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VIDEO ASSISTED MATH LESSON: AN INTERVENTION TO ADDRESS THE LEARNING GAPS IN RADICAL EXPRESSIONS OF SELECT GRADE 9 STUDENTS

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ABSTRACT

The result of the Performance Report on Most Essential Learning Competencies During the second grading period showed that among the four(4) long tests administered comprising of Most Essential learning competencies for 2 weeks, long test for weeks 5 and 6 of 9-San-Antonio which is about Radical Expressions has the least MPS of 30.41.These circumstances prompted the researchers to use video assisted lesson as an intervention to address the learning gaps of these students under the Modular Distance learning Modality.

Social media might offer video lessons among our students, but we have to face the reality that not all of them could have an access to it nor could exactly meet the learning abilities and needs of our students. Students come with different abilities, skills and characteristics. Furthermore, students respond positively when learning is meaningful, personalised and relevant, (Minder 2017). The video-assisted math lesson was disseminated and utilized through different means and platforms available to the respondents. Three (3) of the respondents (those with an internet connection) it was sent via Facebook messenger), eight (8) who have gadgets only at home, it was sent via Bluetooth, and nine (9) of them who do not have any gadgets were allowed to lend unit of tablet from the researchers and pass on to their co-respondents near their house with proper safety measures and disinfection of the gadget.

The performance of the students in terms of a pre-test and a post-test shows that the pre-test mean score was 8.1 ,while the post-test mean score was 13.2. The mean gain of 5.1 was computed to check if there is a significant difference between the mean performance of the students before and after the intervention. The p value 0.000014 was smaller than the alpha value 0.05 hence, there is a significant effect of the intervention to the performance of the students. Based on the outcomes, it is recommended that Video-assisted Math lesson could be used as an intervention material not just to address the learning gaps of the students in a particular lesson but also to serve as supplementary material to those students under the Modular Distance Learning Modality hand in hand with their printed modules.

KEYWORDS: *Video-assisted lesson , learning gaps, Intervention*

I. CONTEXT AND RATIONALE

"No Filipino learners will be left behind amidst the crisis", one of the most promising principles of the Department of Education Secretary Briones. DepEd provides Self-Learning Modules (SLMs) with the alternative learning delivery modalities to be offered for various types of learners across the Philippines to ensure that all learners have access to quality basic education with face-to-face classes still prohibited due to the public health situation.

The current setup for Modular Distance Learning is that there should be open communication between the teacher to students and/or teacher to parents/guardians. But we have to face the reality that not everyone has the capability to maintain communication with their teachers, not all parents are educated enough to teach their children. The students need their teachers to explain the concepts written in the module, otherwise, they will have learning gaps on a particular topic or skills that they should have mastered, but didn't. This is one of the problems met by the researchers with their students under the Modular Distance Learning Modality.

DepEd Order No.012,s.2021, an Amendment to DepEd Order No.030, s.2020, allowing the schools to conduct intervention and remediation activities based on the unique needs of the learners as determined through the results of the different forms of assessment administered for the past two quarters.

Chou(2017) attempted to establish a new model of remedial teaching that utilizes remote asynchronous video-based instruction to carry out centralized remedial teaching. Moreover, Allen and Smith (2012) have shown in their studies that educational video can

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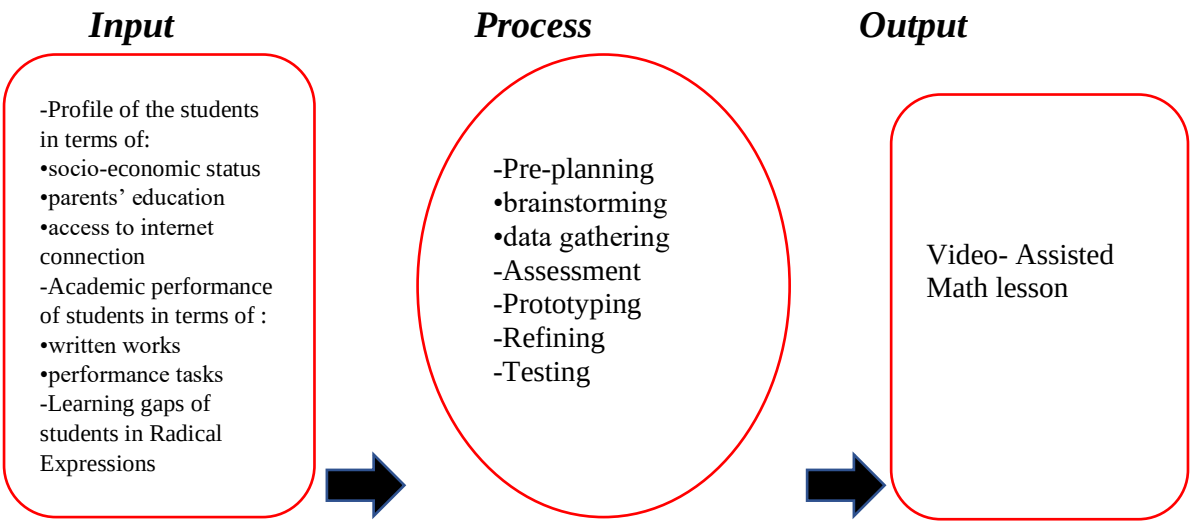
be a highly effective educational tool. In fact, according to them, many researchers indicate educational video as one of the most important of those technologies that can increase student engagement.

The result of the PERFORMANCE REPORT ON MOST ESSENTIAL LEARNING COMPETENCIES during the second grading period showed that among the four(4) long tests administered comprising of Most Essential learning competencies for 2 weeks, long test for weeks 5 and 6 of 9-San-Antonio which is about Radical Expressions has the least MPS of 30.41. These circumstances prompted the researchers to use video-assisted lessons as an intervention to address the learning gaps of these students under the Modular Distance learning Modality.

II. ACTION RESEARCH QUESTIONS

1. What are the profiles of the students in terms of:
    1.1 socio-economic status;
    1.2 parents' education;
    1.3 access to internet connection?
2. What is the level in the Mastery Achievement Level of the academic performance of students in terms of:
    2.1 written works;
    2.2 performance task?
3. What are the learning gaps of the students in Radical expressions?
4. Do the video-assisted Math lesson address the learning gaps of the students?



III. PROPOSED INNOVATIONS/INTERVENTION/STRATEGIES

Video-assisted Math lesson on Radical Expression

The first step is pre-planning which includes brainstorming and data gathering to determine the means and platforms on how the videos will be delivered to the students. The second is to assess the students' level of performance. Implementation of the intervention using video-assisted math lessons was done whereas prototyping and refining was the cycling process to determine the learning gaps of the students in Radical Expressions. Testing was done to determine if the intervention address the learning gaps of the students.

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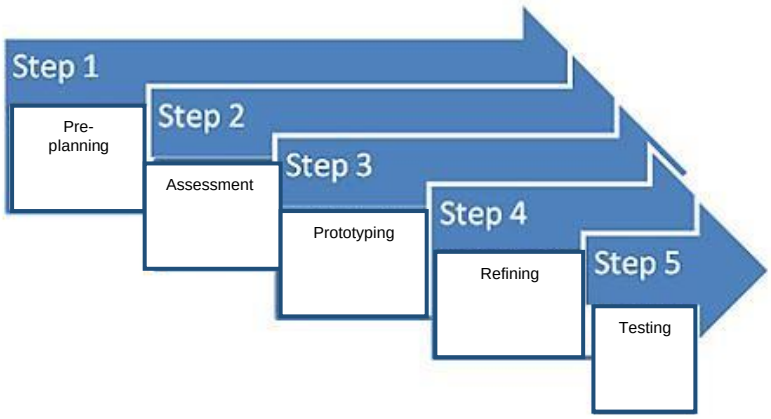
IV. ACTION RESEARCH METHODS



a. Select Grade 9 students from MDL class of Don Manuel Rivera Memorial National High School are the participants for this study.

b. Data Gathering method

Secure permission from the principal through a letter of request.
Distribute questionnaires for students' profile.
Gather feedback and assessments to evaluate the ongoing intervention.
Administer post-assessment.
Analysis and interpretation of data collected.

c. Data Analysis Plan

To make a valid and scientifically acceptable analysis and interpretation of data gathered, appropriate statistical treatment was used for each set of data. The results will be the basis in the formulation of conclusion, summary, and findings of the research questions. Implementation of the intervention will be prioritized if proven effective.

V. ACTION RESEARCH WORK PLAN AND TIMELINES

ACTIVITY	JAN.	FEB.	MAR.	APRIL	MAY	JUNE
Needs assessment						
Preparation, accomplishment and submission of the action research proposal.						
Seeking approval on the implementation of the action research.						
Approval of the proposal						
Conduct of the study						
Data Gathering						
Evaluation, analysis and interpretation of the data collected.						
Preparation and submission of the terminal report.						

VI. COST ESTIMATES

Materials needed	Estimated Cost
Paper and printing	300.00
5 units of tablet	7500.00
Transportation allowance	200.00
TOTAL	8,000.00

VII. ETHICAL ISSUES

The researchers gave considerations on the following concerns in the conduct of this research:

1. Secure a letter of consent to the principal for the conduct of action research.
2. Performances of the respondents on the intervention were kept confidential.
3. Data collected were treated and analyzed appropriately.

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VIII. PLANS FOR DISSEMINATION AND UTILIZATION

The video-assisted math lesson will be disseminated and utilized through different means and platforms available to the respondents. For those with an internet connection, it will be sent via Facebook messenger or e-mail address, and for those who have gadgets only at home but without internet connection, it will be sent by the researchers via Bluetooth, but for those who do not have any gadgets they will be allowed to lend unit of tablet from the researchers and pass on to their co-respondents near their house with proper safety measures and disinfection of the gadget.

IX. PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA

This section showed the presentation, analysis and interpretation of data used in this action research.

TABLE 1. Profile of the Students

Profile			Frequency	Percentage
Socio-Economic Status	Upper Class		1	5
	Middle Class		7	35
	Lower Class		12	60
Parents' Education	Father	College Graduate	1	5
		High School Graduate	10	50
		High School level	4	20
		Elementary Graduate	5	25
	Mother	College Graduate	0	0
		High School Graduate	12	60
		High School level	5	25
		Elementary Graduate	3	15
Access to Internet Connection	Own Mobile Data		8	40
	Own Broadband Internet (DSL, Wireless Fiber, Satellite)		3	15
	None		9	45

Table 1 shows the profile of the students in terms of socio-economic status, parents' education and access to internet connection.

In the socio-economic status, the table reveals that about 95% of the students belong to the middle class or the lower class and these were the students who cannot afford to hire the services of a tutor to supplement their quest for academic improvement. In the parents' education, it appeared that 95% have father and 100% have mother who were not able to reach college and their parents could not probably teach them academically. In the access to internet connection, only 40% only have their own mobile data and 45% do not have internet connection which means that 85% of the students do not have quick and easy access to internet where they can find other references for learning aside from the printed ones.

TABLE 2. Mastery Achievement Level of the Academic Performance of Students

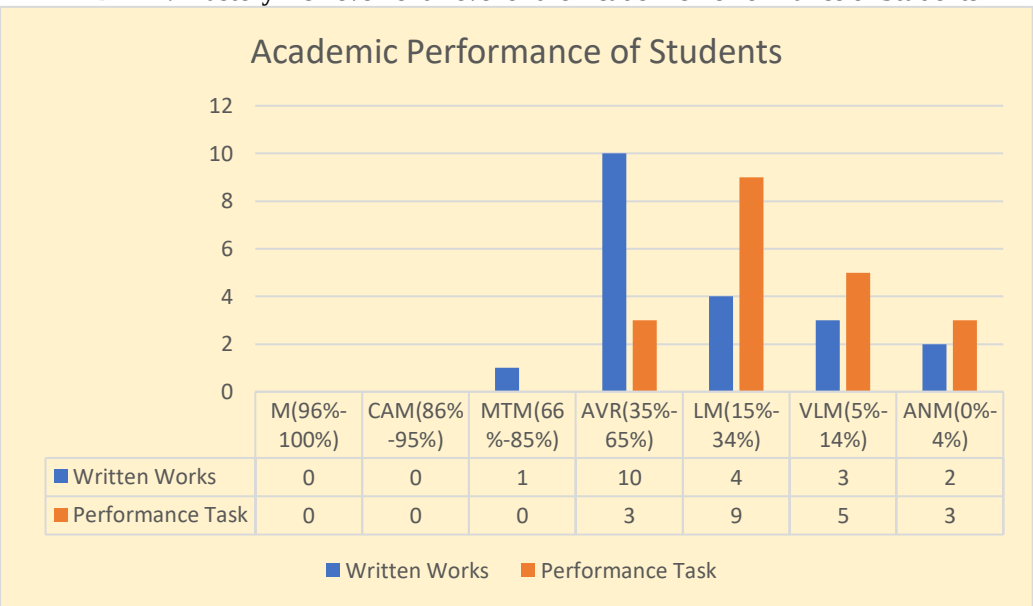

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Table 2 shows the level of academic performance of students based on the Mastery Achievement Level.

Based on the table, in the written works, only 1 student were able to reach 66%-85% Mastery Level and 19 students belong to 65% and below Mastery Level. However, in the performance task, all of them belong to the 65% and below Mastery Level which means that the select students have low academic performance.

TABLE 3. Learning Gaps of Students in Radical Expressions

	Mean	SD	Mastery Level
Simplify radicals by reducing the radicand	2.95	0.5	**Average**
Simplify radicals by reducing the order of radicals	1.40	0.97	**Low Mastery**
Simplify radicals by rationalizing the denominator	0.75	1.13	**Very Low Mastery**
Conjugate of radicals	0.70	1.14	**Very Low Mastery**

Table 3 shows the mastery level of the students on the competencies in simplifying radicals.

In simplifying radicals by reducing the radicand the obtained mean was 2.95 with a standard deviation 0.5 and categorized as Average in the Mastery Level. Simplifying radicals by reducing the order of radicand, rationalizing the denominator and conjugate of radicals have obtained mean of 1.40,0.75,0.70 and a standard deviation 0.97,1.13 and 1.14 respectively. These 3 competencies were found to be classified under the Low and Very Low Mastery in the Mastery Achievement Level.

TABLE 4. Result of Intervention in the Performance of Students

Variable	Mean	Mean Difference	T - Ratio	P- Value	Interpretation
Pre-test	8.1	5.1	-4.97709	.000014	**Significant**
Post test	13.2				

Table 4 shows if the intervention address the learning gaps of the students.

The performance of the students in terms of a pre-test and a post-test shows that that the pre-test mean score was 8.1 ,while the post-test mean score was 13.2. The mean gain of 5.1 was computed to check if there is a significant difference between the mean performance of the students before and after the intervention. The p value 0.000014 was smaller than the alpha value 0.05 hence, there is a significant effect of the intervention to the performance of the students.

X. SUMMARY, CONCLUSION AND RECOMMENDATIONS

This part includes the summary, conclusion, and recommendation of the researcher based on the data gathered.

SUMMARY

The following are the summary of findings:

1. In the socio-economic status, the table reveals that about 95% of the students belong to the middle class or the lower class and these were the students who cannot afford to hire the services of a tutor to supplement their quest for academic improvement. In the parents' education, it appeared that 95% have father and 100% have mother who were not able to reach college and their parents could not probably teach them academically. In the access to internet connection, only 40% only have their own mobile data and 45% do not have internet connection
2. Based on the table, in the written works, only 1 student were able to reach 66%-85% Mastery Level and 19 students belong to 65% and below Mastery Level. However, in the performance task, all of them belong to the 65% and below Mastery Level
4. Simplifying radicals by reducing the order of radicand, rationalizing the denominator and conjugate of radicals were found to be classified under the Low and Very Low Mastery in the Mastery Achievement Level.
5. The performance of the students in terms of a pre-test and a post-test shows that that the pre-test mean score was 8.1 ,while the post-test mean score was 13.2. The mean gain of 5.1 was computed to check if there is a significant difference between the mean performance of the students before and after the intervention. The p value 0.000014 was smaller than the alpha value 0.05 hence, there is a significant effect of the intervention to the performance of the students.

FINDINGS

1. Based on the data gathered by the researcher most of students belong to the middle-class or lower-class socio-economic status, most of them have parents who were not able to reach college level and do not have easy access to internet connection.

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2. The select students have low academic performance in terms of written works and performance task based on the Mastery Achievement Level.
3. The findings revealed that simplifying radicals by reducing the order of radicand, rationalizing the denominator and conjugate of radicals are the learning gaps of the students in radical expressions.
4. Video-assisted Math lessons were able to address the learning gaps of students in radical expressions.

CONCLUSIONS

In the lights of the findings, the following conclusions were made:

1. Students cannot learn from the module alone most especially on complicated topics in Mathematics. They need supplementary materials and not just the printed ones. It is very vital to them that they can see a teacher explaining the concepts and giving examples.
2. Video-assisted Math Lessons were able to address the learning gaps of the students in radical expressions.

RECOMMENDATION

Based on the outcomes and implications of the study, the following are recommended:

1. Teachers must be aware of their student's progress and weaknesses, learning gaps should be identified, and eventually addressing it should be done so that students will not suffer from a continuous misunderstanding of a lesson.
2. Video-assisted Math lessons could be used as an intervention material not just to address the learning gaps of the students in a particular lesson but also to serve as supplementary material to those students under the Modular Distance Learning Modality hand in hand with their printed modules.
3. The video lessons most especially for complicated topics in Mathematics must be simple and concise so that they could really serve their purpose.
4. Similar studies be conducted to further determine the benefits gained in using video-assisted Math lessons as an intervention material in teaching especially in the current set-up of the education system.

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INTERNET

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