Project ROOM (Reinforcement of Online and Offline Modality): An e-learning Approach for Quality Measurements of Learner's Academic Performance

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ABSTRACT

The researchers used Project ROOM (Reinforcement of Online and Offline Modality) as an e-Learning Approach for Quality Measurements of Learner's Academic Performance. It aims to determine the trend of learner's performance in three grading period from the 2nd quarter to 4th quarter of the S.Y. 2020 – 2021 of Grade 7 learners of Biliran National Agricultural High School (BNAHS). The simple random sampling was used to determine the samples which enables the researchers to come up with 62 respondents. The provision of e-learning resources focused on the difficult competencies found in the Most Essential Learning Competency (MELC).

The data were presented, analyzed and interpreted by adapting the proficiency level template found in the Progress Monitoring and Evaluation Sheets (PROMEDS). In terms of finding the significant improvement of the learner's performance, the bar graph was used and it was found out that the learner's performance was increasing in three grading periods across subject areas except for mathematics. Moreover, the Analysis of Variance (ANOVA) F-Test was used to measure its significant increase and the result confirmed that the improvement was highly significant with p-value of .001. Based on the result of the study, the researchers have reflected that e-learning approach help the learners perform academically, thus, it recommends the school to continuously implement e-learning approach as reinforcement for modular distance learning this time of Covid-19 pandemic.

Keywords: *e-learning, Academic Performance, Proficiency Level*

INTRODUCTION

E-learning has grown tremendously over the past several years as technology has been integrated into education and training. E-learning may be defined as instruction delivered electronically via Internet, Intranets, or multimedia platforms such as CD - ROM or DVD, and Flash Drive (Hall, 2003) [1]. E - learning can be implemented in a variety of ways, such as through the use of self-paced independent study units, asynchronous interactive sessions where participants interact at different times or synchronous interactive settings where learners meet in real time (Ryan, 2001) [2]. Thus, an E – Learning can be an online learning wherein the learners can interact the learning session in real time through Google meet, Zoom and other online learning platform. E-Learning can also be an offline learning where the students can learn the lesson interactively by watching the interactive video lesson made by the teachers.

Interactive instruction or learning by doing, has been found to result in positive learning outcomes (Picciano, 2002) [3]. Many new

technologies and web-based activities are interactive, online coursework has the potential to create environments where students actively engage with material and learn by doing, refining their understanding as they build new knowledge (Johnston, Killion & Omomen, 2005) [4]. Technology and online instruction can facilitate learning by providing real-life contexts to engage learners in solving complex problems (Duffy & Cunningham, 1996) [5]. E-learning can potentially provide many important payoffs. To learners, online instruction offers the flexibility and convenience to complete learning units when and where a learner desires. Additionally, online education has been used to reduce costs and to provide an efficient, standardized way to deliver content (McDonald, 1999) [6].

The study conducted by Zhang et al. (2006) showed that the effectiveness of e-learning through video depends on the provision of interactivity [7]. Another study found that the e-learning effectiveness is highly interlinked with interactive learning activities, multimedia instruction and the quality of e-learning (Liaw, 2008) [8]. On the said study it was found from the study that it is tough to ensure e-learning effectiveness to improve the enactment of teaching since a teacher can apply various strategies as required. E-learning provides the freedom of learning which is interactive and entertaining. E-learning can be more effective than traditional classroom learning for students which will provide them updated knowledge to achieve the goals (Johnson et al., 2000) [9]. Furthermore, e-learning is a learner centered that facilitate to acquire skills by wide range of ways including image, video, text etc.

According to Paechter and Maier (2010), online learning does not only provide students with time and place flexibility, but also with the ability to apply one's knowledge and meta-cognitive self-regulation strategies such as monitoring one's learning progress [10]. Chen et al. (2010) found that students using online learning platforms are more likely to make use of deep approaches of learning like higher order thinking, reflective learning, and integrative learning in their study and they reported higher gains in general education, practical competence, and personal and social development [11]. Furthermore, according to Chen et al., (2010) students who engage in online learning tend to score higher marks than those who do not [12]. ICT-based learning platforms further adversely affect lecture attendance as students can easily access learning resources such as PowerPoint slides online (Traphagan, Kucsera, & Kishi, 2010) [13].

The Biliran National Agricultural High School (BNAHS) used Modular Distance Learning approach as a learning platform in the delivery of a new normal learning situation amidst the pandemic. As mandated by the department of Education, No Face-to-Face Classes under the new normal learning condition. By shifting from Face – Face to Distance modular learning, the school made an intervention to facilitate and deliver this learning platforms for better and quality education.

However, based on the result of the first quarter examination and its proficiency level in general only 18.01% of the students obtained an Outstanding, 53.68% were Very Satisfactory, 24.14% were Satisfactory and .28% were Fairly Satisfactory. Based on the students' achievement, Junior High School obtains 83% average rating while the Senior High School obtained 84%, these two ratings were interpreted as Satisfactory and it was quite far from the Very Satisfactory and Outstanding academic performance.

The foregoing facts motivates the school to implement Project ROOM (Reinforcement Offline and Online Modality) which was conceptualized by the teachers with the leadership of the School Head to address this dilemma and at the same time the said project was found suitable as teaching strategy this time of pandemic. Project ROOM serves as an intervention and another learning platform to deliver quality

education in a distance learning modality. Its primary objective is to improve the academic achievement of the learners and its proficiency level in general.

It is therefore in this basis that the researchers prompted to conduct the action research to improve the academic performance of the Junior High School (JHS) students in Biliran National Agricultural High School through this Project ROOM.

RESEARCH QUESTIONS
The study aimed to determine the improvement of learner's academic performance and specifically sought answers to the following questions:
1. What is the academic performance of the Grade 7 students in the second, third and fourth quarter of the School Year 2020 – 2021 on the following subjects?
   a. English
   b. Filipino
   c. Mathematics
   d. Science
   e. Araling Panlipunan
   f. MAPEH
   g. EsP
   h. TLE
2. What is the trend of learners' academic performance in three grading period?
3. Is there a significant improvement on the learners' academic performance in the three quarters?

RESEARCH METHODS
a. Participants and/or other sources of data and information
The study was conducted in Biliran National Agricultural High School for the school year 2020-2021. It was focused on the Most Essential Learning Competency (MELC) and particularly on the difficult competencies of Grade 7 across subject areas. Teachers made video lessons based on the identified difficult competencies. The study only applies in the second, third and fourth quarter of the school year.

b. Data Gathering Methods
In collecting data, the researchers utilized the template of the SMEA report in a quarterly basis. These data were submitted to the Grade Level Coordinators and reported quarterly during the conduct of the School Monitoring, Evaluation and Adjustment (SMEA) where the proficiency level of their learners is reflected on the said report. The grades of the identified respondents were asked from their respective advisers where they were submitting it every end of the quarter with the inclusion of the following subjects: English 7, Mathematics 7, Science 7, Filipino 7, Araling Panlipunan 7, MAPEH 7, TVE 7 and EsP 7.

c. Data Analysis Plan
The data was analyzed and interpreted using the percentage and its proficiency level set by the DepEd as reflected in the Progress Monitoring and Evaluation Data Sheets (PROMEDS) where grades are categorized according to the following ranges:

90 – 100 Outstanding
85 – 89 Very Satisfactory
80 – 84 Satisfactory
76 – 79 Fairly Satisfactory
75 and Below Did Not Meet Expectation

Meanwhile, Analysis of Variance (ANOVA) F-Test was used to measure the significant improvement of the performance of the learners and proficiency level per quarter.

RESULTS AND DISCUSSION
This section presents the analysis and interpretation of data obtained in the study. It was based on the data gathered through the Progress Monitoring and Evaluation Data Sheet (ProMEDS). Those data were then analyzed, presented, discussed and interpreted.

The learner's academic performance was shown in Table I using the template

provided in the PROMEDS where the proficiency level of the learners is classified into different levels which are as follows; "Outstanding" for the grade ranging from 90 – 100, "Very Satisfactory" for the grade ranging from 85 – 89, "Satisfactory" for the grade ranging 80 – 84 and "Fairly Satisfactory" for 76 – 79. The learners decided not to include anymore the "did not meet expectation" for no one from the respondents have a grade of 75 and below.

Learners' Academic Performance

It was found out that the 2nd Grading Academic Performance of the Grade 7 learners, Science has the largest percentage across subject areas with 30 out of 62 or

48.49 percent in terms of Outstanding category followed by TLE with 29 out of 62 or 46.77 percent. Meanwhile, English with 1 out of 62 or 1.61 percent got the lowest number of learners belonging to Outstanding. The result may imply that the respondents found it difficult to perform in English rather than the in science. It further tells us that Video Lessons is more applicable in science than in English. Donkin, et al. (2019) confirmed that video aided instructions such as virtual microscopy, video demonstrations, an on-line interactive learning activities provides an effective and economic approach to learning and teaching [14].

Table I Learners' Academic Performance in the 2nd Grading S.Y. 2020 – 2021

SUBJECT	PROFICIENCY LEVEL								TOTAL
	Outstanding (90 – 100)		Very Satisfactory (85-89)		Satisfactory (80-84)		Fairly Satisfactory (76-79)		
	f	(%)	f	(%)	f	(%)	f	(%)	
English	1	01.61	22	35.48	38	621.29	1	01.61	62
Science	30	48.39	16	38.19	16	25.81	0	0	62
Mathematics	5	08.06	18	29.03	34	58.84	5	08.06	62
Filipino	12	19.35	37	59.68	13	20.97	0	0	62
Araling Panlipunan	24	38.71	22	35.48	16	25.81	0	0	62
TLE	25	40.32	19	30.65	18	29.03	0	0	62
MAPEH	25	40.32	22	35.48	15	24.19	0	0	62
EsP	29	46.77	31	00.50	2	03.22	0	0	62

The academic performance of the learners in 3rd Grading period proves the consistency of its results considering that it was the same subject; science, has the largest number of learners belonging to "Outstanding" with 36 out of 62 or 58.06 percent and still English

got the least number of respondents belonging to "Outstanding" with 5 out of 62 or 8.06 percent. Consequently, it could be concluded that video lessons and other video aided instructions is more applicable to science subject than in English.

TABLE II Learners' Academic Performance in the 3rd S.Y. 2020 - 2021

SUBJECT	PROFICIENCY LEVEL								TOTAL
	Outstanding (90 – 100)		Very Satisfactory (85-89)		Satisfactory (80-84)		Fairly Satisfactory (76-79)		
	f	(%)	f	(%)	f	(%)	f	(%)	
Grade 7									
English	5	08.06	10	16.74	46	74.47	0	0	62
Science	36	58.06	16	25.81	10	16.13	0	0	62
Mathematics	10	16.13	39	63.18	12	20.08	0	0	62
Filipino	12	19.25	38	60.67	12	20.01	0	0	62
Araling Panlipunan	30	48.54	29	47.28	3	04.18	0	0	62
TLE	26	41.42	21	33.47	16	25.10	0	0	62
MAPEH	27	43.93	26	42.26	8	12.55	0	0	62
EsP	35	56.45	26	41.94	1	00.83	0	0	62

In the 4th Grading Period, the performance of the learner in science constantly increased. At this point the were already 39 out of 62 or 62.90 percent. This only shows

that the provision of video lessons to our learners help them perform better academically particularly in science.

**TABLE III Learners' Academic Performance in the 4th Grading S.Y. 2020 - 2021**

SUBJECT	PROFICIENCY LEVEL								TOTAL
	Outstanding (90 – 100)		Very Satisfactory (85-89)		Satisfactory (80-84)		Fairly Satisfactory (76-79)		
	f	(%)	f	(%)	f	(%)	f	(%)	
Grade 7									
English	6	09.68	10	16.74	46	74.47	0	0	62
Science	39	62.90	8	13.39	15	24.19	0	0	62
Mathematics	10	16.13	40	64.85	12	20.08	0	0	62
Filipino	13	20.08	36	58.57	13	21.34	0	0	62
Araling Panlipunan	30	48.54	29	46.77	3	04.18	0	0	62
TLE	31	50.21	23	36.82	8	12.97	0	0	62
MAPEH	27	43.93	26	42.25	9	13.81	0	0	62
EsP	37	59.83	25	40.17	0	0	0	0	62

However, the data tells us that our learners still find it difficult to perform in English. The data connotes different things. The learners may find it difficult in learning English in spite of video lessons provision. English is more difficult in Science for Grade 7 learners. In addition, science teachers presumed to be more skilled in terms of making video lessons than English teachers which became an advantage to science teachers in coming up with a more interactive and interesting video lesson outputs.

Comparative Analysis on Learner's Performance
As depicted in the graph below all subjects show a good result which means that the learners perform better in all subject areas through the provision of video lessons. The graph has an increasing trend except for Mathematics where the 3rd and the 4th grading learner's performance shows the same result.

Figure 1 Comparative Analysis on Outstanding Proficiency Level for Grade 7
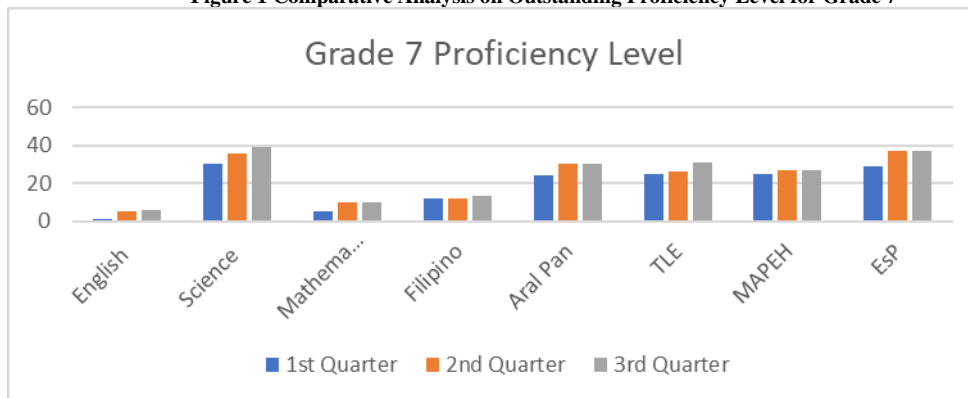
The increasing performance of the learners from the 2nd grading to the 3rd Grading period proves that e-learning approach in teaching both online or offline was beneficial to our learners. The present study was consistent to the previous study of Booster, et al. (2007), in which they found out that the video-streaming application resulted to higher academic performance particularly in science [15].

DIFFERENCES ON THE QUARTERLY PERFORMANCE OF THE RESPONDENTS
Table IV shows the differences of learner's academic performance in three grading periods. In relation to the data depicted in Figure 1 which refers to the comparative analysis, it has been proved through the table below that the mean has an increasing trend and its standard deviation also shows a good result.

Table IV Improvement on The Academic Performace of The Respondents

Grading Period	Mean	SD	F Computed Value	p-value	Interpretation
2nd Grading	83.532	4.068	12.939	.001	Highly Significant
3rd Grading	86.290	3.673			
4th Grading	86.710	3.578			

Furthermore, Table IV reveals that the learner's academic performance in three grading periods has a significant increase from 2nd grading to 4th grading with a computed p-value of .001 interpreted as "highly significant". The data implies that the provisions of off-line and on-line learning resources help the learners perform academically.

CONCLUSION
The researchers have come up with the following reflections along with the findings of the study.

First, the performance of the respondents improved and they were able to sustain it in three grading periods (2nd, 3rd and 4th).

Secondly, the intervention implemented by the researchers, which is the e-learning, wherein offline and online learning resources have been made available to the learners, was found beneficial to the learners since it helps them perform better.

Finally, a highly significant differences of performance in three grading periods have been proved through F-test Analysis of Variance (ANOVA) which implies that e-learning approach was found effective as the delivery of learning and reinforcement strategy to modular distance learning during Covid-19 pandemic.

Based on the reflections above, the researchers therefore recommend the continuous implementation of the e-learning approach as reinforcement to modular distance learning. Teachers of other grade levels or even in other schools may also adapt this approach to achieve higher learner's academic performance. Likewise, it is suggested to conduct similar studies to confirm the result of the study.

Conflict of Interest: The authors declare no conflict of interest.

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