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Distance modular learning for practical research 2: Its implications to grade 12 learners' achievement, mastery and experiences to learn

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Abstract

The study examined the mastery, achievement and learning experiences of the grade 12 on understanding and nature of variables and their uses in practical research 2. Employing a descriptive-comparative study. The study comparatively described the significant difference on the conducted pre-test and posttest. The 99 students were purposively selected across the school track offering. In addition, a 30-item test was utilized to determine mastery, achievement on understanding and nature of variables and their uses in practical research 2. The result of the study before the conduct of the intervention revealed that students manifested low mastery even teacher is present. In addition, the use of intervention provided in improvement on the mastery of the students towards understanding and nature of research. Furthermore, it provides high effect on the use of intervention in improving mastery and achievement of the students. The study implies that the use modular distance learning facilitated by online teaching had shown improvement on the mastery of the learning competency. It further recommends that use of intervention and modular distance learning should effectively use across learning competency in writing practical research.

Keywords: intervention, learning modalities, learning approach, performance, teaching

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1. Introduction

Education institutions such as schools, colleges and universities are based on their traditional face-to-face methods of learning and teaching. However, with the onset of COVID-19 had shaken the entire world and even the Philippines. The present situation had challenged the education system across the entire world and forced the education sectors to shift to a distance learning education. Shigvangi (2020) mentioned that many of the academic institution that are earlier reluctant to change their traditional pedagogical approach had no option but to shift entirely to distance teaching and learning. With the current state of the Philippine government coupled with crippling pandemic, notable impact on economy and education has been observed. The Department of Education issues guidelines prohibiting public schools in areas with suspended classes from administering the final examinations for students and instead computes the final grades of students for the academic year based on their current academic standing. These circumstances made us realize that scenario planning is an urgent need for academic institutions (Reiley, 2020). This is a situation that demands humanity and unity. There is an urgent need to protect and save our students, faculty, academic staff, communities' societies, and the nation as a whole.

The Department of education has introduced its Basic Education Learning Continuity Plan (BE-LCP) which states the different adoption of various learning delivery options such as but not limited to face-to-face, blended learning's, distance learning's, and home schooling and other modes of delivery which will be implemented depending on the local COVID Risk Severity Classification and compliance with minimum health standards. (DepEd Order No.12 s2020). Electronic learning (e-learning) has been considered as the most common delivery media for education being developed to which the demand for e-learning opportunities have risen in recent years, many professionals are beginning to question whether students are prepared to be successful in an online learning environment. After all, the demonstrated success of students in a conventional education and training classroom may not be an adequate predictor of success in an e-learning classroom (Dhawan, 2020).

Online learning is a tool that makes the teaching-learning process more student-centered, more innovative, and even more flexible. It also the learning experiences in synchronous or asynchronous environments using different devices such as mobile phones, tables and laptops with internet access. It is seen in here therefore that students can be anywhere to learn and interact with teachers and other students. (Singh & Thurman, 2019). The synchronous learning environment is structured in the sense that real-time interactions between teacher and learners and there is an instant feedback, whereas asynchronous learning environment are not properly structured. Instant feedback and immediate response are not possible under such environment (Littlefield, 2018).

Given the anticipate disruptions in face-to-face holding of classes, and the need for social distancing, distance learning will be a major component of learning delivery for this incoming school year. The fears and apprehensions of our learners, parents and teachers of Dupax del Sur National High School has revealed its basic education learning continuity plan in which 72% of the total respondents had considered that the learning delivery mode of the school will be the Modular Distance learning. The survey was conducted last April to May of this year during the conduct of the early registration and remote enrolment. The establishment of different community learning center as a drop point and delivery of learning packages has paved the major shift in the conduct of basic education. Consequently, this study will attempt to determine the appropriateness of distance modular learning platform for teaching and learning in the new normal. It aims of understanding its implication towards learners' achievement, mastery and experiences in the new normal form of achieving basic education.

2. Methodology

The intervention in this study was the modular distance learning. This refers to a learning delivery modality where learning takes place between the teacher and learners who are geographically remote from each other during instruction. The study used the descriptive-comparative study. It is descriptive in nature since the study described the implication of the modular distance learning as intervention of the study. This also includes describing the mastery and achievement level of the students on differentiating kinds of variables and its uses. The study implored comparative approach. This means that it compares the pre-posttest of the students toward the learning competency and understands if there is a great change in the mastery of the students using the learning modality. Formative assessment was administered to the students to assess their achievement level and mastery in differentiating kinds of variables and its uses while an anecdotal note was being used to determine the learning experiences in learning the subject through modular distance learning.

The participants in this study were captured from the Grade 12 students coming from Academic track (ABM & GAS) and TVL track (EIM/HE) students. The basis in determining the participants were based on the mastery level descriptions standards based rating (2019). Prior to the administering of pre-test, a formative assessment was given after the discussion of the kinds of variables and its uses. A diagnostic assessment was given to the students. The test is composed of 40-item test along Practical Research 2 lessons. A TOS was provided duly checked and verified by content experts teaching in research. The coverage of the test evolved around kinds of quantitative research, importance of quantitative, variables, types of data and research approaches as well as treatment of data such as descriptive and inferential statistics. The researcher conducted the pre-test two weeks before the utilization of the modular distance learning. The test was included in the learning kit that was distributed in the different learning center.

The levels of achievement among Grade 12 Learners on differentiating kinds of variables and uses of PR 2, scores on their formative test such as the various learning activity sheets (LAS) was converted to mean percent scores (MPS). In addition, the mastery level, students' scores on the summative tests (pre and post) determined based on the mean percent scores per learning competency/topics discussed. The experiences of the students to learn practical research 2, qualitative analyses were made through open and axial coding systems.

3. Results and Analysis of Data

The achievement level of the grade 12 learners in practical research 2 based on the administered diagnostic test is presented on the table below.

Table 1

Achievement level of grade 12 learners in practical research 2

Learning activities	Learning competency	MPS	Qualitative description
Multiple Choice	Nature of Variables	77.00	Proficient
Activity 2. Name It	Different kinds of variables	72.17	Basic
Multiple Choice	Uses of variables	86.44	Proficient
Overall MPS		78.54*	Proficient

Legend: MPS= Mean Percentage Score; 91-100 Advanced; 81-90 Proficient; 71-80 Basic.

The overall achievement level of the learners in practical research 2 is 78.54 with proficient qualitative description. It means there is a strong academic performance in the subject matter. This implies that the learners have retained knowledge and mastery on the rudiments of research in terms of identifying and uses of variables in quantitative research. This may be denoted on their knowledge on the practical research 1. More so in the recall of variables and uses the respondent has achieved MPS = 77.00 showing proficient. However, the respondents achieved MPS=72.17 in the kinds of variables provided in the activity. The respondents able to identify such variables however, they able to interchange its uses or simply show difficulty in determining variables and its uses. However, when the teacher explained the differences of the various variables and its uses,

the respondent improved achievement of MPS= 86.44.

Table 2

Mastery level of grade 12 learners before the conduct of intervention

Learning Competency	Competency Code	MPS	Qualitative Description
Nature of variables	CS_RS12 1a-c-2	60.48	Little Mastery
Different kinds of variables	CS_RS12 1a-c-3	50.00	Very Little Mastery
Uses of variables	CS_RS12 1a-c-3	51.60	Very Little Mastery
	Overall MPS	54.03	Very Little Mastery

Legend: 0-59 Very Little Mastery; 60-69 Little Mastery; 70-79 Approaching mastery; 80-89 Mastered and 90-100 Advanced.

The overall MPS before the conduct of intervention showed 54.03 MPS with very little mastery. This signifies that learners had very little understanding of the concepts and learning competencies and that there is a need for teacher assistance. While on the nature of variables exemplify little mastery among the learners. However, on the different kinds of variables and uses of variables recorded a MPS= 50.00 and MPS= 51.60 respectively. This implies that there is very little mastery on the given learning competencies and understanding which requires them with teacher assistance. Furthermore, the presence of intervention will not simply define the success in terms of mastery of the learners (Dhawan, 2020).

Table 3

Mastery level of grade 12 learners after the conduct of intervention

Learning Competency	Competency Code	MPS	Qualitative Description
Nature of variables	CS_RS12 1a-c-2	82.95	Mastered
Different kinds of variables	CS_RS12 1a-c-3	85.00	Mastered
Uses of variables	CS_RS12 1a-c-3	82.71	Mastered
	Overall MPS	83.57	Mastered

Legend: 0-59 Very Little Mastery; 60-69 Little Mastery; 70-79 Approaching mastery; 80-89 Mastered and 90-100 Advanced.

The grade 12 mastery level after the use of intervention showed an overall MPS= 83.57. This means that learners meet the expectation or learning objective of the given learning competencies. While different kinds of variables obtained the highest MPS= 85.00 with mastery and nature of variable obtained MPS=82.95 and the least one is uses of variables with obtained MPS= 82.71 respectively. The findings of the learning competency after using the intervention manifested mastery among the learners and able to meet the expectations desired in the competency. It is true based on the immediate feedback and instant respond of the teachers (Littlefield, 2018) in improving mastery among learners.

Table 4

Difference on the mastery level of grade 12 learners before and after the conduct of intervention

Variables	Mean difference	t-value	Effect size	p-value	Decision
Pretest	20.683	-18.762	0.80	0.000	Significant
Post test	33.268				

Note: p-value<= 0.05

Basing from the table above, the p-value is less than the computed value therefore the hypothesis is rejected. This further explains that the average difference of the pretest and posttest is statistically significant in which the p-value= 0.000, it means that the t-value=-18.762, which is not in the 95% percent critical value therefore, it implies that there is significant improvement on the mastery of grade 12 learners towards the identified learning competency. Furthermore, the integration of the intervention showed a great effect= 0.80 which is high effect on the magnitude and mastery of the learning competency. These findings agree with the integrations of technology-based intervention made the learning easy and understandable by the learners (McBrien et al., 2009). Nonetheless, students can easily interact with their teachers and able to progress their learning with the learning competency measured (Singh & Thurman, 2019).

Table 5

Learning experiences of grade 12 towards the use of intervention.

Themes	Indicators	F	%
Personal aspects related to learning the modules	Students underwent part time jobs. Students feel sense of isolation missing face to face.	25	25
Use of technology and course delivery resources	Use of other technology-based resources. Use of online materials to answer the modules.	14	14
Teacher support	Teacher monitors and facilitates and explain lesson. Teacher ask questions in the chatbox of the class	40	40
Parent support	Parent facilitating learning and teaching. Parent monitor progress on answering modules.	20	20
SLM or LAS content	The learning content or body are self-explanatory.	38	38

The learning experience of the students has considered the intervention material simply indicate that the modules are helpful even though that they are having part time jobs able to answer module. Especially so the use of technology and delivery resources are greatly helpful with the guidance of their parent and teacher support. Overall the content of the SLM and LAS content are self-explanatory.

4. Conclusion

In the identifying the efficiency of the utilized intervention towards its implication in the achievement, mastery and learning experiences of grade 12 students. In the light of foregoing findings, it can be concluded that:

- The achievement level of the grade 12 learners on practical research 2 showed proficient level. This further implies that the students had gained mastery in their previous practical research 1. However, there are some students who obtained below grade this means that student shows low mastery on the understanding of variables and its uses.

- The utilization of the intervention showed efficiency towards the mastery of the learner. Prior to the conduct of the intervention, the learners cannot display mastery with the presence of the teacher in explaining the nature and kinds of variables and its uses. However, a significant change in the mastery of the students after the conduct of the intervention in which the students exceed expectation and mastery in the derived competencies under study.

- The efficiency of the intervention improved the mastery of the students in which the teacher and learner communicate to progress their learning.

- Among the learning experiences of the students denotes a positive or negative impact towards measuring the efficacy of the intervention used. Among the positive impact showed teacher and parent support, SLM or LAS content while the negative impact was based on the personal aspect related to learning and suggestive aspect of learning. The learning experiences of the students on the use of the intervention have significant contribution on the improvement of the mastery of the students in the learning competency understudy.

4.1 Recommendation

The study further recommends on the following:

- Based on the achievement of the students showed a significant proficiency on the subject areas of practical research. It recommends by looking into the factors that affect the mastery of some students. The teacher must check on the results of the item analysis to further improve the most difficult item and remove easy questions found in the diagnostic test.

- The utilization of the intervention with facilitated teacher online teaching must be strengthened and

recommend further to look into other utilization of the material using two groups to further study its efficiency in improving mastery of the students.

- The efficiency of the intervention shown significant change in the mastery thus further recommend to utilize further said modular distance learning towards completion of the learning competencies in practical research 1 to see the effect on other learning competencies.

- The identified learning experiences of the learners should be address to help ease academic gap by devising plan of action to address the identified factors.

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