Effectiveness Of Numeracy Intervention To The Performance Of Grade 3 Pupils

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Abstract — The study evaluated the effectiveness of Numeracy Intervention to the numeracy performance of the Grade 3 pupils in Mathematics. This study is utilizing the quasi-experimental research design employing the pre-test and post-test in Mathematics. The findings of the study were the bases for a proposed intervention Plan. The researcher utilized universal Sampling in selecting the respondents of the study. Simple Percentage, Weighted Mean and t-Test of Mean Difference were the statistical tools used. The test of difference between the scores in the pre-test and post-test of Grade 3 pupils in Mathematics before and after the numeracy intervention in the delivery of the most essential learning competencies in the 1st grading period based from the timelines given which was prepared for 4 week's time or 1 month of the implementation of the aforementioned intervention that was already ready prior to the utilization of the identified intervention that could help the learners address the learning gap. Based from the results given from the shared performance of the Grade 3 pupils, the pretest performance of the Grade 3 pupils before they experienced the different learning approach or tools used in the delivery of the different learning competencies which not less than 4 competencies for 4 weeks of delivery done by the teacher. Based from the results given, it was shown that the pretest performance which is equal to 6.12 is lesser than the posttest performance after the utilization of the numeracy intervention and resulted to the computed value and found to be greater than the critical value of t so the hypothesis which states that there is no significant difference between the pretest and posttest performance before and after the integration of Numeracy intervention in the delivery of the most essential learning competencies in mathematics is rejected.

The results in table 3 implied that based from the results reflected in table 3, there was a significant difference from the performance of the grade 3 pupils in mathematics before they have experienced the intervention and after they already experienced the intervention in learning the different topics in Mathematics. The results further explain that utilizing the intervention in learning mathematics is really significant in improving their performances and it could improve their numeracy skills that could help augment the learning gaps they experience for the past 4 weeks of the implementation. Therefore, integrating the identified intervention really helps the learners to improve their numeracy skills as well as helps teacher to be more proactive in making different numeracy intervention that helps learners to be more motivated in their learning styles as

well as providing them the best approach to make those learners specially the lower ones to be more creative in learning mathematics.

Keywords — Effectiveness, Numeracy Intervention, Grade 3 Learners, Mathematics

I. Introduction

Numeracy is the capacity to apply Mathematics in our daily life. Numeracy skills of a Grade 3 learners include understanding numbers, counting, computing the four fundamental operations in Mathematics and others. Most of our children's daily experiences requires numeracy skills, thus it can help them do many things that are important in their everyday lives. Some of which are handling their finances, shopping for the best price, telling time, measurement, preparing food, playing music and so on.

As a parent, He want his child to acquire the basic numeracy skills that are needed in life. This can make him a self-reliant child that can interact to the world freely. Sad to note, that some children in our community are easily to be scammed and the main reason for this is the lack of skill in numeracy. In order to address this problem, intervention in school should be done so that no pupil will be left behind.

The last step in a teaching-learning process is evaluation where learning is measured. Teachers want to know how much and how effectively students learned at the end of the instructional period. The purpose of evaluation of learning is to check the learners' mastery of the lesson to decide on the next action. However, some pupils vary in terms of intellectual ability and interest. Some can easily grasp the information being taught and some are not quick to catch on the lesson. If some pupils have difficulty in understanding the lesson, the teacher can provide the necessary assistance.

In Mathematics, numeracy skills are the foundation towards learning all the competencies in Mathematics. In addition, pupils need to master each competency in Mathematics before proceeding to the next because they are related to each other. Pupils that struggle in earlier competencies in Mathematics are expected to experience difficulty in the later competencies. To make sure that all pupils mastered the skills needed in a certain competency, teachers should provide remediation. This could help the pupils be ready in the next competency.

Every pupil has his/her own favorite subject. In my class, Mathematics is the least preferred subject and the primary reason for this is the lack of numeracy skill. In fact, the result of the Regional Numeracy Test conducted at the beginning of the school year is very frustrating. 29 are non-numerates, 5 are moderately numerates and only 1 is highly numerate. Moreover, Mathematics has the lowest MPS of all the subjects in my class. These results are caused by the past classroom experiences, parental influences, remembering poor past math performance, and

lack of mastery in the four fundamental operations in Mathematics (Addition, Subtraction, Multiplication and Division).

The main reason why he conducted this study is to increase the numeracy result and the MPS in Mathematics of the Grade 3 pupils. The Remedial Numeracy Intervention (RNI) will help the struggling learners cope up with the lesson. This study will test the effectiveness of Remedial Numeracy Intervention (RNI) to the performance of the Grade 3 pupils in numeracy.

This study evaluated the effectiveness of Numeracy Intervention to the Performance of the Grade 3 Pupils in teaching Mathematics subject in Baybay I Central School in the Division of Baybay City. The findings of the study were bases for an Improvement Plan.

Specifically, it sought to answer the following questions:

1. What is the Numeracy performance of the Grade 3 pupils in Mathematics before the integration of Numeracy Intervention?
2. What is the Numeracy performance of the Grade 3 pupils in Mathematics after the integration of Numeracy Intervention?
3. Is there a significant difference In the Numeracy performances of the Grade 3 pupils in Mathematics before and after the integration of Numeracy Intervention?
4. What improvement plan can be proposed based on the findings of the study?

Null Hypothesis:

HO: There is no significant difference In the Numeracy performances of the Grade 3 pupils in Mathematics before and after the integration of Numeracy Intervention.

II. Methodology

Design. The study utilized the Quasi Experimental type of research Design to evaluate the Effectiveness of Remedial Numeracy Intervention to the test numeracy performance of the Grade 3 pupils during face to face delivery of the different most essential learning competencies for the 1st grading period In Baybay I Central School. The findings of the study were the bases for an Improvement Plan. The researcher utilized Universal Sampling in identifying the respondents of the study. Quantitative analysis was used to determine the significant difference between the pre-test and post-test mean scores in Baybay I Central School in the Division of Baybay City based from the different most essential learning competencies in first grading period delivered in Mathematics subject which purely focused on the different competencies. The main local of the study is in TBaybay I Central School which is located under the in the Division of Baybay City. Based from the aforementioned locale, the main respondents that were chosen by the teacher-

researcher was the Grade 3 learners which was identified based on their test performances prior to the integration of Numeracy Intervention in the delivery of the different learning competencies. The assessment given to the respondents was carefully validated by the teacher-researcher himself which are the pretest and posttest test performances of the Grade 3 learners, the different steps in conducting the identified approach were undertaken in order to validate their performances before and after the implementation of Numeracy Intervention to the respondents. This study is mainly focus on the results of the different test validation to gather data: The pretest scores performance of the Grade 3 learners before the implementation of the Numeracy Intervention in identifying the performance of the respondents, The Posttest scores performance of the Grade 3 learners after the implementation of the Numeracy Intervention as well as the significant difference of the pretest and posttest performances before and after the implementation of the Numeracy Intervention in the delivery of the most essential learning competencies in teaching Math for the first grading Period. In the Quasi- experimental research design, the researcher prepared the different materials which integrating Numeracy Intervention. The focus of this study was the Grade 3 learners and those readers who are in the fair and good level of performance in order to improve their performance those on the average level of performance as well as those learners who were independent learners as well as facilitating in the giving of pretest and posttest to the identified respondents in order to gather necessary data that will be significant in the study; The proposed Intervention Plan was taken based on the findings of the study.

Sampling. The research respondents of the study were the Grade 4 pupils Baybay I School and determined through random sampling. Based on the records, there were 25 total number of respondents in which 10 of them are males while the 15 are females. The respondents or the grade 3 learners were being identified based on the performance of learners, and the primary means of reach is during the actual conduct of the study as well as during the gathering of data in the school where the study was conducted.. Another way of contacting them are through cell phones of their respective parents.

Research Procedure. The researcher prepared the research design which is the quasi-experimental research design and tools which are the different learning materials embedding the Numeracy Intervention based from the numeracy test given to the respondents . The researcher formulated the following steps or procedures to be guided during the gathering of data. The steps are the following:

The researcher sent a letter to the Schools Division Superintendent of Leyte Division for approval in conducting the study to the said school, After which, the approved letter coming from the Schools Division Office was given to the Public School District Supervisor (PSDS) for his awareness.

The researcher conducted the pretest before the integration of Numeracy Intervention in teaching Mathematics After conducting the pretest, the researcher now integrating the Numeracy Intervention to the different most essential learning competencies (MELCs) in English for 4

weeks. After 4 weeks of integrating the Numeracy Intervention to the lesson, the posttest was conducted to validate the learning of the Grade 3 learners..

The results were analyzed and interpreted in order to find out if there were increased on the performance level from the pretest to the posttest. Then after the posttest and pretest were analyzed, the posttest result was treated statistically using the test for mean difference. The Approval and recommendation from the Office of the Schools Division Superintendent, as well as to the Assistant Schools Division Superintendent being the Chairman of the Schools Division Research Committee through the Senior Education Program Specialist in Planning and Research. After the Approval of the Schools Division Research Committee, the Approved or endorsement letter from the body together with the approved letter of intent were forwarded to the Office of the Public School District Supervisor as well as to the office of the School principal in order to get full support on the conduct of the study as well as to get also approval from their end. The proposed title and design was submitted to the School Division Office for approval. Upon approval, the Division released endorsement to the District Office where the school is located. When the research was approved by the Schools Division Office and District Office, the researcher began the process of data gathering. Validation of the instruments through Experts such as the Master Teacher and in coordination with the school head and lastly to the Education Program Supervisor in Learning Resource was sought. Orientation of the participants was done. Answering and retrieval of the research tool followed. Tallying of results and treatment of data. Analysis and Interpretation of Data. Making of Proposed Enhancement Plan.

Ethical Issues. The right to conduct the study was strictly adhered through the approval of the principal, approval of the Superintendent of the Division. Orientation of the respondents both the learners and the teachers including the School Principal was done.

Treatment of Data. The following statistical formulas used in this study:

The quantitative responses were tallied and tabulated. The data was treated statistically using the following statistical tool.

Weighted Mean. This was utilized to assess the numeracy performance of the Grade 3 pupils in Mathematics.

T-Test For Mean Difference- This tool used to calculate the significant difference of the pretest and posttest numeracy performances of the Grade 3 pupils in Mathematics.

III. Results and Discussion

Table 1
PRE-TEST PERFORMANCE OF THE GRADE 3 LEARNERS IN MATH

Score Range	Description	PRETEST	
		Frequency	%
17-20	Excellent	0	0
13-16	Very Good	0	0
9-12	Good	4	16
5-8	Fair	14	56
1-4	Poor	7	28
Total		25	100
Weighted Mean		**6.12**	**Fair**

Table 1 presents the pre-test performance of Grade 3 pupils in Mathematics before the integration of the Numeracy Intervention. The Grade 3 students who responded to this numeracy pre-validation or submitted findings that are solely based on the various numeracy abilities they have gleaned from prior learning experiences they had while being exposed to the lessons or themes. Based from the results given, it was revealed that in the scores ranging from 17-20 which is in the excellent level, it wsa found out that there were none from the learners gained in this highest level which is the same result in the very good level of performance which is said to be the second to the highest level of performance which was reflected and having the scores ranging from 13-16. In the good level of performance, it was revealed on the table that among the 25 Grade 3 pupils, there were 4 total of respondents or it has an equivalent percentage of 16 percent while in the fair level of performance with the scores ranging from 5-8, there were 14 total number of respondents based from the total number of respondents being tested which is equal to 29 total respondents with an equivalent percentage of 56 percent. Lastly, in the poor level of performance with the set of scores ranging from 1-4, it was found out that there were 7 total number of respondents gained on this level with an equivalent percentage of 28 percent. Furthermore, it was also found out that among the 5 different level of performance, the fair level of performance in numeracy is the dominant level of performance having 56 percent among the 25 total of respondents being tested.

The results in Table 1 suggest that the identified respondents did not actually satisfy the necessary mastery level considering that majority of the respondents are in the fair level of performance and that mastery of the abilities was not acquired based on their results of the pre-numeracy evaluation/assessment having a weighted mean 6.12 or in the fair level of performance. This suggests that the students' low test scores are a result of their failure to retain or remember

the previously acquired skills. It was challenging to learn things during a pandemic, especially in math, because the majority of learners are having difficulty in learning mathematics. It is a sad but true fact that learners find mathematics to be a challenging subject. It focuses mostly on issues, numbers, and shapes. Because the material is so objective, it needs to be taught in a precise and thorough manner.

Table 2
POST TESTPERFORMANCE OF GRADE 3 LEARNERS IN MATH

Score Range	Description	POST TEST	
		Frequency	%
17-20	Excellent	11	44
13-16	Very Good	14	56
9-12	Good	0	0
5-8	Fair	0	0
1-4	Poor	0	0
Total		25	100
Weighted Mean		**16.52**	**Excellent**

Table 1 presents the posttest performance of Grade 3 pupils in Mathematics after the integration of the Numeracy Intervention in the delivery of the most essential learning competencies of the aforementioned subject for 4 weeks. The Grade 3 students who responded to this numeracy post validation which somehow came from the different learning gains by the learners during the teaching and learning process in mathematics subject. This results also are manifestation whether the integrated intervention in the delivery of the mist essential learning competencies is effective or not both on the view of the learners and teacher who run the numeracy intervention. Based from the results given, it was revealed that in the scores ranging from 17-20 which is in the excellent level, it was found out that there was an increase from the pretest performance to the posttest performance from the learners gained in this highest level having a total 11 total number of respondents or it has an equivalent percentage of 44 percent. In the very good level of performance which is said to be the second to the highest level of performance which was reflected and having the scores ranging from 13-16, it was found out that this time the aforementioned level of performance is already dominant compared to other level of performances reflected in the table 2 having the 14 total number of respondents belong to this level or it has an equivalent percentage of 56 percent. In the good level of performance, it was revealed that compare on the result in the pretest, there was a big changes when it comes to the number of respondents belong to this level because the posttest performances in the good level has no respondent's on this level on the table that among the 25 Grade 3 pupils in the scores ranging from 9-12, while in the fair level of performance with the scores ranging from 5-8, there were also none

from the respondents belong the this level among the total number of respondents based from the total number of respondents being tested which is equal to 29 total respondents with an equivalent percentage of 56 percent. Lastly, in the poor level of performance with the set of scores ranging from 1-4, it was found out that there was no respondent belong to this level out of the total number of respondents gained on this level with an equivalent percentage of zero percent.

The results in table 2 which was focused on the posttest performances of the grade 3 learners after the integration numeracy intervention which applies of the different leaning materials using explicit learning approach during the delivery of the most essential learning competencies in Mathematics for the first grading period implies that the identified respondents based from their results were really improved their different learning competencies as well as familiarizing the different learning processes in Mathematics subject as well as mastered the different learning competencies given or delivered by the teacher and the objectives of the study were really reached the mastery level and mastery the skills of the grade 3 respondents. We all know that learning mathematics is quite difficult specially to those learners who are in the key stage 1 thus, it should have proper way of delivering the mathematics competencies based on the type of learners the teacher has inside the classroom.

Table 3
TEST OF DIFFERENCE BETWEEN THE SCORES IN THE PRE-TEST AND POST-TEST OF GRADE 3 LEARNER IN MATH

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
GRADE 3 Pupils	Pre Post	6.12 16.52	1.871	0.991	Reject H_o	Significant

Table 3 presents the test of difference between the scores in the pre-test and post-test of Grade 3 pupils in Mathematics before and after the numeracy intervention in the delivery of the most essential learning competencies in the 1st grading period based from the timelines given which was prepared for 4 weeks' time or 1 month of the implementation of the aforementioned intervention that was already ready prior to the utilization of the identified intervention that could help the learners address the learning gap. Based from the results given from the shared performance of the Grade 3 pupils, the pretest performance of the Grade 3 pupils before they experienced the different learning approach or tools used in the delivery of the different learning competencies which not less than 4 competencies for 4 weeks of delivery done by the teacher. Based from the results given, it was shown that the pretest performance which is equal to 6.12 is lesser than the posttest performance after the utilization of the numeracy intervention which is equal to 16.52. which resulted to the computed value which is equal to 1.871 and found to be

greater than the critical value of t which is equal to 0.991 so the hypothesis which states that there is no significant difference between the pretest and posttest performance before and after the integration of Numeracy intervention in the delivery of the most essential learning competencies in mathematics is rejected.

The results in table 3 implied that based from the results reflected in table 3, there was a significant difference from the performance of the grade 3 pupils in mathematics before they have experience the intervention and after they already experienced the intervention in learning the different topics in Mathematics. The results further explain that utilizing the intervention in learning mathematics is really significant in improving their performances and it could improve their numeracy skills that could help augment the learning gaps they experience for the past 4 weeks of the implementation. Therefore, integrating the identified intervention really helps the learners to improve their numeracy skills as well as helps teacher to be more proactive in making different numeracy intervention that helps learners to be more motivated in their learning styles as well as providing them the best approach to make those learners specially the lower ones to be more creative in learning mathematics.

IV. Conclusion

Based from the results of the study on the integration of numeracy intervention revealed that it is really effective in improving the numeracy performance of the Grade 4 learners considering that there was a significant difference on the results of the pre-test and post-test numeracy performances of the Grade 3 pupils in Mathematics. Thus the continued usage of the approach in the delivery of the most essential learning competencies in teaching mathematics is significantly effective to make the learners become independent learners in learning mathematical operations.

V. Recommendations

1. The proposed intervention plan formulated by the teacher-researcher should be utilized in order for the other teachers to be guided in the delivery of the most essential learning competencies.
2. Teachers should create new ways or procedures that will makes the learning competencies or the topics in mathematics easy to understand and comprehend.
3. Teachers should create different learning activities specially during vacant times to help address the learning gaps experience by those learners identified as slow learners or non-numerates. It help them also encourage to learn different mathematical operations.

4. Teachers should carefully plan the different learning activities to be given to the pupils during their lessons in Mathematics if those activities identified really address the learning gaps identified by the teacher researcher.

5. School Heads should assist their teachers in the teaching-learning process through the use of different tools such as GIYA tool to properly give technical assistance that could fit to the situations being observed during the observation for validation of teacher's teaching performances.

6. School Heads should assist the teachers during the portfolio period when needed specially in inviting parents to have one on one session to help improve their sons and daughters performances in the school.

7. School heads should require the teachers have demonstration showing their best practices to let other teachers gained ideas on how to run session using the identifies teaching approaches.

8. Future researchers should replicate this study to include different locale and include different variables aside from the mentioned in this study.

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AUTHOR'S PROFILE

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The author is born on May 28, 1994 at Baybay City, Leyte, Philippines. He finished with flying colors in his Bachelor's degree in Elementary Education at Visayas State University – Main Campus. In his high school and college days, he was really into the supervision field. He has good leadership skill and that made him decide to take administration and supervision as his field of specialization for his master's degree. He is currently finishing his Master's degree of Arts in Education major in Administration and Supervision at Western Leyte College of Ormoc City. He is currently a Teacher III in the Department of Education and a Grade – 3 Teacher at Baybay I Central School at Zone 12, A Bonifacio St., Baybay City, Leyte, Philippines. He is a coordinator in MAPEH. He believes that supervising the young is the foundation of understanding on how to supervise the old.