Effectiveness Of Contextualized Teacher-Made Window Cards To The Numeracy Performance Of The Grade Vi Pupils In Mathematics

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Abstract — This study aimed to determine the Effectiveness of Contextualized teacher-made window cards to the numeracy performance of the Grade 6 pupil in Mathematics. The findings of the study served as a basis of a proposed intervention plan. This study used the Quasi-Experimental method of research to determine the significant difference of the aforementioned variables. The researcher utilized Universal Sampling in identifying the respondents of the study.

The test of difference between the scores in the pre-test and post-test performance of grade 6 pupils in Numeracy before and after the integration of the contextualized teacher-made window cards. Based on the Table 3, it shows that the Grade 6 pupils performance in Mathematics particularly in the pretest is below the post-test result. Based from the pre-test and post-test performance of the Grade 6 pupils after the integration of the contextualized teacher-made. It boils down to the result of the computed t value and critical t value level of significance after applying the specific statistical tool that was also the bases whether the hypothesis will be rejected on a significance level of degree of error which. Based from the results in table 3, the hypothesis which states that there is no significant difference between the pre-test and post-test performance of the grade 6 pupils in Mathematics before and after the integration of the contextualized teacher-made window cards is rejected.

The results in table 3 regarding the test of difference of the pre-test and post-test performance in Mathematics of the Grade 6 pupils after the integration of the Contextualize Teacher-made Window Cards implied that the grade 6 pupils are already exposed to the different topics or learnings from the past or on the different platforms in acquiring knowledge in mathematics, still these does not giving the assurance that they know all the learning competencies by their own pace of learning, they still need another strategies that could help improved their skills in learning new skills in Mathematics which could not be thought by the parents or guardian thus, integrating the Contextualized Teacher-made Window Cards is the major reason why their level of performance increases. In other words, if the learners will continue adopting the learning technique to improve their skills, everything is possible.

Keywords — Effectiveness contextualized teacher-made window cards Grade 6 Learners Mathematics

I. Introduction

Numeracy is the ability to reason and apply simple numerical concepts. Basic numeracy skills consist of comprehending fundamental arithmetic like addition, subtraction, multiplication, and division. It is important for individuals to develop logical thinking and reasoning strategies in their everyday activities. It is used in many aspects of our lives. It also includes the ability to express ideas and situations using numerical or mathematical information. One of the goals of teaching and learning Mathematics, is to empower the learners with knowledge and skills to live effectively in this modern age and become contributors in the development of our society.

The goal of the basic education is to provide the school age population and young adult with skills, knowledge and values to become caring, self-reliant, productive and patriotic citizens. Generally, it aims to provide a well-rounded education that will assist each individual in society to attain his or her potential as a human being, and enhance the range and quality of the individuals within the group. As early as possible, children are taught with the basics such as counting numbers, spelling names, drawing, among many others. This becomes more complicated once an individual enters a more mature phase of life. In today's competitive world, it is imperative to acquire the right degree of learning to equip oneself with the leverage amidst the competition (Department of Education, 2012).

It is important to recognize that non-numerate learners have unique strengths and abilities in other areas, and should not be defined solely by their struggles with math.

Educators and professionals should strive to provide alternative methods of learning, such as visual aids or hands-on activities, and emphasize the practical applications of math in everyday life. It is also important to identify and address any underlying learning disabilities or difficulties that may be contributing to the individual's struggles with Math.

By providing appropriate support and encouragement, non-numerate learners can develop a better understanding and appreciation for math, which can have a positive impact on their academic and professional success.

Grade 6 non-numerate learners are students who struggle with mathematical concepts and have difficulty understanding and applying mathematical principles. These learners may have difficulty with basic arithmetic, fractions, decimals, and other mathematical concepts. This is the reasons why it is important to study and support Grade 6 non-numerate learners:

1. Equity in education: All students deserve an equal opportunity to succeed in school, regardless of their abilities or challenges. By identifying and supporting non-numerate learners, we can help ensure that they have the same opportunities to learn and succeed as their peers.

2. Future success: Math skills are essential for success in many careers and everyday life. By supporting non-numerate learners, we can help them develop the skills they need to succeed in future academic and career pursuits.

3. Improved academic performance: Math is a foundational subject that is integrated into many other subjects, such as science and technology. By improving math skills, non-numerate learners can improve their overall academic performance.

4. Personal growth: Learning math can help students develop critical thinking, problem-solving, and analytical skills that are valuable in all areas of life. By supporting non-numerate learners, we can help them develop these skills and reach their full potential.

Overall, studying and supporting Grade 6 non-numerate learners is important for promoting equity in education, improving academic performance, and helping students develop essential skills for future success.

Gabas Integrated School conducted numeracy pretest in key stage 1, and 2. The results revealed that 13 out of 60 pupils (21.66%) of Grade 6 learners who took the test were non-numerates. This is the reasons why the result is very alarming.

Limited ability to perform calculations: Non-numerates may have difficulty performing basic calculations, such as addition, subtraction, multiplication, and division, which can make it challenging to complete tasks that require numerical skills.

Difficulty understanding numerical data: Non-numerates may struggle to understand numerical data, such as graphs, charts, and tables, which can make it challenging to interpret and analyze information.

Lack of confidence in dealing with numbers: Non-numerates may lack confidence in dealing with numbers, which can lead to anxiety and avoidance of tasks that involve numerical skills.

Thus, these premises push the researcher to conduct study and focus on contextualized teacher-made window cards to the performance of the Grade 6 pupils in Mathematics and hoping to produce good results and improve numeracy skills of the performance of learners.

This study aimed to Determine effectiveness of contextualized Teacher-Made Window Cards to the numeracy performance of the Grade 6 Pupils. The findings of the study served as a basis of a proposed Intervention plan.

Specifically, this study sought to answer the following questions.

1. What is the numeracy performance of the Grade 6 pupils before the utilization of contextualized Teacher-made Window Cards?
2. What is the numeracy performance of the Grade 6 pupils after the utilization of the contextualized Teacher-made Window Cards?
3. Is there a significant difference on the numeracy performances of the Grade 6 pupils before and after the utilization of the contextualized Teacher-made Window Cards?
4. What improvement plan can be proposed based on the findings of the study?

Statement of Null Hypothesis

Ho.: There is no significant difference on the numeracy performances of the Grade 6 pupils before and after the utilization of the contextualized Teacher-made Window Cards.

II. Methodology

Design. This study demonstrated to teachers the possible value of contextualized Teacher made Window Cards into the classroom curriculum. The method to be used to gather relevant data is Quasi Experimental Research Design for pupils to complete in the 1st quarter and a study of the numeracy skills based on their test scores before and after Teacher made Window Cards had been introduced in the classroom. In this study, the independent variable will be the methods of teaching which was manipulated randomly. For the experimental group, the independent variable is contextualized Teacher made Window Cards vis a vis to the academic performances which are the scores that will be obtained by the pupils in the post test. The study were conducted for one month period or depending on the number of least learned competencies in mathematics which were divided per week. The participants for this study will be the grade 6 pupils handled by the researcher it has the lowest Mean Percentage Score. In this study, the selected participants were exposed to the entire content of contextualized Teacher made Window Cards during remedial or vacant time of the learners. The findings of the study were the bases for a proposed intervention 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 Gabas Integrated 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 Gabas Integrated 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 6 learners which was identified based on their test performances prior to the integration of contextualized Teacher made Window Cards in the delivery of the different learning competencies. The assessment given to the respondents was carefully validated by the teacher-researcher herself which are the pretest and posttest test performances of the Grade 6 learners, the different steps in conducting the identified approach were undertaken in order to validate their performances before and after the implementation contextualized Teacher made Window Cards 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 6 learners before the implementation of the contextualized Teacher made Window Cards in identifying the performance of the respondents, The Posttest scores performance of the Grade 6 learners after the implementation of the contextualized Teacher made Window Cards as well as the significant difference of the pretest and posttest performances before and after the implementation of the contextualized Teacher made Window Cards 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 contextualized Teacher made Window Cards. The focus of this study was the Grade 6 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 respondents of the study were the Grade 6 pupils Gabas Integrated School with total enrollment of 40 pupils, 22 males and 18 were females. The respondents or the grade 6 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 contextualized Teacher made Window Cards 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 Baybay City 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 her awareness.

The researcher conducted the pretest before the integration of contextualized Teacher made Window Cards in teaching Mathematics. After conducting the pretest, the researcher now

integrating the contextualized Teacher made Window Cards. to the different most essential learning competencies (MELCs) in Mathematics for 4 weeks. After 4 weeks of integrating the contextualized Teacher made Window Cards to the lesson, the posttest was conducted to validate the learning of the Grade 6 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 were 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 researcher used the following for analyzing all processes:

1. Measures of Central Tendency– was used in obtaining the pretest and posttest mean scores.
2. Sample Standard Deviation- was used as measure of the spread of scores within a set of data
3. t-Test ratio - was used to determine the significant difference between the pretest and posttest.

III. Results and Discussion

Table 1
PRE-TEST PERFORMANCE OF GRADE 6 IN NUMERACY

Score Range	Description	PRETEST	
		Frequency	%
33-40	Excellent	0	0
25-32	Very Good	11	27.5
17-24	Good	11	27.5
9-16	Fair	18	45
1-8	Poor	0	0
Total		40	100
Weighted Mean		**18.70**	**Good**

Table 1 presents the pre-test performance of Grade 6 pupils in numeracy before the integration of the contextualized teacher-made window cards. It was revealed on the table above that from score ranging from 33-40 with a description of excellent level of performance among the 40 pupils no one achieved this level. For the score ranging from 25-32 with the description of very good level of performance it resulted that there were 11 out of 40 pupils achieved this level of performance same with good level of performance 11 out of 40 pupils got the score ranging from 17-24. The highest number of pupils achieved the level of fair performance which has the percentage of 45% and from score ranging from 1-8, no one got this level of performance.

The results in Table 1 regarding the pre-test performance of the Grade 6 pupils in Mathematics before the integration of the contextualized teacher-made window cards implied that 45% of the total population belong to fair level of performance but in general the weighted mean of 18.70 in the pre-test results implied that the main respondents of the study showing a good level of performance when it comes to the different learning competencies in Mathematics subject. The above findings are the manifestation that the learners tried their best in answering the pre-test provided by the teacher considering without the use of any intervention. Another salient point why learners achieved good level of performance is that some of the pupils knew already some of the lessons since they have already access to the different learning competencies or topic on the different learning platforms utilizing gadgets.

Table 2
POST TESTPERFORMANCE OF GRADE 6 LEARNERS IN NUMERACY

Score Range	Description	POST TEST	
		Frequency	%
33-40	Excellent	39	98
25-32	Very Good	1	2
17-24	Good	0	0
9-16	Fair	0	0
1-8	Poor	0	0
Total		40	100
Weighted Mean		**36.50**	**Excellent**

Table 2 shows the post-test performance of the Grade 6 pupils after the integration of the contextualized teacher-made window cards to the numeracy performance of the Grade VI pupils in Mathematics The results in table 2 showed positive results after weeks of integration of the contextualized teacher-made window cards in which in this study the teacher-made window cards is being utilized by the learners. Based from the results in table 2, there were thirty-nine (39) learners or has an equivalent percentage of 98 percent out from 40 total number of respondents being tested belong to the score ranging from 33-40 which is considered as excellent level of performance. In the score ranging from 25-32 with a descriptive performance of good level only 1 respondent with an equivalent percentage equal to 2 percent. On the other hand, the results from Good level with a score ranging from 17-24, fair level performance having a score ranging from 9-16 and lastly, the poor level of performance with a score ranging from 1-8 have no percentage of respondents belong to the aforementioned performance level or zero percentage.

The results in table 2 which focuses on the posttest performance of the Grade 6 pupils in validating the performance of the learners about the numeracy performance in mathematics with this time having the integration of the contextualized teacher-made window cards. The results implied that there were really vast changes on the different level of performances of the Grade 6 learners in Mathematics Subject considering that majority of the learners are belong to the excellent and very good level of performance which could mean that the integration of the contextualized teacher-made window cards gave big impact in the numeracy performance. Delivery of the most essential learning competencies in Mathematics subject is happen to be very effective considering further that the results of the pretest is very far from the post-test result having an average weighted Mean of 36.50 which means the learners are in the excellent level of performance. Some of the reasons for this finding were the Grade 6 learners have already gained knowledge and have a background on the basic Mathematics but were improved right after integrating the said intervention which is the contextualized teacher-made window cards. Learners once exposed to different strategies and have a routine of reciting multiplication table and provide

contextualized teacher-made window cards, before the discussion or giving them the lesson, it will provide a good result after the integration of the intervention. Teacher will harvest all the efforts extended in making contextualized window cards just to help learners attain the excellent or very good level of performance.

Table 3
TEST OF DIFFERENCE BETWEEN THE SCORES IN THE PRE-TEST AND POST-TEST OF GRADE 4-5 PUPILS IN MATH

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
GRADE 6 Pupils	Pre Post	18.70 36.50	3.097	1.992	Reject H_o	Significant

Table 3 shows the test of difference between the scores in the pre-test and post-test performance of grade 6 pupils in Numeracy before and after the integration of the contextualized teacher-made window cards. Based on the Table 3, it shows that the Grade 6 pupils' performance in Mathematics particularly in the pretest is 18.70 which is below the post-test result which is equal to 36.50. Based from the pre-test and post-test performance of the Grade 6 pupils after the integration of the contextualized teacher-made. It boils down to the result of the computed t value of equal to 3.097 and critical t value at 1.992 level of significance after applying the specific statistical tool that was also the bases whether the hypothesis will be rejected on a significance level of degree of error which is equal to 1.992. Based from the results in table 3, the hypothesis which states that there is no significant difference between the pre-test and post-test performance of the grade 6 pupils in Mathematics before and after the integration of the contextualized teacher-made window cards is rejected.

The results in table 3 regarding the test of difference of the pre-test and post-test performance in Mathematics of the Grade 6 pupils after the integration of the Contextualize Teacher-made Window Cards implied that the grade 6 pupils are already exposed to the different topics or learnings from the past or on the different platforms in acquiring knowledge in mathematics, still these does not giving the assurance that they know all the learning competencies by their own pace of learning, they still need another strategies that could help improved their skills in learning new skills in Mathematics which could not be thought by the parents or guardian thus, integrating the Contextualized Teacher-made Window Cards is the major reason why their level of performance increases. In other words, if the learners will continue adopting the learning technique to improve their skills, everything is possible.

IV. Conclusion

Based on the findings this study the integration Contextualized Teacher Made Window Cards is significantly effective in increasing or enhancing the numeracy skills or performance of the grade 6 learners in particularly on problem solving and data analysis. Furthermore, the adaption of the new intervention must be continued for the teachers to properly manage the different competencies in Mathematics which could not easily be learned and learners will also be motivated to learn the different mathematical operations independently.

V. Recommendations

1. The proposed intervention plan should be utilized by the Grade 6 and other intermediate Teachers so that they will be guided on how to properly implement the plan and if they have guides on what to do if ever there are times that there are lessons that really need to have intervention plan.

2. The teachers should religiously identify who are those learners that experiencing difficulty in understanding the different lessons in Mathematics and gradually letting them to learn th subject tat could be based with their own pace of learning the different mathematical problems. \

3. Teachers should create or find ways and means on how to address the learning gaps of the learners by conducting different series of activities that augment the learning gaps of the learners.

4. Master teachers should proper technical assistance to the teachers handling Mathematics and let them feel that they have someone to call in times that they really need their assistance.

5. The school head should conduct INSET or LAC Session to all the teachers not only in numeracy and reading but also to other major subjects so that teachers will be guided on how to deliver the different learning competencies.

6. The School Head should closely monitor the teacher's performance on the integration of the Intervention and give technical assistance if it's necessary.

7. In relation to the abovementioned, the researcher is giving the authority to those future researchers to conduct the same study to test the veracity of the results using the Daily Skip Counting Strategy.

ACKNOWLEDGEMENT

The researcher wishes to express her profound gratitude to the following who had contributed to the success of the study:

Dr. Bryant C. Acar, Dean of Graduate School, for his encouragement and untiring effort in improving the study. Your insights and guidance have been instrumental in my academic and personal growth. I appreciate your dedication and the time you've invested in helping me navigate my studies. Thank you for your continuous support and belief in my capabilities.

Dr. Elvin H. Wenceslao, the writer's research adviser for his valuable suggestions, full support and encouragement. Your guidance and wisdom have shaped my path in ways words can't fully capture. I'm deeply grateful for your mentorship, which has been a beacon of light in my journey. Thank you for your invaluable support, encouragement, and belief in my potential;

Dr. Jasmine B. Misa and Dr. Annabelle A. Wenceslao, as members of the Panel of Examiners for giving their professional suggestions and recommendation for the realization of this study. Thank you for your time, attention, and valuable insights during our recent discussion. Your expertise and thoughtful contributions were incredibly enlightening. I appreciate the opportunity to learn from each of you.

Ms. Ma. Perla G. Lapiceros JD, PhD, Schools District Supervisor, for giving permission to conduct the study in Gabas Integrated School, Baybay 7 District in Baybay City Division. I wanted to express my gratitude for your leadership and dedication to our educational community. Your vision and guidance are instrumental in creating an environment where growth and learning thrive. Thank you for your ongoing commitment to excellence.

To the respondents of Gabas Integrated School, Grade 6-Matibay pupils, for their honesty and cooperation in completing the data needed. The enthusiasm and willingness to expand your knowledge inspires me to pursue this study. Thank you for being a valuable part of this journey.

To my loving and supportive family most especially to my husband Raymund Pepito Hilongos, my financier, and to my 4 lovely kids. I just wanted to take a moment to express my unconditional love and gratitude for each and every one of you. Your presence in my life fills it with warmth, joy, and love. Thank you for being my pillars of support, my confidantes, and my biggest cheerleaders.

Above all, to God Almighty for the blessings and opportunity given to be able to pursue the graduate studies thus gaining professional development. I offer my heartfelt gratitude for the blessings and guidance you continuously provide in my life. Your love and strength sustain me through challenges, and your grace fills my heart with peace. Thank you for your eternal presence and unwavering support. More importantly, thanks to His guidance and enlightenment.

To all those who helped make this research paper done.

REFERENCES

[1] Alptekin, S. (2019). Planning mathematics for effective teaching. In S. Alptekin (Ed.), in Mathematics in special education: Teaching basic math skills to students with low mathematics performance (pp. 1-19). Ankara, Turkey: Eğiten Kitap.
[2] Dubinsky, Ed et. al., " APOS: A Constructivist Theory of Learning in Undergraduate Mathematics Education Research.Halpern, Dianne F. et.al., " Sex, Math and Scientific Achievement(Preview)". November 28, 2007
[3] Dep.Ed. Order No. 34 s. 2022 "School Calendar and Activities for the School year 2022-2023."
[4] Dep.Ed. Order no. 31 s. 20201"Interem Guidelines for Assessment and Grading in the light of the basic education Learning continuity Plan."
[5] DepEd Memorandum no. 117, series 2005 "Training Workshop on Strategic Interventions for Successful Learning" Retrieved: February 13, 2015 http://www.deped.gov.ph/sites/

AUTHOR'S PROFILE

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