

## **Project MIV: Mathematics Instructional Video, Its Effectiveness in the Delivery of In-Person Learning**



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### **ABSTRACT**

The distance learning challenged the teachers on how to deliver quality education. Teaching mathematical concepts needs proper visualization to be able to make the pupils understand the step by step process. Pure texts in the module explaining the concepts and the process of solving for the answer may help but for most of the pupils is a struggle.

With the intervention of teacher made instructional video in teaching mathematical concepts even face-to-face learning was allowed, the researcher wanted to measure its effectiveness and impact to the numeracy skills level of learners. The numeracy skills involve mastery on the four basic operations and application of mathematical concepts through problem solving of real life situations.

Educational videos have become an important part in providing an important part in content-delivery tool in distance learning, blended or modular. Brame (2017) considered the three elements in identifying the effective use of video as an educational tool: how to manage the cognitive load of the video; how to maximize student's engagement; and how to promote active learning from the video.

*Key words; numeracy skills, cognitive load*

## INTRODUCTION

The public health emergency brought about by COVID-19 calls for Department of Education to be innovative and resourceful in delivering quality, accessible and relevant even face to face was allowed. This idea supported the 1987 Constitution Article XIV Sections 1 and 2 that the state shall protect and promote the right of all citizens to quality education all levels and shall take appropriate steps to make such accessible to all.

DepEd Order 21 s. 2019 also known as Policy Guidelines on the K to 12 Basic Education Program sets for the flexible learning options. It includes alternative delivery modes and its corresponding learning resources that are responsible to the needs, contexts, circumstances and diversity of learners. The latter became the focus of this study to be able to provide them mathematical intervention in modular learning.

Capacia-Gusano (2019) stressed out that Mathematics teachers are experiencing major changes not only in content they teach but also in the way they teach. He added that teachers are called on to teach new, more challenging mathematics to a very diverse audience using active learning approaches designed to develop understanding.

## METHODOLOGY

Students after two years of distant learning found difficulties on how to adjust in face to face learning. Aside from experiencing the teaching-learning process physically, the teacher made

instructional video was initiated to serve as supplemental material. They can see and listen to their teachers explaining concepts of the lessons even in their homes. Mathematical computations and its process were done partly due to time constraint in actual classes. The researcher undergone a study on how to help pupils to improve their performance. This revealed the impact of teacher made video in the performance of pupils in mathematics.

The problem on overcoming the non-numerates and mastery of the four fundamental operations and its concept application were really a challenge to teachers especially in these times of post pandemic. As observed by the researcher, many pupils skipped answering the learning tasks especially if it requires long computation and problem solving.

The researcher conducted a survey to selected respondents. This allowed the researcher to identify the reasons why the pupils experiencing difficulties in answering learning tasks in Mathematics from the module. Data was collected, tabulated and analyzed. It was followed by the formulation of recommendations.

The researcher came up with a teacher made instructional video called Project MIV which served as supplementary material in order to augment the difficulties in mathematical learning tasks. With the difficulties of pupils in comprehending mathematical concepts in the reopening of in person classes the researcher did intervention in order to reach out pupils in their homes via

instructional videos that were sent online to group messenger. These videos were validated by the researcher who happened to have specialization in mathematics with the assistance of co-master teachers.

## RESULTS

These were the results of pre and post assessment of proficiency level in Mathematics for first quarter. In the pre assessment, Pupil 24 got the lowest percentage rating of 12.5% or 7 correct answers out of 40 item test. The highest score was recorded from Pupil 6 and 22 who got percentage rating of 37.5 or 15 correct answers. The overall average rating was 26.25 which made all the respondents fell under low level proficiency. The result was expected considering that the assessment was designed to diagnose the proficiency level before the implementation of the intervention.

After the implementation of Project MIV, post assessment was conducted. It was found out that Pupil 22 got the highest percentage rating of 82,5%. The lowest rating was recorded from Pupil 19 who got 57.5%. The overall average rating was 69.42% which fell under average proficiency level. Five pupils reached high proficiency level, 25 pupils under average level. All the respondents showed improvement as compared to their pre assessment performance. They got a remarkable average increase of 43.17%.

The other issue of concern was the result of the survey on the difficulties in understanding mathematical learning concepts.

One-fifth of the respondents or 20% had low mastery on the four fundamental operations. This is an important prerequisite skill in doing mathematical tasks. The issue on coping up with the teacher's effort to deliver math lessons and no family members can do home tutorial got the same number of frequency with 17% or 5 out 30 respondents. This supported the need to provide teacher-made video as supplementary material. Meanwhile, the concern about understanding mathematical terminologies, visualizing math problems, and not mastered competencies from the previous level was tallied with the same rate of 13 % or 4 out of 30.

## DISCUSSION

The learning gaps were the big factors why pupils had difficulties learning the mathematical skills. Their prior knowledge was lacking and so they were not able to comprehend the current lessons. The foundation skills on the mastery of the four basic operations were also hindrances in coping up with the new lessons.

The implementation of using teacher made mathematical instructional video was conceptualized during modular distance learning. This school year where in-person classes were allowed, bridging the learning gaps to the present grade level's competency was a big challenge to teachers. The teachers need to be creative in finding ways on how to alleviate the low numeracy level of pupils.

It was observed that obviously nobody fell under low proficiency level in the post assessment. The final result of pupils' performance reflected the effectiveness of the teacher made instructional video. The improvement in the performance was very evident as seen in the result of the post assessment.

Based from the survey from the respondents on the causes of their difficulties in learning mathematical concepts, still the low mastery of the four basic operations stood out. This concern really affected the numeracy literacy of the school. Another reason was their ability of pupils to cope up with teachers' effort to deliver the lesson. The researchers attributed this issue to the unmastered learning competencies from the previous grade level. This resulted to the concern of filling in the learning gaps.

Based on the result of pre and post assessment, the researcher concluded that there was a significant improvement of pupils' performance. There was a remarkable increase in the proficiency level. This can be attributed to the instructional videos sent to the respondents aside from the face-to-face interactions. The intervention can be described as an effective means of developing their mathematical comprehension and its application.

With the current trend of using technology whether at home or in school, maximizing the use of it to improve the teaching-learning process is very commendable. The experience of pupils watching their own teacher doing video

instructions made them confident to improve their full potentials to learn mathematics. It is recommended that teachers should provide weekly supplementary instructional materials in order to cater dark clouds, unclear mathematical concepts and even complicated computations.

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