple equations and lastly, comparing decimals and fractions. This issue was not just experienced by Ganado ES but most of the schools around the country. According to Eddy Gigante (2020), A lot of learners are suffering from being non-numerates because it is the foundation where the knowledge must be stable and progressing.

Thus, the Department of Education (DepEd) urged to priority better literacy, numeracy in early school years (Yang, 2022). The department visualize its learners "... to develop sound mathematical knowledge, skills, and understanding for making informed decisions and for solving problems in a variety of contexts relevant to their daily lives." as mentioned in MATATAG Mathematics Curriculum. To achieve this goal, students must be numerate or instructional at least so that they can cope with the trend. At the same time, using an effective intervention material in bridging can be the solution to helping the students be numerate.

METHODOLOGY

This study employed a quantitative true-experimental design is an experiment conducted to prove or disprove a cause-and-effect relationship between two variables. A true experimental method must include a control group and at least one experimental group that are randomly assigned and a researcher-manipulated variable. (Banaszak, 2023)

The quantitative component of this study adopted a pre-test-post-test design, utilizing the Early Grade Mathematics

Assessment (EGMA) tool to evaluate the numeracy skills of the learners. It employed descriptive statistics, including measures such as frequency, mean, and percent, for data analysis. This approach enabled the measurement of participants' numeracy skills before and after the intervention, facilitating the assessment of progress.

A combination of purposive and random sampling was employed to select participants based on their numeracy skill levels. The study's participants consisted of 30 learners at Ganado Elementary School who remained non-numerate.

To ensure that the research was conducted ethically, the researchers obtained a letter of approval from the school principal as well as consent/assent from both the parents/guardians and the participants.

The confidentiality of participants' performance and responses was strictly maintained, with the assurance that the results would be used solely for this study.

RESULTS

The study aimed to know the effectiveness of Project BILANG as remediation program in addressing numeracy gap brought by the COVID-19 pandemic among Grades 1-6 non-numerate, addressing specific research questions:

Question 1. What is the Pre-assessment and Post-assessment mean scores of the respondents?

Table 1. Result of Paired-Samples T-Test

	Pre-assessment	Post-assessment
Mean	9.37	12.97
Variance	0.52	6.24
Observations	30	30
Pearson Correlation	0.391	
Hypothesized Mean Difference	0	
df	29	
t Stat	-8.523	
P(T<=t) one-tail	0.000	
t Critical one-tail	1.699	
P(T<=t) two-tail	0.000	
t Critical two-tail	2.045	

It was clearly shown in table 1 that the pre-assessment mean scores of the participants is 9.37 while the mean score of the post-assessment is 12.97.

Question 2. Is there a significant difference between the pre- and post- numeracy scores of the participants?

After performing t-test: paired sample for means in a two-tailed test, it was found out that the mean of the pre-assessment of the participants is 9.37, while the post-assessment mean scores of the participants is 12.97. It was also revealed that the computed t-value of $|-8.523|$ is greater than the critical value of 2.045. Similarly, it can be noted that the computed p-value of 0.000 is less than 0.05 therefore, **there is a significant difference between the pre- and post-numeracy scores of the participants.**

Question 3. What is the effect of the Project BILANG to the numeracy level of the respondents?

There is a sufficient evidence that a gain score has taken place on the post-numeracy assessment as a result of the intervention using the Project BILANG intervention materials. Hence, we can say that Project BILANG intervention materials is effective in enhancing the numeracy skills level of the students.

DISCUSSION

The conduct of research is to enhance the numeracy skills of the learners so that they may achieve the end goal of MATATAG Mathematics curriculum; to produce a mathematically proficient and critical problem solver learners. Teachers and other personnel of Ganado Elementary School were encouraged to conduct research that addresses the literacy and numeracy issues and concern. The highlight of this research is the improvement of the student's numeracy skills during the implementation of limited face-to-face classes in Ganado Elementary School using the devised strategies from Project BILANG.

Education sector of the society was the most affected of the COVID-19 pandemic. Since March 2020, students are experiencing a distant learning with different approaches depending on the schools mandated decision. Some schools are having online classes and some are in a modular class set-up in which modules are distributed into each student. Ganado Elementary School, as a whole, uses modular distant learning since the start of classes during pandemic period. Even before the pandemic period, students of GES have low level of numeracy. Project BILANG is created to improve the numeracy skills of identified non-numerate students of Ganado Elementary School and will undergo remediation classes.

As a medium category school, Ganado Elementary School easily complied with the requirements to be part of the pilot implementation of limited face-to-face classes. And as mandated by the top management of Division of Biñan City, the school transitioned to 5-day in person classes. As the classes continued, teachers have been experiencing challenges in delivering their lesson on their respective subject matter. They have identified that there were gaps needed to be filled to have a smooth transition in delivering a lesson. Most especially in mathematics. Due to almost 2 years of modular distance learning, learners experience difficulty in mathematics because of their weak foundation on the subject matter. Majority of the learners showed no mastery on the four fundamental operations which is beneficial to them in solving simple mathematical equations.

The action research aims to enhance the numeracy skills of the non-numerate students in Grades 1-6 of Ganado Elementary School through the use of supplementary materials of Project BILANG. The respondents of this study are composed of 30 non-numerate students enrolled at Ganado Elementary School. Specifically, this action research sought to: 1. Identify the non-numerates among grades 1-6 using the early grade mathematics assessment tool and 2. Determine the effectiveness of the remediation materials of Project BILANG in

helping the non-numerates to be at least instructional upon the implementation of the project.

The data gathered during the conduct of Project BILANG (Basic Introduction in Learning Arithmetic among Non-numerates in Grades 1-6) for primary learners excluding kindergarten on Blended Distance Learning (Modular and Limited face-to-face) at Ganado Elementary School aims to help teachers to use different supplementary materials in strengthening the numeracy skills of non-numerate learners and achieve the non-numerate free school.

In order to achieve the aims of this study and solve the research problem, the researcher will be utilizing correlational type of research technique. To satisfy the requirements of the research, the researcher will use pearson-r correlation as statistical tool for the data gathered.

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