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INTERACTIVE PROJECT *VIDEOTURO* (VENTURING ON INCLUSIVEDISTANCE EDUCATION OPTION TO UNVEIL REWARDING OUTCOME) IN ENHANCING PROBLEM-SOLVING SKILLS AMONG GRADE 9 STUDENTS

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Abstract

This action research aimed to enhance the problem-solving skills of Grade 9 students in mathematics of San Jose national High School. 31 or 55% scored the average and poor level of problem-solving skills performance in the pretest. The researcher addressed in enhancing problem solving skills in Mathematics using the interactive video lesson as an intervention material. The result of the study showed that the number of students who were within a poor level was reduced in the Posttest. There is a significant difference (p=0.030) in the problem-solving level of performance in the posttest results between the modular print (control group) and the recorded interactive video lesson material (experimental group). The findings stressed that the results of the posttest of control and experiment groups have significant differences. It is proposed that teachers should design interactive activities through a recorded video lessons material to promote understanding by having students practice, solve, manipulate reason, and perform amidst the current situation. Recorded interactive video lesson may help student's visual connections across mathematical skills and concepts and other disciplines. Following the video lesson enhancement material, students should have time to master how to perform problem solving activities. With careful planning, implementation and evaluation, mathematical activities can be achieved successfully by most students.

Keyword*: videoturo*, problem solving, interactive activities, recorded interactive video lesson

Introduction

The opportunity to share knowledge with many learners across ages is what makes educators influential. Teachers play a crucial role in building the nation. This is consonance with the Department of Education vision of producing: "Filipinos who passionately love their country and whose values and competencies enable them to realize their full potential and contribute meaningfully to building the nation." (DepEd Order No. 36, s. 2013)[1]. Hence, to have a quality education, teachers must gear to develop quality teaching that can promote quality learning for a sustainable nation building.

The Department of Education considered every avenue to improve quality teaching and learning. However, with our present condition, Covid19 greatly affect and change our lives and even the education in our country. With this, our Department were encouraged institutions to be innovative and resourceful in delivering quality education, accessible, relevant, and liberating education anchored to (DepEd Order No. 18, s. 2020)[2]. With that, schools must develop projects to ensure that all learners must acquire and will benefit quality education despite the pandemic. Shifting from classroom setting to home schooling is a big challenge among teachers to reach learning considering a quite limited information because of distance learning.

The rise of digital technology and use it as an instructional tool for teaching is the foremost and applicable form of learning that need to adapt in each school in this kind of scenario. Because of that, San Jose National High School came up with their

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school-initiated project so called Project VIDEOTURO (**V**enturing on **I**nclusive **D**istance **E**ducation **O**ption **T**o **U**nveil **R**ewarding Outcomes) in which teachers uses video lessons in their teaching as other sources of educational supplement of learning in this rough times. Developed video lessons, video tutorials, and other form of media with the intent to teach are all supplementary materials that they have been utilized. As emphasized by Berk (2009)[3], video materials can draw on the learner's multiple intelligence and learning styles to maximize their understanding. He also stated that when video and multimedia learning are combined, an empirical basis is provided for the use of video teaching languages. He also mentioned that such courses enhance students' comprehension and understanding would be more beneficial for novice learners in their early stages.

The result of the PISA in international in 2019 reflect once again the crisis state of mathematics education in the country. In PISA data shows that the Philippines scored 353 points in mathematical literacy and it is below average of 489 baseline points. Filipino students were on the low benchmark, out of 79 participating countries which means that they had "some basic mathematical knowledge. It was known that most of the questions that came out needed critical thinking and analytical reasoning to solve mathematical problems. Thus, there is a wide call for everyone to go back to basic mathematical thinking and reasoning skills. (hhtp://www.timss.bc.edu)

Added to the performance among students was the result of the Mean Percentage Score (MPS) in Mathematics Grade 9 of San Jose National High School during the third quarter examination for the school year 2018-2019 are 56.66 percent which is below the mastery level of 75%.. The test was largely composed of problem solving in

which would analyze and solve. The items that most students incurred a high percentage could be traced to the group with low mastery level in problem-solving skills

Likewise, the researcher manifested and observed that students and parents are also very vocal about their struggle in this remote learning. Some students found difficulties from answering their self-paced learning modules particularly in mathematics subject. Parents as a facilitator cannot help with their children because of some factors. These observations are quite alarming in part of Mathematics

Teachers to promote quality of learning. As explained by Mc Donald & Reushle, (2002)[4], to keep students from these sufferings, a teacher should have a flexible and creative mind (use of technology, a variety of teaching strategy and choice of assessments) are required. Students increasingly demand flexibility from their institution. They also believe that to cater the needs of the diverse learners effectively would lies on flexibility of teachers and the institution.

However, with the series of gaps and issues identified of the diverse learners during the current global health crisis. The researcher came up with this research to determine the effects of using interactive video lesson in enhancing problem-solving skills among Grade 9 students at San Jose National High School.

II. Action Research Methods

a. Participants and/or other Sources of Data and Information

Fifty (56) respondents out of 234 students were included in this study using simple random sampling method. The 50 Grade 9 students of San Jose National High School

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for SY 2020-2021 were divided into two groups using the fishbowl technique. The first 28 students served as the experimental group who received the intervention and the other 28 students served as the control group who used the Self-Learning Modules (SLM). The sources of the data of this study were the scores obtained by students in pretest and posttest

b. Data Gathering Methods

The main instrument in this study was the 15-item researcher-made pretest and posttest aligned from the identified least learned competency. The test was piloted tested to 10 students of the same characteristics. Those students were not included to students in the list of participants for the study to avoid bias. The scores of the pre-post test were treated with utmost confidentiality. The students were closely monitored using a checklist on the duration of intervention through messenger group and limited face-to-face.

The conduct of this study is presented in the conceptual schema illustrated in Figure 2 which is the Flow Chart on the delivery of lesson. As shown in the figure, the study centers on the difference between the using of Self-Learning Modules and the using of interactive video lesson material. A quasi-experimental research method of investigation was used in this study. It is to explore whether the interactive video lesson in teaching Mathematics contributes to the development of computational skills and improvement of students' performance in mathematics. The researchers aim to assess the effectiveness of using the interactive video lesson in enhancing problem-solving skills in mathematics. Two groups are determined in this study. The control group uses

the SLMs printed material and the experimental group uses the interactive video lesson. The level of students' learning is obtained after administering a pretest, to both groups and post-test between the two groups after the intervention.

The result of the pretest and post-test would be compared to determine the significant difference in the level of students' learning. Based on the findings, an action plan should be developed to enhance teaching effectiveness and improvement in students' performance in Mathematics.

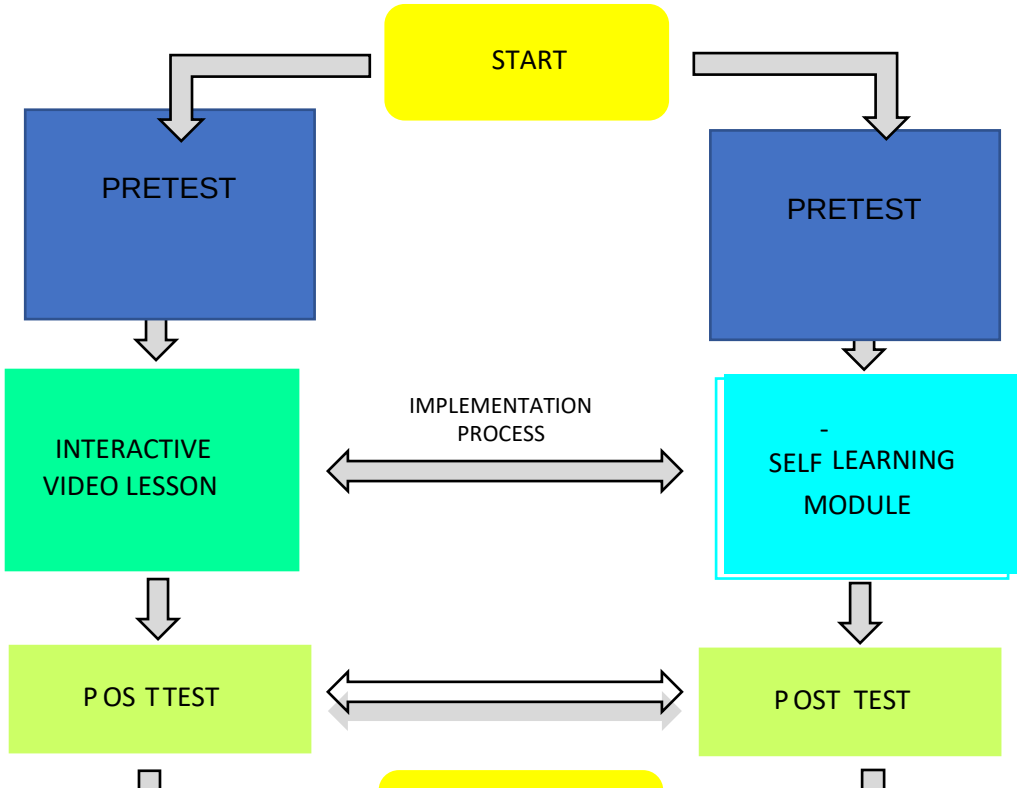

Figure 1. Flowchart on the Delivery of Lesson

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C. Ethical Issues

Since the study elicited some of the personal information from the participants, the researcher chose to adhere with the Data Privacy Act of 2012. The researcher sought permission from the School Head and the District Research Committee for the endorsement to and approval of the Research Committee to conduct the study.

No information in the study was directly associated to the participant's name to protect their identities. Students who were parts of the experiment remained anonymous. Codes were used in analyzing the results to safeguard the privacy of data. The utmost confidentiality of their responses during the pre-post intervention was observed.

Also, authors of books, journals, websites and other publications used as references in the conduct of the study were properly cited.

III. Discussion of Results and Reflection

The part includes the discussion of results and reflection of the study. The data presented in this part follows the arrangement of the problems as set in the Action Research questions.

Upon the administration and after the conduct of the assessment, the collected data and the result of the pretest and posttest were evaluated and analyzed.

Table 1. Mean Score and Level of students' performance of the Grade 9 students in both Modular Approach and Interactive Video lesson in the pretest/postest.

TEST	N	Mean	Std. Deviation	Level of Performance
Modular Approach (Pretest)	28	6.54	1.551	Low Mastery
Modular Approach Posttest	28	9.32	2.2212	Average Mastery
VideoTURO Pretest	28	6.54	1.552	Low Mastery
VideoTURO Posttest	28	10.79	1.893	Nearing towards Mastery

N-Norm SD- Standard Deviation M- Mean

Legend:
13 – 15 With full mastery
10 – 12 Nearing towards mastery
7 – 9 Average mastery
4 – 6 Low mastery
1 – 3 Very Low Mastery

Table 2 shows the level of student's learning of the Grade 9 students based on their results on the 15-item pretest both from controlled and experimental groups in Mathematics 9

In their modular approach pretest (controlled group), out of 28 students, the mean score of the students is placed at 6.54 which means that generally, the students have "**low mastery** "level of performance in their mathematics skills.

On other hand, In the posttest, the means score of the respondents after employing the intervention indicates that the average performance of the 28 students is 1o.79

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which means that generally, the students have **"nearing mastery"** in terms of performance level skills in the experimental group..

Table 2. Test of Significant difference in the students' learning performance both from the control and experimental group in the pretest and posttest

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Test	**SD**	Std Error Mean	**95% Confidence Interval**		t-value	Df	p-value	interpretation
			Lower	**Upper**				
Control	2.644	.500	-3.811	-1.761	-5.576	27	.003	Significant
Experimental	2.603	.492	-2.474	-.455	-2.975	27	.001	Significant

The result of the paired sample T-test shows that there exists significant differences in the mean performances of the students in the pretest and posttest as indicated by P value of 0.001. The post test results are significantly higher than the result of the pretest. This also explains that after the intervention Interactive VideoTURO in enhancing skills in problem solving worded problems in mathematics. This further implies that the intervention material was effective in improving students' performance.

Table 3. Effect size of using interactive video lessons in enhancing problem solving skills in Mathematics 9.

Test	**Mean**	**Std. Deviation**	**ratio**	**Cohens d**	Interpretation
Pretest before the the intervention					

	6.64	1.551			Medium
Posttest after the use of the intervention	10.79	1.893	**1.037**	**.563**	Effect

The Cohen's d value of .563 based on the conventional frame of reference interpreting Cohen's d indicates that interactive VIDEOTURO has medium effect in enhancing or improving students' skills in solving worded problem. This further implies that the intervention material used has medium effect in the performance of the students.

The above findings stressed that the results of the posttest of both control and experimental groups have significant differences, this explains that the level of learning outcomes between the two groups have improved in the same direction and their achievement level.

CONCLUSION

In view of the findings, it was concluded that the use of intervention interactive video lesson in enhancing students' skills in solving word problems has significantly improved and has large effect in the performance of the respondents are enhanced effectively

RECOMMENDATION

1. The interactive video lesson can be developed and utilized by other subject areas to improve the least learned competencies and it also serves as their digital resources to be utilized in their teaching.
2. School Head may conduct LAC session prior in designing instructional material cum Video lesson making to make lessons more understandable, engaging and appealing to the learners.
3. Teachers may use an interactive video lesson in their demonstration teaching (optional)
4. Interactive video lesson and Self-Learning Modules may be employed together as an Alternative Delivery Mode (ADM) materials for students who are at risk of dropping out from school. This will easily help them to cope up their lesson

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