

Effectiveness of Modular and Video Lessons in Mathematics to The Performance of Grade 5 Pupils

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Abstract — This study aimed to determine the effectiveness of Self-Learning Modules and Video Lessons to the performance of the Grade 5 pupils 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 use the Modules and Video Lessons in assessing the performance of the grade 5 pupils in Mathematics. The researcher utilized universal Sampling in selecting the respondents of the study. Paired Samples T-Test on the Mathematics Score of Grade 5 Students Before and After the Integration of Video Lessons in Mathematics in the delivery of the most essential learning competencies in the teaching and learning the subjects. Based on the findings found in table 3, the pretest-posttest scores particularly Mean which is equal to -23.5 and resulted to a standard deviation of 6.84 which means that the computed t value which is -12.863 is resulting to a 13 df for the male respondents which has a total of 14 while the results in the female in the pretest-posttest scores in the paired differenced resulted to a mean of -21.17 Mean and having a Standard Deviation which is equal to 10.90, these two results gave the computed t value of -6.725 with a df of 11 in the p value less than .001*. The individual groups and the combined groups of male and female Grade 5 students posted a higher posttest mean compared to their pretest means which are all highly significant as shown by the computed values of t with associated p-values of less than .05. Therefore the null hypothesis which states that there is no significant difference between mean pretest and mean posttest scores in Mathematics of the Grade 5 students exposed to video lessons in mathematics is rejected. The result of this study implied that indicating the integration of Self-Learning Modules and video lessons in teaching mathematics on the different Most Essential Learning Competencies could potentially enhance the mathematics performance of the Grade 5 pupils.

Keywords — *Effectiveness; Modular; Video Lessons; Performance; Grade 5 Pupils*

I. Introduction

Video has been an important teaching tool with a proven track record for enhancing learning. Today we are at the forefront of an even greater reliance on video in the classroom. Both teachers and students are creatively leveraging video for learning. The use of video will continue to rise for the foreseeable future. Greater availability of tech and faster internet connectivity are key factors in this growth. Increasing evidence about the benefits of blended learning benefits will

further continue to promote the use of video. As schools equip themselves to support multimedia learning, the careful evaluation of hardware audio in tandem with image quality will enable students to benefit from this transformative trend most fully.

The use of videos in teaching and learning serves not only benefit students, but also teachers. The use of video lesson in Mathematics allows for more efficient processing and memory recall. The visual and auditory nature of videos allows each user to process information in a way that is natural to them. Video based materials boost students' creativity and cooperation. Access to video can help motivate students to create a distinctive context for their learning experience. Video Lessons, asynchronous nature of videos allows them to be shared to each other and at all hours of day and night. This is a great solution for pupils who are unable to go to school in person because of this pandemic situation.

For the School Year 2020-2021, DepEd, Ormoc City Division follows the modality which caters the learners individual need and capacity to handle and learn different learning competencies in this time of pandemic. In the implementation of DepEd Memorandum no. 162 s. 2020, our school leaders see to it that everyone is doing their respective key result areas in order to levitate the educational approaches of the Division in this time of crisis. For the past 2 quarters in the implementation, teachers were monitored and evaluated the performance of the learners through the different methods. It was found out that even though the teachers really gave their best for the past grading period, there were learners gained their Mean Percentage Score (MPS) which are below the expected performance level equal to 75%. According to the initial survey made by the researcher, some pupils were get bored in answering the modules, they did not answer the modules heartfully which means there were some of the activities which the pupils leave them blank and submitted to the teacher in-charge.

The researcher really needs to conduct this study because he believes that Video lessons help teachers in improving pupil's motivation in learning, enhancing pupil's knowledge, and understanding of the lesson and improving the pupil's achievements. Mathematics is often regarded by some pupils as complicated, even scary. So, it is often considered as a boring lesson by pupils. The use of video lesson in teaching mathematics considered highly relevant and effective in stimulating pupils critical thinking as well as pupil's motivation, since the lesson requires sufficient concentration from pupil's as it relates numbers, symbols, and formulas. All this is intended to assist in the effort to achieve mathematics learning goal.

Hence, this study will conducted to find evaluate whether there is a positive effect to the performance of the Grade 5 pupils in mathematics after the video lessons will be utilized based on the Most essential Learning Competencies (MELCs).

This study was conducted to evaluate the Effectiveness of Modular and Video lessons to the Performance in Mathematics of the Grade 5 pupils enrolled IN SY 2021-2022 in QUEZON

JR ELEMENTARY SCHOOL. The findings of the study were be the bases for the proposed Improvement Plan.

Specifically, the study sought to answer the following questions:

1. What is the pre-test scores of the grade 5 pupils in Mathematics before the integration of MDOUALR AND Video Lessons?
2. What is the post test scores of the grade 5 pupils in Mathematics after the integration of MODULAR AND Video Lessons?
3. Is there a significant difference between the pretest and posttest scores before and after the integration of MODULAR AND video lessons in Teaching mathematics subject?
4. What IMPROVEMENT plan can be proposed on the findings of the study?

Statement of Hypothesis:

Ho : There is no significant difference between the pretest and posttest scores before and after the integration of Modular and Video lessons in Teaching Mathematics subject.

II. Methodology

Design. This study utilized the Quasi- Experimental type of research in gathering the responses employing the quantitative approach. Quezon Jr. Elementary School in Ormoc City District 2 of Schools Division of Ormoc City is the main locale of the study. The Grade 5 pupils are the main respondents of the study and the data based on the pupils' performance; To gather the necessary data needed in the study, the researcher utilized the Contextualized Learners Activity Sheets and or Summative Test Questionnaire in Mathematics subject. The test questions were used given before the intervention given to the pupils. After one month of the intervention, posttest given to the grade 5 pupils with the same test questionnaire. Proposed Intervention Plan based on the findings of the study.

Sampling. There are 27 Grade 5 pupils who are included in the study and the primary means of reach is through Facebook account through messenger at the same time they were also contacted through their cell phone numbers.

Research Procedure. The researcher prepared the research design and tools to be utilized in the study. Approval and recommendation from the principal was sought. The researcher now then be conducted the pretest performance before the integration of the video Lessons in teaching Mathematics. After administering the pretest, the researcher now integrated the video lessons in teaching Mathematics for a specific period of time based on the time lines crafted by the researcher

himself. After the given period of time it was checked their learning through the conduct of the posttest examination.

Data was be collated and submitted to appropriate statistical treatment. Tallying of results and treatment of data. Analysis and Interpretation of Data. Making of Proposed Improvements

Ethical Issues. The right to conduct the study was strictly adhered through the approval of the principal, approval of the Superintendent of the Division

Treatment of Data. This study was conducted to evaluate the Effectiveness Of Modular And video lessons to the Performance in Mathematics of the Grade 5 pupils enrolled IN SY 2021-2022 on the area focused was treated through a weighted mean and descriptions (refer to appendices for the scoring and description). The T-test for Mean Difference was used to calculate the academic performance of the Grade 5 pupils in Mathematics.

III. Results and Discussion

Table 1

PAIRED SAMPLES STATISTICS OF THE MATHEMATICS PERFORMANCE OF GRADE 5 STUDENTS BEFORE EXPOSED TO VIDEO LESSONS IN MATHEMATICS

Group	Test	Mean	MPS	N	S.D
Male	Pretest	13.9	27.8	14	4.33
Female	Pretest	19.9	39.8	12	12.70
All Students	Pretest	16.7	33.4	26	9.50

The table 1 above shows the Mathematics of Grade 5 pupils who were not yet Exposed to Modular and Video Lessons in the delivery of the most essential learning competencies. The pretest questionnaires were given to the Grade 5 Learners (Male and Female) as separately identified by the Researcher-Adviser have experienced the Contextualized Learners activity sheets in which still bases on the most essential learning competencies in Mathematics Subjects as part of the Modular distance learning delivery modality in this time of pandemic. The same strategy applied by the teacher in delivering the learning competencies as stipulated in the DepEd Memorandum that All the printed modules and or Learners Activity Sheets should follow the scheduled stipulated in the policies in order to follow restrictions in giving and retrieving the

modules and or LAS. Based from the results in table 1, it shows that among fourteen (14) Males as part of the twenty six (26) total number of respondents in the study who took the pretest examination on the identified learning competencies on Mathematics, it was found out that majority of the male respondents were gaining a Mean 13.9 in the pre-test, the Mean is coming from the summation of the total pretest scores divided by the total number of 14 total number of male respondents. The scores in the pretest of the respondents were given the Mean Percentage Score which is 27.8 only and considered very low which resulted to the Standard Deviation of 4.33. On the other hand, part of the respondents are the female which has the total of twelve (12). Based from the result, it was found out that the Mean Score of gained by the girl respondents is only 19.9 which resulted to the Mean Percentage Score of 39.8 and a Standard Deviation of 12.70.

Based on the result in table 1 which focuses on the pretest score performances of the Grade 5 pupils before they were exposing to the modular and Video Lessons in the Mathematics learning competencies implied that the learners really found difficulties in understanding the learning competencies of the aforementioned subject considering the fact that the scores in both the male and female respondents are below to the norms of scores stipulated in the DepEd policies which is 75 percent out from the total number of items given to them for a specific quarter or summative test. Based from the results in the table, it shows only 16.7 which is considered a Mean while the Mean Percentage Score is only 33.4 which means that the standard deviation also affected and having gained 9.50 which is not quite good as we give validation to their performances. Moreover, the learners really need an intervention that could uplift their motivation to learn the subject considering that Mathematics subject is one of the difficult subjects to be taken by the learners in any grade level. The results manifests that because of the non f2f mode in the delivery of the learning competencies they really found difficulted for themselves in learning maybe because they need full assistance of the teachers that they could guide them in the teaching and learning process in coordination with their parents or guardian in order for them to be motivated.

Table 2
PAIRED SAMPLES STATISTICS OF THE MATHEMATICS PERFORMANCE OF GRADE 5 STUDENTS AFTER EXPOSED TO VIDEO LESSONS IN MATHEMATICS

Group	Test	Mean	MPS	N	S.D
Male	Posttest	37.4	74.8	14	3.75
Female	Posttest	41.1	82.2	12	5.91
All Students	Posttest	39.1	78.2	26	5.13

The table 2 above shows the performances of Grade 5 pupils who were Exposed to Modular and Video Lessons in the delivery of the most essential learning competencies in Mathematics. The posttest questionnaires were given to the Grade 5 Learners (Male and Female) as separately identified by the Researcher-Adviser have experienced already the Self-Learning Modules coming the central office as well as the video lessons that were quality assured of the different QA committees before it was delivered and utilized in the field particularly the Grade 5 Learners in which still bases on the most essential learning competencies in Mathematics Subjects as part of the Modular distance learning delivery modality in this time of pandemic. The same strategy applied by the teacher in delivering the learning competencies as stipulated in the DepEd Memorandum that All the printed modules and or Learners Activity Sheets should follow the scheduled stipulated in the policies in order to follow restrictions in giving and retrieving the Self Learning Modules in Mathematics. Based from the results in table 2, it shows that among fourteen (14) Males as part of the twenty six (26) total number of respondents in the study who took the posttest examination on the identified learning competencies on Mathematics, it was found out that majority of the male respondents were gaining a Mean 37.4 which has a very big leap in te in the pre-test Mean Score, the Mean is coming from the summation of the total posttest scores divided by the total number of 14 total number of male respondents. The scores in the posttest of the respondents were given the Mean Percentage Score which is 74.8 which also connotes a big increased in the MPS of the Pretest and considered an average rating performance of the Learners which resulted to the Standard Deviation of 3.75. On the other hand, part of the respondents are the female which has the total of twelve (12). Based from the result, it was found out that the Mean Score of gained by the girl respondents is 41.1 which also showing a big increased compared in the pretest scores which resulted to the Mean Percentage Score of 82.2 which is higher than the national standard performance set by the central office which also resulted to a Standard Deviation of 5.91

Based on the result in table 2 which focuses on the posttest score performances of the Grade 5 pupils after they were exposing to the modular and Video Lessons in the Mathematics learning competencies implied that the learners really found positive results and have very good understanding on the learning competencies of the aforementioned subject considering the fact that the scores in both the male and female respondents are now having a big increased or leap compared to the pretest that they have gained before it they were exposed to a certain strategy which still based on the stipulated in the DepEd. Based from the results in the table 2 , it shows 39.1- Mean Score while the Mean Percentage Score is 78.2 average rating which means that the standard deviation also affected and having gained 5.13 which is already considered good based on the pretest and posttest performances of the Grade 5 pupils. Moreover, the learners really love and enjoyed the given intervention by the teacher because of the results they produced from the posttest performances which means that the aforementioned strategies really motivated them to learn the subject considering that Mathematics subject is one of the difficult subjects to be taken by the learners in any grade level. The results manifests that the given of the Standardized Self-Learning Modules and video Lessons even if face to face delivery in learning the subject still they really found easy for themselves in learning maybe because they already be guided based on the video that they were seen given by the teachers and the parents also could already understand thus, they will be working hand in hand in learning the different competencies.

Table 3
PAIRED SAMPLES T-TEST ON THE MATHEMATICS SCORES OF GRADE 5
STUDENTS BEFORE AND AFTER THE INTEGRATION OF VIDEO LESSONS IN
MATHEMATICS

Grade Level	Paired Differences		t	df	p-value
	MEAN	S.D.			
PRE-POST (Male)	-23.5	6.84	-12.863	13	<.001**
PRE-POST (Female)	-21.17	10.90	-6.725	11	<.001**
PRE-POST (All Students)	-22.42	8.83	-12.945	25	<.001**

**Highly Significant

The Table 3 Presents Paired Samples T-Test on the Mathematics Score of Grade 5 Students Before and After the Integration of Video Lessons in Mathematics in the delivery of the most essential learning competencies in the teaching and learning the subjects. Based on the findings found in table 3, the pretest-posttest scores particularly Mean which is equal to -23.5 and resulted to a standard deviation of 6.84 which means that the computed t value which is -12.863 is resulting to a 13 df for the male respondents which has a total of 14 while the results in the female in the pretest-posttest scores in the paired differenced resulted to a mean of -21.17 Mean and having a Standard Deviation which is equal to 10.90, these two results gave the computed t value of -6.725 with a df of 11 in the p value less than .001*.

The individual groups and the combined groups of male and female Grade 5 students posted a higher posttest mean compared to their pretest means which are all highly significant as shown by the computed values of t with associated p-values of less than .05. Therefore the null hypothesis which states that there is no significant difference between mean pretest and mean posttest scores in Mathematics of the Grade 6 students exposed to video lessons in mathematics is rejected. The result of this study implied that indicating the integration of Self-Learning Modules and video lessons in teaching mathematics on the different Most Essential Learning Competencies could potentially enhance the mathematics performance of the Grade 5 pupils.

IV. Conclusion

Based from the findings, this study indicates that integrating Modules and Video Lessons in teaching the Different Learning Competencies in Mathematics subject could potentially enhance the Scores performances of the Grade 5 pupils.

V. Recommendations

1. The proposed intervention plan should be utilized by the Grade 5 Teachers and other teachers in other Grade level.
2. Considering that Mathematics subject is somewhat difficult to handle and be learned, Teachers should integrate video lessons may it be micro teaching or a complete thought based on the parts of the lesson plans in order for them to help the learners to understand fully and guide them on what to do through the off-line version in teaching the specific competencies.
3. The school head through the approval of the Public School District Supervisor should conduct professional development of teachers such us conducting In-service training focuses on the crafting of the Video Lessons following the norms or standard on how to craft supplemental materials. It could be done through WEBINAR with the help of the Learning Resources

Personnel to properly implement the plan and help the teachers learn how to craft the video lessons based on their own style.

4. The School Head should closely monitor the teacher's video lessons utilization as part of the modular distance learning delivery modality to help the learners improve their performances.

In relation to the abovementioned, the researcher is giving the authority to the future researchers to conduct a true experimental design (where there is an experimental and control groups) be conducted to assess the effectiveness of the methods over the other methods of teaching Mathematics.

ACKNOWLEDGMENT

This study would not have been possible without the support and guidance of many people. I would like to acknowledgement and thank them all.

To our almighty God, who always thought me how prayers can solve life trials. Thank you for the knowledge, wisdom, and strength that able to help me to pursue the graduate studies.

Thank you also to all the people who have been an instrument in the success of this research.

I wish to extend my special thanks to Dr. Bryant C. Acar, Dean of Graduate School, for his motivation and immense knowledge in helping to improve the study.

To my adviser, Dr. Annabelle A. Wenceslao and Dr. Elvin H. Wenceslao who patiently read my numerous revisions and helped make some sense of the confusion in my study, I proudly say thank you to the both of you. It's hard to put into words exactly how thankful I am for you and everything you've ever done for me. I am blessed to have you as my adviser.

I would also like to thank the rest of the thesis committee Dr. Jasmine B. Misa for her guidance and support given to me during my defense. I appreciate all your help during my hardship.

I would also like to show my deep appreciation to the pupils and the parents in guiding their children in answering the Activity Sheets. Your cooperation and support give a big impact to the success of this study.

I also thanks my co-leagues and friends for believing that I can do it and finish the race no matter how hard it is. I've been through a lot in my lives, but without you I wouldn't have made it over the traitorous mountains of obstacles.

Lastly to my family, thank you for everything you've ever done for me and ever taught me. thank you for teaching me to work hard in life because it will pay off. Thank you for being my biggest support, cheerleaders and always believing in me. Thank you for being a phone call away

and a shoulder to lean on. Thank you so much for the financial supports that enable me to sustain all my needs.

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AUTHOR'S PROFILE



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The author is born on January 04, 1995, at Ormoc City, Leyte, Philippines. He is currently residing at Sitio. Laray, Brgy. Don Carlos Rivilla Sr. (BOROK), Ormoc City, Leyte. He finished his elementary education at Don Carlos Rivilla Elementary School in the year 2006 and continue his quest for education and able to finish his secondary education at Ipil National High School, Ipil, Ormoc City in the year 2010. He finished his degree in Bachelor of Science in Elementary Education at Saint Peter's College of Ormoc in the year 2015. He completed his Master's Degree in School Administration and Supervision at Western Leyte College, Ormoc City this year.

He is currently a Teacher-1 in Department of Education and presently stationed at Quezon Jr. Elementary School, Brgy. Quezon Jr., Ormoc City, Leyte, District II of the Ormoc City Division as a Grade V teacher. He is handling ancillary coordinatorship in school such as Math coordinator, ICT coordinator, Learning Resources Coordinator, and Boys Scout of the Philippines coordinator, respectively. He also attended various trainings and seminars from the division, regional and international education organizations, and institutions.