

Effectiveness of The Contextualized Self-Learning Modules to The Performance of Multigrade Pupils in Mathematics

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Abstract — This study aimed to determine the effectiveness of contextualized Self Learning Modules to the Performance of the multi-grade pupils in Mathematics subject. 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 contextualized Self-Learning Modules in assessing the performance of the multi-grade pupils. The researcher utilized universal Sampling in selecting the respondents of the study. The results The Paired Samples T-Test of the Mathematics Performance of Multigrade Students Before and After Exposure to Contextualized Self-Learning Modules. Table number 3 showcased the effect of each learner's performance before and after the utilization of the aforementioned strategy or intervention in order to bridge the learners low performance to a greater one. Based on the results showcased in table 3• The result of the t-test for paired samples indicates that the posttest mean of 32.0 is significantly higher compared to the pretest mean of 22.0 ($t = -14.158$, $df = 19$, $p\text{-value} < .001$). Therefore the null hypothesis which states that there is no significant difference between the pretest and posttest performance of the multigrade pupils in Mathematics before and after the integration of Contextualized Self-Learning Modules is rejected.

The result of this study which focuses on the significant difference in the pretest and posttest scores of the multi-grade pupils before and after the utilization of the contextualized self-learning modules indicates that the use of contextualized Self-learning modules approach in teaching mathematics for multigrade students could potentially enhance the learning of the students in this subject.

This could be possibly mean that contextualized self-learning modules which generated from the central office based on the most essential learning competencies plays an important part in improving the skills or performances of the multi-grade pupils. Moreover, it improve skills pupils or maintain their performance as they fully utilized the said intervention.

Keywords — *Effectiveness; Contextualized Self-Learning Modules; Performance; Multi-grade Pupil*

I. Introduction

The world today is undergoing a tremendous change which causes a chain of problems and challenges to mankind. Man is endowed with intelligence and is making use of his ingenuity to wrestle with this brain-pain problems not only to cope with and be attuned with the changing times but most especially to survive. Mathematics is one of those disciplines greatly influenced by the process of change in our world today.

Mathematics subject may have been anticipated as the toughest subject to be taught and learned, however effective strategies and approaches in printed forms can do more independent learning. Self-Learning Modules can create effective and engaging learning experiences for learners that will tackle the real-world problems, or tasks they will encounter as they pursue their future aspirations. As a Mathematics teacher, there were significant differences between modular and traditional in general comprehension of learners'. There are results that depict higher mean score in teacher made general-comprehension-based test than learners taught through traditional approach.

Mathematical methods pervade literally every field of human endeavor and play a fundamental role in economic development of a country. Among all approaches aimed at reducing poor Mathematics achievement, adaption of appropriate methods of teaching appears to be more rewarding. The Department of Education had employed a solution for the deteriorating academic performance of pupils. As stipulated in the DepEd Order No. 39, s. 2012, interventions have to be made in order to address learning gaps.

In the world of Adler, Mathematics is the handmaiden of science, is also the art which expresses beauty through a system of definitions, axioms and theorems. It is one of the most important tools man has forged in his quest to understand control his environment. Since Mathematics is an indispensable tool for technology age, it is the role of mathematics teachers to provide opportunities to pupils to learn materials which may be considered new or modern.

During this time of pandemic, every learner has experience difficulties particularly in dealing with the lessons or activities in the Mathematics Subject. Considering the fact that for the past months on the implementation of the Modular Distance Learning Modalities having problems on the provision and submission of the modules and or Learners Activity Sheets (LASs). With the aforementioned premise, there are learners particularly in the intermediate level who were belong to the below 75 percent level of performances from the first to 3rd grading. This happens maybe because the learners are finding really difficult due to the absence of the teachers physically during the teaching and learning process thus learners may lack the application of skills and techniques to develop their critical thinking, reasoning power and creative minds which they use in working independently in any kind of Mathematics activities.

The best approach for teaching Mathematics is the Discovery Approach. In this new normal scenario of teaching-learning, these SLMs will be utilized on the context as learning materials in

Geography, Cultural Diversity, and Individuality that will help teachers and learners comprehend concepts by relating and presenting lesson on the context of prevailing local environment. This will provide opportunities of organizing awareness and sequences of experiences to reflect special interest to learners; thus allowing teachers to focus on learner's deficiencies on the subject matter.

With the aforementioned details, the researcher as school head wanted to know whether the contextualized self-learning modules is really effective in improving the performance of the intermediate pupils and at the same time will help the learners help them improve their understanding on the different competencies in the Mathematics subject. Thus, she is greatly motivated to focus on her study on the effect of contextualized self-learning modules to the performance of the intermediate pupils in mathematics.

This study aimed to determine The Effectiveness of Contextualized Self-Learning Modules and performance of Multi-grade pupils in mathematics. The findings of the study were the basis for a proposed Improvement plan.

Specifically, this study sought to answer the following questions.

1. What is the pretest performance of the Multi-grade pupils in Mathematics before the integration of contextualized Self-Learning Modules?
2. What is the posttest performance of the intermediate pupils in Mathematics after the integration of contextualized Self-Learning Modules?
3. Is there any significant difference on the pretest and posttest performance of the intermediate pupils in Mathematics before and after the integration of Contextualized Self-Learning Modules?
4. What improvement plan can be proposed based on the findings of the study?

Statement of Null Hypothesis

Ho1.: There is no significant difference on the pretest and posttest performance of the intermediate pupils in Mathematics before and after the integration of Contextualized Self-Learning Modules.

II. Methodology

Design. This study utilized the Quasi-Experimental type of research in gathering the responses employing the quantitative approach. Imleda Elementary School In Matag-ob District in the Division of leyte is the main locale of the study. The Multi-grade pupils are the main respondents of the study and the data based on the students' performance based on the pretest and posttest were utilized. This research is mainly focused to gather data on: The effectiveness of

Contextualized Self-Learning Modules and Performance of the Multi-grade pupils in Mathematics; Proposed Action Plan based on the findings of the study.

Sampling. There are twenty multi-grade pupils who are included in the study and the primary means of reach is through Facebook account as well as the cell numbers of the Parents and guardians.

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 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 teacher used Division Contextualized Self-Learning Modules.

After conducting the pretest, the researcher immediately started the intervention/activities by giving the printed Contextualized Self-Learning Modules to the identified respondents. Moreover, posttest was automatically follow to evaluate or validate the effectiveness of the Contextualized Self-Learning Modules to the performance of the intermediate pupils in Mathematics.

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 was done separately.

Treatment of Data. The effectiveness of Contextualized Self-Learning Modules and Performance of the Multi-grade pupils in Mathematics on the area focused was treated through a weighted mean and descriptions (refer to appendices for the scoring and description). Performances both the pretest and posttest of the multi-grade pupils were gathered through the use of rating rubrics and the results were treated through weighted means and T-test of Mean Difference.

III. Results and Discussion

Table 1
 SAMPLES STATISTICS ON THE MATHEMATICS PERFORMANCE OF MULTIGRADE PUPILS EXPOSED TO CONTEXTUALIZED SELF-LEARNING MODULES

| Test | Mean | MPS | N | Std. Deviation |
|---------|------|------|----|----------------|
| Pretest | 22.0 | 55.0 | 20 | 2.78 |

Table 1 shows the sample Statistics on the Mathematics Performance of Multi-grade pupils exposed to contextualized Self-Learning Modules based on the most essential learning competencies in a specific period of time. This multi-grade respondents of the research are living in a far flung areas or living far from each other, thus the Researcher has the difficulty in reaching the learners specially in giving the modules and do follow up every time the results in their self-learning modules are not really that good. Based from the results given in table 1, It shows from the raw data is below seventy five (75) percent or did not even hit the sixty percent from the total number of item which is forty (40) which resulted to a Mean quotient of 22.0. The result of the Mean is further notified with the Mean Percentage Score which is only fifty five (55) percent which is for the researcher at the same time the respondents teacher is not really great because it does not attend the standard or norms in identifying the learners being passed on a certain level. The aforementioned Mean and Mean Percentage Scores are resulted to a Standard Deviation of 2.78 out from the twenty (20) total number of respondents.

The results in table 3 on the pretest performance of the multigrade pupils in Mathematics before the integration of contextualized Self-Learning Modules implied that the multi-grade pupils showcased their performance in answering the questions in the pretest found in the modules are not quite good considering the 55.0 percent in Mean Percentage Score (MPS) to the majority of the twenty (20) respondents who took the exam. The result could mean that they need more strategies or methods in order to increase their score performances because it is really very low which means almost not passing to the standard based on DepEd Order number 31 s. 2020. One of the reasons why they gained a very low or fair performance is that they have really no idea in the different learning competencies that the teachers shared to them using the self-learning modules. Another reason for the low performance is that the respondents are living from far flung areas which resulted to experience in getting the modules from the teachers in their school which could lead them not to answer a specific learning competencies for a given period of time. Another premise of the aforementioned results is that some of the parents or guardians of the respondents are having difficulties in comprehending the Self Learning Modules from the central office in the sense that the language used in the modules are not their LI which means that both parents and learners and having difficult times in understanding them. Based from the aforementioned reasons, maybe those are believable because there will be no regular contacts of teachers and learners during the teaching and learning process and there will be interaction happens. When the pupils

are having the difficulty in understanding the lesson and difficult to answer the worksheets meaning they don't have the leisure to ask the teachers to find what are the gray areas in the lessons they found out.

Table 2
SAMPLES STATISTICS ON THE MATHEMATICS PERFORMANCE OF
MULTIGRADE PUPILS AFTER EXPOSED TO CONTEXTUALIZED SELF-
LEARNING MODULES

| Test | Mean | MPS | N | Std. Deviation |
|----------|------|------|----|----------------|
| Posttest | 32.0 | 80.0 | 20 | 2.61 |

Table 2 shows the sample Statistics on the Mathematics Performance of Multi-grade pupils after exposing to contextualized Self-Learning Modules based on the most essential learning competencies in a specific period of time. This multi-grade respondents of the research are already exposing the new strategy in learning the subject in Mathematics which comes from the teachers idea on how to make the self-learning modules more relatable to the taste of the multi-grade pupils and could be the potential materials to improve their performances compared in the pretest. Based from the results given in table 1, It shows from the raw data which is already above the seventy five (75) or hitting the national standard in terms of the grading system based on the policies or guidelines in giving remuneration to the students from their performances exerted on their different areas of concern. This quotient from the Mean which is coming from the summation of the scores divided by the number of respondents who took the exam which is equal to 32.0. The result of the quotient of the Mean is further notified with the Mean Percentage Score which is equal to Eighty (80) percent which is for the researcher at the same time the respondent's teacher having feeling great because it does hit the standard or norms in identifying the learners being passed on a certain level. The aforementioned Mean and Mean Percentage Scores are resulted to a Standard Deviation of 2.61 out from the twenty (20) total number of respondents.

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or skills in learning the learning competencies which could somehow lead them to answer a specific learning competencies for a given period of time.

Another premise of the aforementioned results is that some of the parents or guardians of the respondents can already guide their children in the sense that it is also based on their understanding which could lead them to comprehend very well the contextualized Self Learning Modules initiated from the Division Office. Another reasons why the learners can easily understood the modules because the language used in the modules are their LI which means that both parents and learners could understand with each other's strength and weaknesses.

Table 3

PAIRED SAMPLES T-TEST OF THE MATHEMATICS PERFORMANCE OF MULTIGRADE STUDENTS BEFORE AND AFTER EXPOSURE TO CONTEXTUALIZED SELF-LEARNING MODULES

| | Paired Differences | | t | df | p-value |
|----------|--------------------|------|---------|----|---------|
| | MEAN | S.D. | | | |
| PRE-POST | -9.9 | 3.13 | -14.158 | 19 | <.001** |

**Highly Significant

Table 3 presents Paired Samples T-Test of the Mathematics Performance of Multigrade Students Before and After Exposure to Contextualized Self-Learning Modules. Table number 3 showcased the effect of each learner's performance before and after the utilization of the aforementioned strategy or intervention in order to bridge the learners low performance to a greater one. Based on the results showcased in table 3• The result of the t-test for paired samples indicates that the posttest mean of 32.0 is significantly higher compared to the pretest mean of 22.0 ($t = -14.158$, $df = 19$, $p\text{-value} < .001$). Therefore the null hypothesis which states that there is no significant difference between the pretest and posttest performance of the multigrade pupils in Mathematics before and after the integration of Contextualized Self-Learning Modules is rejected.

The result of this study which focuses on the significant difference in the pretest and posttest scores of the multi-grade pupils before and after the utilization of the contextualized self-learning modules indicates that the use of contextualized Self-learning modules approach in teaching mathematics for multigrade students could potentially enhance the learning of the students in this subject.

This could be possibly mean that contextualized self-learning modules which generated from the central office based on the most essential learning competencies plays an important part in improving the skills or performances of the multi-grade pupils. Moreover, it improve skills

pupils or maintain their performance as they fully utilized the said intervention.

IV. Conclusion

Based on the findings of the study, it showed that the Contextualized Self-Learning Modules are significantly effective in increasing or maintaining the performance of the Multi-grade pupils.

V. Recommendations

1. The Intervention Plan should be fully utilized by the teachers.
2. That contextualized Self-Learning Modules should be utilized by the teachers handling Multi-grade learners in order for them to be more motivated in their lives as learners.
3. The Chief in CID and other Education Program Supervisors handling Mathematics Subject should religiously evaluate Contextualized Self-Learning Modules basing the Most Essential Learning Competencies as well as utilizing the norms or standard set by the Bureau of Learning Resources to attain success in conducting quality assurance to the Learning Materials crafted.
3. The School Principal should conduct In-Service Training on how to craft contextualized SLMs based on the needs of the learners specially those learners specially the multi-grade pupils.
4. The School Head should conduct observation either in limited face to face or virtual using the Regional Memorandum No. 263 s. 2018.
5. Furthermore, the researcher allows future researchers to conduct the same study to verify the effectiveness of the learners activity sheets to the performance of the multi-grade pupils.

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The author is born on February 21, 1979 at Sto. Rosario, Matag-ob, Leyte Philippines. She finished her Bachelor of Elementary Education at Saint Peter's College. She is currently pursuing to finish her Master's Degree in Administration and Supervision at Western Leyte College, Ormoc City.

Currently, she's an Officer-In-Charge in the Department of Education and assigned at Malazarte Elementary School and Cambadbad Elementary School, Matag-ob District, Division of Leyte, Philippines. A multigrade teacher for 18 years handling three grade levels and a consistent Rank 1 Most Performing Multigrade Teacher Awardee for 5 consecutive years from 2016-2020. Been hailed as an "MG IDOL" District Level, awarded by the Municipal Mayor and the District Awards Committee last January 2021.

These accomplishments proved her compassion for her chosen profession, and if God-willing, she would fulfill her true calling for utmost professional growth in the next years as an educator. Living with her the Bible Quote from the Book of Jeremiah 29:11-" For I know the plans I have for you. Plans to prosper you and not to harm you". Truly, she's an altruistic school leader.