Effectiveness of Audio-Video Lessons to The Performance of The Grade 3 Pupils in Mathematics

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Abstract — This study aimed to determine Effectiveness of Audio-video Lessons to the Performance of the Grade 3 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 determine the effectiveness of Audio-video lessons to the performance of the Grade 3 pupils. The results were basis for an intervention Plan. The researcher utilized Universal Sampling in identifying the respondents of the study. The results of the study implied that the integration of audio- video lessons in teaching mathematics is very significant in improving the performance of the Grade 3 pupils specially to those topics which are identified as difficult topics in the k-stage 1 level. It further explains that though the pretest is already a very good performance obtained by the respondents with is literally the same prescription of performance in the posttest, we cannot deny the fact that their performances were improving considering that the number of the respondents in excellent is improving from the pre-test to posttest. In other words, though the learners already aware on the strategy delivered by the teacher, which is on blended learning, still the audio video lessons are still effective in improving their motivation to learn and increase their skills in learning mathematics subject which could help them to learn more in easy way as per suggestions of the audio-video lessons that were already contextualized by the teachers for them to fully understand.

Keywords — Effectiveness; Audio-Video Lessons; Grade 3 Pupils; Mathematics

I. Introduction

Due to the outbreak of Covid-19 many countries have temporarily closed their schools in all levels to prevent the spread of the said virus. The Philippines had also done the same thing but since we need to adapt with the current situation and education should not be stopped the Department of Education came up with a new way of learning which is the Blended Learning Approach, since there are a lot of options to choose from (Modular Learning, Online Learning ..etc) “Blended Learning” was the right word to put it. From time to time the teachers also make

sure to visit the learners in their respective homes (following Covid-19 safety protocols) also online communication through video calls are implemented.

Multimedia applications are used in the learning process and are intended to develop knowledge, skills, and attitudes and to stimulate choice, feelings, attention and willingness of students to enhance and control the learning process. Thus, multimedia is one of the most effective learning resources. Moreover, Interactive video lesson is one of the effective and practical learning media that can convey or distribute information in a planned manner, resulting in a conducive learning environment where the recipient can perform the learning process efficiently and effectively (Lalian, 2019).

Most studies adopt a common definition about the interactive video: "A non-linear, digital video technology that allows students to have their full attention to educational materials and to review each section of video as many times as they wish" (Dimou et al., 2009; Weston & Barker, 2001). A crucial element of the interactive video is that it can become a platform for self-regulating learning environments (Chen, 2012; Delen, 2014; Hartsell&Yuen, 2006). The possibility of controlling the individual speed, the offering of links which help avoiding cognitive overload (Chen, 2012), the possibility to seek or overtake a specific portion of the video and the ability to watch a specific portion again if needed (Zhang et al., 2006) provides a useful self-regulated instructional context where reduced levels of embarrassment or anxiety allow learners to be comfortable enough to learn new content (Pendell et al. 2013).

It is believed that students' problems, such as anxiety to mathematics, can be reduced or eliminated. One way or method that can be applied is ICT-based learning by utilizing instructional media as a means of learning, and one of the learning media that can be used is audiovisual/video. Thus, the selection of video as a learning resource in the form of learning media for mathematics subjects is considered highly relevant and effective in stimulating students' critical thinking as well as student motivation since the lesson requires sufficient concentration from students as it relates to numbers, symbols and formulas. All this is intended to assist and improve learners' performance and to achieve mathematics learning goals (Lalian, 2019).

Mathematics is a fundamental part of a human thought and logic, and integral to attempts at understanding the world and ourselves. It provides effective way of building mental discipline and encourages logical reasoning. This subject is often regarded by some learners as complicated, even scary. As most teachers, I also agree on the importance of a corrective feedback of the teaching and learning process at the end of every quarter or during portfolio day. Learners, except those who naturally desire mathematics, need to be stimulated through appropriate techniques and ways of learning.

When the Covid-19 pandemic strikes, having face to face classes has been prohibited, therefore Distance Learning took place. Learning mathematics with the use of interactive video lessons has been an alternative way of delivering learning to the pupils during this crisis that we

are facing. As it is timely and relevant for the current situation of our educational system, the distribution of interactive video lessons has been practiced, to aid the need of the learners to engage in richer discussions that help them develop a more conceptual understanding of mathematics. Videos such as these provide a starting point for engaging learners in mathematical thinking.

The suspension of face-to-face learning engagement within the school has been a great challenge to both the educators and the learners. Printing and distributing Self-Learning Modules cannot suffice learners' academic needs. Yes, the use of modules encourages independent study, they are supposed to develop sense of responsibility in accomplishing various tasks given, but it is only applicable to only a few of the many learners. Some learners lack of self-discipline and self-motivation. It is undeniably difficult for them adapt to the new normal setting because they are used to being provided with explanations by the teachers.

This Distance Learning makes the teaching and learning process in mathematics an almost impossible mission to accomplish. In my grade 3 class, I have observed that the pupils performed low in mathematics. But, with the help of the constant monitoring and feedback of the learners' progress, I was able to vary my strategies in delivering teaching and learning process in the distance learning. One of these strategies, is the use of interactive video lessons in mathematics, some are my own creation and others are provided by the division.

The researcher is greatly motivated to focus on his study on the effectiveness of this strategy is yet to be proven, so she came up with this study "Effectiveness of Audio-video Lessons to the Performance of the Grade 3 pupils in Mathematics. The researcher chose this problem because she believes that we are currently facing a pandemic that affected the usual way of learning which is the face-to-face classes and it also affected the learners' abilities especially their numeracy skills.

This study aimed to determine Effectiveness of Audio-video Lessons to the Performance of the Grade 3 pupils in Mathematics. 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 pretest performance of the Grade 3 pupils in Mathematics before the integration of Audio-video lessons?

2. What is the posttest performance of the Grade 3 pupils in Mathematics after the integration of Audio-video lessons?

3. Is there a significant difference in the pretest and posttest performances of the Grade 3 pupils in Mathematics before and after the integration of Audio-video lessons?

4. What intervention plan can be proposed based on the findings of the study?

Statement of Null Hypotheses

Ho1.: There is no significant difference in the pretest and posttest performances of the Grade 3 pupils in Mathematics before and after the integration of Audio-video lessons.

II. Methodology

Design. This study used the quasi-experimental method of research to determine the effectiveness of Audio-video lessons to the performance of the Grade 3 pupils. The results were basis for an intervention Plan. The researcher utilized Universal Sampling in identifying the respondents of the study. Buenavista Elementary School in the Division of Leyte is the main locale of the study. The Grade 3 pupils which composed of 31 pupils are the main respondents of the study and the data based on the students' performance ratings just like the pretest score and posttest scores performance were utilized.

Sampling. There are 31 Learners who are included in the study and the primary means of reach is through messenger account and cell number. Another technique in informing the respondents is trough face to face basis.

Research Procedure. The researcher formulated the following procedures as guide in gathering of data: The researcher asked permission from the Schools Division Superintendent as well as to the Public School District Supervisor (PSDS) to conduct a research study in the school. The researcher immediately conducted an orientation to the teachers who will conduct the test. The research instrument was administered to the identified respondents. Then the researcher was integrated the following materials to deliver the most essential learning competencies such as the Self learning Modules, Learners Activity Sheets as well as the video lessons from the DepEd Commons and the validated video lessons from the learning resource section either from the school, District level or Division level. After conducting the pretest, the researcher immediately starts the 4-week activities by giving the video lessons focus on Mathematics subjects based on the most essential learning competencies to the Grade 3 pupils. Then the posttest followed, then gathered and tabulated for specific statistical treatment to determine whether the said hypothesis was rejected based on the 0.5 level of significance. Different tools were given separately and were explained thoroughly. 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. Orientation of the respondents both the students and the teachers and the industry partners was done separately.

Treatment of Data. The effectiveness of the Audio-video lessons to the performance of the Grade 3 pupils are the main focused was treated through a weighted mean. The same data was used to treat the t-test of mean difference in order to find out the significant difference.

III. Results and Discussion

TABLE 1
PRE-TEST PERFORMANCE OF GRADE 3 PUPILS IN MATH

Score Range	Description	PRETEST	
		Frequency	%
33-40	Excellent	6	19
25-32	Very Good	17	55
17-24	Good	8	26
9-16	Fair	0	0
1-8	Poor	0	0
Total		31	100
Weighted Mean		**27.84**	**Very Good**

The table 1 above shows the pretest performance of the Grade 3 pupils Mathematics who were not yet Exposed to the audio-Video Lessons in the delivery of the most essential learning competencies. Before the integration of the audio-video lessons in the teaching and learning process during the delivery of the most essential learning competencies in one of the most difficult subjects which is Mathematics. It was found out that giving assessment to the learners specially the Grade 3 pupils was really challenging in the sense that that there were strict restrictions as to the delivery of the learning to the main clientele which are the students due to the continuous impact of the historical event in history after 1oo years which is the Covid 19 pandemic. In order to test the percentage of learnings gained by the grade 3 learners, the researcher gave to the respondents a pre-test questionnaires as bases in assessing their learning for the past 3 quarters. It is very important assessment prior to the planned intervention to be given to the respondents in order to gauge their learning during the time that they utilized different learning materials such as self-learning modules, Learners activity sheets, other materials which are found in the official gazette of the Department of Education. Based from the results in table 1, it shows that there were 31 respondents who accepted the challenge to be part the study. Based on the given data on the table 1, from the score ranging from 1-8, and 9-16 which describe as poor and fair level of performances found out to be none from the respondents belong to this class interval. From the score having the range of 17-24 and it is interpreted as good, there were8 total number of respondents which is equal to 26 percent out from the total number of respondents which is equal to 31 respondents who are involved in the study. In the very good level with the score ranging

from 25-32, there were 55 percent or 17 total number of respondents which are considered to be the highest total number of respondents in this performance level. Lastly, in the score ranging from 33-40 having interpreted as excellent, there were 6 total number of respondents or 19 percent.

Based on the result in table 1 implied that even though the researcher did not yet give the identified strategy to the grade 3 learners which are the respondents of the study. Along with the results in the pretest performances of the respondents it can be gleaned that before the pretest was given to the learners, the leaners have already the idea on how and what to do in dealing with the different learning strategies because from the time of pandemic the Department of Education already introduces different learning modalities. One of the different modalities that was introduces to the field for the past 2 years is the blended learning in which the teaching and learning was focus on the crafting of the video lessons based on the most essential learning competencies. Thus, it could be the reasons of having a very good performance of the learners even though they have not yet experienced the audio-video lessons during the teaching and learning process directly. Moreover, even though the learners already experienced the intervention, it is important for them to still improve their motivation to learn through the new strategy which is the Audio-video lessons.

Table 2
POST TEST PERFORMANCE OF GRADE 3 PUPILS IN MATH

Score Range	Description	POST TEST	
		Frequency	%
33-40	Excellent	12	39
25-32	Very Good	17	55
17-24	Good	2	6
9-16	Fair	0	0
1-8	Poor	0	0
Total		31	100
Weighted Mean		**31.10**	**Very Good**

The table 1 above shows the posttest performance of the Grade 3 pupils Mathematics who were already experienced the new strategy given by the teacher-Researcher in delivering of the topics in Mathematics which is the audio-Video Lessons based on the most essential learning competencies. After the integration of the audio-video lessons in the teaching and learning process during the delivery of the most essential learning competencies in one of the most difficult subjects which is Mathematics. It was found out that the assessment given to the learners specially the Grade 3 pupils using the new strategies or after integrating the intervention to the math subject is very effective in improving the performance of the learners in the sense that there was an increase of the test scores from the pretest and posttest even if there were strict restrictions as to the delivery

of the learning to the main clientele which are the students due to the continuous impact the Covid 19 pandemic. It is very important that the assessment be conducted after the integration of the identified strategy in teaching Mathematics to the Grade 3 learners to gauge their learning after experiencing the audio-video lessons to the different lessons presented. Based from the results in table 2, it shows that there were 31 respondents who who experienced the audio-video lessons based on the most essential learning competencies. Based on the given data on the table 2, from the score ranging from 1-8, and 9-16 which describe as poor and fair level of performances found out to be none from the respondents belong to this class interval. From the score having the range of 17-24 and it is interpreted as good, there were 2 total number of respondents which is equal to 6 percent out from the total number of respondents which is equal to 31 respondents who are involved in the study. In the very good level with the score ranging from 25-32, there were 55 percent or 17 total number of respondents which are considered to be the highest total number of respondents in this performance level. Lastly, in the score ranging from 33-40 having interpreted as excellent, there were 12 total number of respondents or 39 percent.

Based on the result in table 2 implied that after the researcher gave the identified strategy to the grade 3 learners which are the respondents of the study. Along with the results in the posttest performances of the respondents it can be gleaned that after the integration was given to the respondents and given the posttest in order to assess the effectiveness of the strategies offered to the learners, the leaners have really improved their learning skills after they experienced the new improved trend in learning the subject even if the pandemic still experiencing by all of us and still difficult to grasp the idea of 100 percent connection between the learners and teachers. Considering the results with of the weighted mean which is equal to 31.10 or very good level, though it's the same learning description of the pretest, but because the percentage of the pretest is lower than the posttest, it can be conclude that some of the respondents really love the experience on howe they learn through the audio-video lessons in the delivery of the lessons in mathematics the Audio-video lessons.

Table 3
Test of Difference Between the Scores in the Pre-test and Post-test of GRADE 3 Pupils IN MATH

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
GRADE 3 Pupils IN MATH	Pre Post	27.84 31.10	0.024	0.121	Accept H_o	Not Significant

The Table 3 Presents the test of difference between the scores in the pretest and posttest of grade 3 pupils in Mathematics. These results are coming from the test scores of the pupils prior to the integration of the audio-video lessons based on the most essential learning competencies in mathematics. In other words, this are the collaborative effort of the teachers and learners in the teaching and learning process in the 3rd grading period in Mathematics subject. Based from the

results given in table 3, its shows that the pre-test performance of the Grade 3 pupils in Mathematics is equal to 27.84 which is lesser than the posttest scores or performance of the Grade 3 pupils which resulted to the computed t value of 0.024 which is lower than the critical t value of 0.121. In this case, the hypothesis which states that there is no significant difference in the pretest and posttest scores before and after the integration of the audio video lessons to the performance of the Grade 3 pupils in Mathematics is accepted.

The results of the study implied that the integration of audio-video lessons in teaching mathematics is very significant in improving the performance of the Grade 3 pupils specially to those topics which are identified as difficult topics in the k-stage 1 level. It further explains that though the pretest is already a very good performance obtained by the respondents with is literally the same prescription of performance in the posttest, we cannot deny the fact that their performances were improving considering that the number of the respondents in excellent is improving from the pre-test to posttest. In other words, though the learners already aware on the strategy delivered by the teacher which is on blended learning, still the audio video lessons are still effective in improving their motivation to learn and increase their skills in learning mathematics subject which could help them to learn more in easy way as per suggestions of the audio-video lessons that were already contextualized by the teachers for them to fully understand.

IV. Conclusion

Based on the findings of the study integrating the audio-video lessons can possibly improve the performance skills or test scores of the Grade 3 pupils in Mathematics considering that the test scores from the pretest is lower than the posttest scores. We cannot deny the fact also that utilizing or integrating the different learning strategies or modalities prior to the utilization of the intervention is also effective. Therefore, though the audio-video lessons is effective, we should also consider other strategies in teaching in the delivery of the most essential learning competencies in Mathematics.

V. Recommendations

1. The proposed Enhancement plan should be utilized to all Grade 3 Teachers and other teachers.
2. Teachers should integrate audio-video lessons in the delivery of the topics based on the different most essential learning competencies in any quarter or grade level.
3. The school head should conduct In-service training may it be f2f or virtual mode focuses on the crafting of the audio- Video Lessons following the norms of the DepEd Central office.
4. The School Head should closely monitor the utilization of teacher's audio-video lessons to help the learners improve their test scores performances as well as to improve teachers' teaching strategies.

5. 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 audio-video lessons in integrating them to the topics to be delivered specially to the difficult ones.

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