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Effectiveness of Strategic Intervention Materials (Sim) To the Performance of Grade 6 Pupils In Mathematics

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Abstract **-** This study is conducted to determine effectiveness of strategic intervention materials to the performance of the Grade 6 Pupils in Sta. Cruz Elementary School in the Villaba North District in the Schools Division of Leyte. The findings of the study will be the bases for the proposed Improvement Plan. This study utilized Quasi-Experimental research design to determine the Effectiveness of Strategic Intervention materials (SIM). The test of difference between the scores in the pre-test and posttest reading performances of the Grade 6 learners who are the respondents of the study. The test of difference between the scores in the pre-test and post-test of Grade 6 pupils in Mathematics subject before and after the integration of strategic intervention materials in Mathematics using the least learned skills in Mathematics Grade 6 found in most essential learning competencies (MELC) in Math. It showed that the pre-test of Grade 6 pupils' performance in Mathematics has a big difference form the post-test. Based from the result of test of difference, the hypothesis which states that there is no significant difference between the pretest and post-test performance of Grade 6 pupils in mathematics before and after the integration of the strategic intervention materials (SIM) is rejected.

The results about the test of difference between the scores in the pre-test and post-test of Grade 6 pupils in Mathematics subject before and after the integration of strategic intervention materials in Mathematics implied that Grade 6 were already exposed to different strategic materials suited to their level. SIM improved their performance but still this is not the assurance that all competencies were in excellent level of performance, they still need more strategies that would somehow help improve the learners more. Using strategic intervention materials in the class focused on the least learned skills, improved the performance of Grade 6 learners particularly Mathematics subject.

The results on the performance of Grade 6 pupils were in excellent level, because the teacher as well as the learners were motivated to the new intervention used by the teacher which is the strategic intervention materials.

Keywords — Effectiveness, Strategic Intervention Materials, Grade 6 Pupils

I. Introduction

Strategic Intervention Materials are conceptualized and designed to aid the teacher provide the pupils the needed support to make progress in studies. These will increase and deepen the skills, knowledge and understanding of the child in various subject areas not only in Science and Math but also including various learning areas in the curriculum. This is the tool initiated by Department of Education to improve the academic performance and achievements of the low performing students. DepEd Memo No. 117, series of 2005 entitled "Training Workshop on Strategic Intervention Materials (SIMs) for Successful Learning" provided secondary teachers the training to have an idea and knowledge in the preparation of SIM.

In the study of Paula Varaidzai Makondo and Davison Makondo (2020), amongst the causes of poor academic performance in Mathematics are attitudes of the learners towards the subject, lack of teaching experiences, economic conditions, lack of appropriate teaching methods and low motivation of teachers and attitudes. Hence, strategic intervention must be implemented to develop pupils' interest and progress their level of achievement.

Mathematics is one of the most vital and tough subjects in today's generation. No matter to which field or profession you belong to, its use is everywhere. However, many learners would say that this subject is also one of the most difficult to learn. They seldom master some basic concepts that leads to their low performance in terms of phasing of lessons and the improvement is clearly affected. Instructional material plays a very important role in the teaching learning process. It enhances the memory level of the pupils and makes the teaching – learning process interesting.

Strategic Intervention Material (SIM) can help teachers improve identified areas, teaching strategies or processes for pupil's performance improvement. Using Strategic Intervention Material (SIM) will help improve the academic performance of pupils in mathematics. And I believe that pupil will do better in math in any discussion if there are different SIM used by the teacher in presenting different lessons.

Mathematics, as a highly sophisticated yet practical discipline, provides a person with opportunities to develop life and practical skills. Learning its concepts becomes easier with the aid of various instructional materials (IMs) which are necessary for the teaching-learning process since they address the diverse needs of learners. Strategic Intervention Material (SIM) is a user-friendly IM that can be answered solely by a pupil or by a group of pupils inside or outside the classroom.

Strategic Intervention Materials (SIM) are conceptualized and designed to aid the teacher and provide the learners the needed support to make progress in studies. These will increase and deepen the skills, knowledge and understanding of the student in various subject areas not only in Mathematics but also in including various learning areas in the curriculum. SIM can give the

opportunity to explore various ideas and concepts that would enrich their understanding of varied subject matters that sharpen their competencies. Furthermore, the strategic instructional materials tend to reteach the lessons, which are not so much clear to the learners, and to help them gain mastery of the skills.

One of my major problems in teaching mathematics to my pupils is the poor performance of my pupils in performing basic multiplication facts. Also, difficulty in understanding word problems.

The researcher purely believes that this study will help the performance of the Grade 6 pupils in the different learning competencies and overcome the different least learning competencies that considers difficult to learn.

This study evaluated the effectiveness of THE Strategic Intervention Materials (SIM) to the academic performance of the Grade 6 pupils in Mathematics in Sta. Cruz Elementary School, Villaba North District in the Division of Leyte. The findings of the study were the bases for an Improvement Plan.

Specifically, the study sought to answer the following questions:

1. What is the pretest level of performance of the Grade 6 pupils in Mathematics?
2. What is the posttest level of performance of the Grade 6 pupils in Mathematics?
3. Is there a significant difference IN THE scores of Grade 6 learners before and after the integration of the strategic intervention materials?
4. What improvement plan on SIM can be proposed based on the findings of the study?

NULL HYPOTHESIS:

There is no significant difference between the pretest and posttest scores of Grade 6 learners before and after the integration of the strategic intervention materials.

II. Methodology

Design. This study utilized the Quasi-Experimental research design to determine the Effectiveness of the Strategic Intervention Materials to the test Performance of the Grade 6 pupils in Sta. Cruz Elementary School based from the different most essential learning competencies in 4th grading period delivered in Mathematics. The main local of the study is the Sta Cruz Elementary School which is located in Villaba North District in the Schools Division of Leyte. Based from the aforementioned locale, the main respondents that were chosen by the teacher-researcher was the Grade 6 learners prior to the inclusion of the Strategic Intervention Materials

in the delivery of the most essential learning competencies and after the aforesaid intervention were done. The assessment given to the respondents was carefully validated by the teacher-researcher herself which are the pretest reading and posttest performance or skills and performances of the Grade 6 pupils, the different steps to conduct the approaches were undertaken in order to validate their performances before and after the implementation of the Intervention in reading performances of the respondents. This study is mainly focus on the results of the different reading validation to gather data: The pretest reading performance of the Grade 6 pupils before the implementation of the Strategic Intervention Materials, The Posttest numeracy performance of the Grade 6 pupils after the implementation of the Pull-out reading approach, as well as the significant difference of the pretest and posttest reading performances before and after the implementation of the Strategic Intervention Materials in the delivery of the most essential learning competencies in teaching science for the 4th Grading Period. In the Quasi- experimental research design, the researcher prepared the different reading materials in the implementation of the Strategic Intervention Materials. This research is a quasi-experimental study that will be used the pre-test - post- test experimental designs. The experimental part of the study will be the learners' performance (Scores) of the Grade 6 pupils in Mathematics. Quantitative analysis was used to determine the significant difference between the pre-test and post-test mean scores.

In this study, the researcher used the Summative Test Questionnaires in Mathematics to determine the least mastered competencies. Based from the identified least mastered competencies, a Strategic Intervention Materials were constructed. The study was conducted for one month period or depending on the number of least learned competencies in mathematics which will be 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. The assessment card of the Print and Non-Print Strategic Intervention Material was given to the Grade 6 participants without the other parts of the SIM, the result was the pre-test.

In this study, the selected participants were exposed to the entire content of Print and Non-Print Strategic Intervention Materials during remedial or vacant time of the learners. The remediation tool awakens their innate interest, opened their imaginations, brought them to the world of mathematics and gave them opportunity to explore, manipulate and perform thus, they experienced once more the competency that they were not fully understood during the regular class discussion. The result of the assessment card will be the post-test. The focus of this study was the learners who are experiencing difficulties in learning Mathematics as well as those learners who were independent learners as well as facilitating in the giving in the average level of performance. ; The proposed improvement plan was taken based on the findings of the study.

Sampling. There are 19 who are included in the study. 16 respondents of the study were Males and 3 were Females and the primary means of reach is face to face implementation 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 Mathematics materials based from the validated materials such as the consolidated test items from the self-learning materials to utilize in the study. The different tools prepared by the Teacher-researcher were the ff: validated Summative Test Questionnaire in reading from the Self Learning Modules that were focused on the different competencies in the 4th grading period. The researcher utilized the Summative Test Questionnaire to get the mean percentile scores and t-test to analyze data. It will be administered by the researcher to grade 6 pupils to measure if there is a significant difference between pre-exposure and post- exposure of Print and Non-Print SIM among the respondents. Print and Non-Print -S.I.M. consists of the following parts: Guide card, Activity Card, Assessment card, Enrichment card and Reference card. In gathering the pre-test data, only the Assessment card was given to the students. The entire Print and Non-Print SIM will be given as remediation tool aiming to give the learners clearer understanding of the competency. The result of the assessment card will be the post-test data. This research instrument will undergo validity measures. The 40 items test questions were used before the integration of the Strategic Intervention Materials who were given to the pupils. After one month of the intervention, posttest post validation to validate the performances was given to the Grade 6 pupils with the same test questionnaire that were given in the pre-test assessment. . Prior to the preparation of all validation tools which will be used by the teacher-researcher in determining their performances before and after the integration of the intervention together with the learning materials which were utilized in teaching Marthematics. 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 problem-based strategic intervention 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 were 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 performance of the Grade 6 learners in Reading. T-Test for Mean Difference- This tool was used to calculate the performance of the Grade 6 learners in Mathematics

III. Results and Discussion

TABLE 1
PRE-TEST PERFORMANCE OF GRADE 6 PUPILS IN MATHEMATICS

Score Range	Description	Experimental Group	
		Frequency	%
33-40	Excellent	0	0
25-32	Very Good	2	11
17-24	Good	9	47
9-16	Fair	8	42
1-8	Poor	0	0
Total		19	100
Weighted Mean		**18.74**	**Good**

Table 1 shows the pre-test performance of Grade 6 learners in Mathematics before the integration of Strategic Intervention Materials (SIM) using the least learned skills found in the most essential learning competencies (MELC) in Mathematics. The table 1 shows the result of pre-test on the performance of Grade 6 pupils in Mathematics before implementing or integrating strategic intervention materials. From the table above, there were no learners got the score ranging from 33-40 under the descriptive performance which is excellent performance level. For the score ranging to 25-32 under very good level, there were 2 out 19 learners or 11% got this level of very good. Under the performance level of good, with a score ranging from 17-24, 9 out of 19 learners or 47% got the level of good, considered as the highest number of learners achieved this level. On the other hand, there were 8 respondents out of 19 got the fair level performance in the pre-test ranging from 9 to 16 scores in Mathematics. Lastly, zero or none of the 19 respondents got the score ranging from 1-8 or from the poor level of performance.

Results in table 1 which is the pre-test performance of Grade 6 pupils in Mathematics before the integration of strategic intervention materials using the least learned skills in Mathematics based on the most essential competencies (MELC). The pre-test performance of Grade 6 pupils who are the respondents of the study, showed an average level of performance in

the delivery of different learning competencies in Mathematics using the identified least learned competencies. Grade 6 pupils in the pre-test showed that they were not yet exposed in the teaching-learning process using the strategic intervention materials since no one belongs to excellent level of performance. From the results given at table 1, it is clearly showed that learners gave their answers based on their stock knowledge without any intervention and based only on their experienced. The findings on table 1 above, showed that the Grade 6 learners really giving their best in answering the activity sheets given by the teacher, the respondents gained the good level of performance with an equivalent weighted mean of 18.74. Some of the reasons, learners don't have the courage and ability to answer some activities in Mathematics due to less knowledge or background on how to answer correctly specially problem solving. Aside from less knowledge or background, no one can follow up or help them during homework's or assignment due to lack of Parent's support. Some learners considered as independent learners that without the support or guidance of parents they were able to answer or learn the competencies well from the teacher and they have the ability to understand the topic.

TABLE 2
POST-TEST PERFORMANCE OF GRADE 6 PUPILS IN MATHEMATICS

Score Range	Description	Experimental Group	
		Frequency	%
33-40	Excellent	18	95
25-32	Very Good	1	5
17-24	Good	0	0
9-16	Fair	0	0
1-8	Poor	0	0
Total		19	100
Weighted Mean		**34.58**	**Excellent**

Table 2 shows the post-test performance of Grade 6 pupils after integrating the strategic intervention materials (SIM) in Mathematics. The results above showed a positive result after weeks of integration used by the learners and pupils which is the strategic intervention materials using the identified least learned skills in Mathematics 6. From the results in table 2, there were 18 out of 19 learners or 95% of the respondents being tested got the score ranging from 33-40 which is considered as excellent level of performance. Score ranging from 25-32 or under very good level of performance there were 1 learner out of 19 or 5% of the respondents were able to achieve this level. On the other hand, the results from good level of performance with a score ranging from 17-24, fair level of performance with a score ranging from 9-16 and lastly the score

ranging from 1-8 or poor level of performance have no percentage of respondents belong to the aforementioned level or zero percentage.

The results in Grade 2 emphasizes the results on the post-test performance of Grade 6 pupils, after integrating the strategic intervention materials (SIM)in Mathematics. A sort of validating the performance of learners in Mathematics after using SIM. The results implied that there was really a big improvement on the different level of performance after using the strategic intervention materials in Mathematics subject considering that 95% or 18 out of 19 respondents were at excellent level of performance with a score ranging to 33-40 and 1 or 5% belongs to very good level of performance with a score ranging to 25-32. It implied that after the integration of strategic intervention materials, learners' performance in Mathematics were improved and it implied that there was a big difference in terms of level of performance from pre-test to post-test and weighted mean from 18.74 to 34.58. This means that strategic intervention materials happen to be very effective to the performance of Grade 6 learners which is 95% of the learners were in the excellent level of performance. With this, the teacher really did her best in crafting the learning materials which could directly address the needs of the learners as crafting the strategic intervention materials.

TABLE 3

TEST OF DIFFERENCE BETWEEN THE SCORES IN THE PRE-TEST AND POST-TEST OF GRADE 6 PUPILS IN MATHEMATICS

Groups	Test Scores		Computed T	Critical T	Decision	Interpretation
Grade 6 Learners	Pretest Posttest	18.74 34.58	1.634	0.741	Reject Ho	Significant

Table 3 shows the test of difference between the scores in the pre-test and post-test of Grade 6 pupils in Mathematics subject before and after the integration of strategic intervention materials in Mathematics using the least learned skills in Mathematics Grade 6 found in most essential learning competencies (MELC) in Math. Table 3 above showed that the pre-test of Grade 6 pupils' performance in Mathematics was 18.74 and the post-test was 34.58. From the pre-test and post-test performance of Grade 6 pupils after the integration of the strategic intervention materials (SIM) the results of computed t value was 1.634 and critical t value at 0.741 level of significance after applying statistical tool that was the basis for hypothesis will be rejected on a significance level of degree of error is equal to 0.742. Based from the table above, the hypothesis which states that there is no significant difference between the pretest and post -test performance of Grade 6 pupils in mathematics before and after the integration of the strategic intervention materials (SIM) is rejected.

Table 3 results about the test of difference between the scores in the pre-test and post-test of Grade 6 pupils in Mathematics subject before and after the integration of strategic intervention materials in Mathematics implied that Grade 6 were already exposed to different strategic materials suited to their level. SIM improved their performance but still this is not the assurance that all competencies were in excellent level of performance, they still need more strategies that would somehow help improve the learners more. Using strategic intervention materials in the class focused on the least learned skills, improved the performance of Grade 6 learners particularly Mathematics subject.

The results on the performance of Grade 6 pupils were in excellent level, because the teacher as well as the learners were motivated to the new intervention used by the teacher which is the strategic intervention materials.

IV. Conclusion

Based from the findings of this research, it can be concluded that there is a significant difference between the pre and post-test scores of grade 6 pupils in Mathematics. Therefore, Strategic Intervention Materials (SIM) is an effective learning material for remediation in enhancing the learners' skills in Mathematics.

V. Recommendations

1. The proposed improvement plan should be used.
2. School Administrators, District Supervisor and Education Program Supervisors should initiate trainings and workshops may it be f2f or in virtual platforms on how to develop Interactive Strategic Intervention Materials in Mathematics and other subjects to be taken by the learners in all grade levels.
3. School Heads and Master Teachers should encourage teachers in all subject areas to develop I-SIM in their subjects handled in every competency that were not mastered by the learners.
4. Mathematics Teachers should develop I-SIM in every least learned competency every quarter.
5. Based from the results of the study having the excellent and good performances level, teachers should continue to adopt the activities to maintain the performance of Grade 6 pupils.
6. In order to maintain the performance of the pupils in integrating the Interactive Strategic Intervention Materials -SIM) in teaching Mathematics, the School Head and Master Teachers should monitor the utilization and crafting of the SIM.

7. In relation to the abovementioned, the researcher is giving the authority to the future researcher to conduct the same study to validate the significant findings of the study.

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AUTHOR'S PROFILE

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She was absorbed in DepEd last July 25, 2017. She became an OIC on her previous school assignment. Currently, she is teaching Grade VI learners and a teacher III for almost 4 years already on her almost 6 years in service in the Department of Education and is assigned at Sta. Cruz Elementary School, Villaba North District, Division of Leyte.