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## Effectiveness of Blended Learning Approach to The Performance of Grade 7 Students in Physics

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**Abstract** — This study evaluated the effectiveness of the Blended Learning Approach to the performance of the Grade 7 students in Physics of Granja - Kalinawan National High School for the S.Y. 2020-2021. The findings were the basis for a proposed improvement plan. This study used the quasi-experimental method of research to evaluate the effectiveness of the Blended Learning Approach to the performance of the Grade 7 students in Physics. The results were the basis for an integration plan. The researcher utilized Universal Sampling in identifying the respondents of the study. The results in the test of the difference between the scores in the pretest and posttest of Grade 7 students in physics before and after the integration of blending learning approach during the teaching and learning process or in the delivery of the different most essential learning competencies in physics subject. Based on the findings found in table 3, there was a strong positive impact brought about by the blended learning modality or approach in teaching physics seeing the results in the table that the computed t value of 9.154, which is obviously greater than the critical t value of 3.441 from the posttest value of 38.76 which is greater than the pretest value of 8.66 and the hypothesis which state that there is no significant difference between the pretest and posttest performance of the grade 7 students in physics before and after the integration of the blended learning approach is rejected.

The result implied that the integration or utilization of the blended learning approach is significantly effective in improving the performance level of the Grade 7 students in physics, considering to the fact that there was a big leap of the test scores in the pretest to the posttest scores thus, it really helps the students' increase their performances and have active participation during the completion of the modules either hard copies or soft copies depending on the required requirements of the teachers. It also help Ignites the pupils' desire to learn and plays a purpose in a better teaching and learning atmosphere.

**Keywords** — *Effectiveness; Blended Learning Approach; Academic Performance; Grade 7 Students*

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## I. Introduction

Today, most of the school institution has used different learning strategies to improve the academic performance of the pupils/ students in their different learning pace and to produce learners that embedded with 21st-century skills and globally competitive.

The Department of Education devised different learning modalities to ensure that no learner is left behind in continuing education. My school is using the Printed Modular Distance Learning together with Audio / Video Instructions. We are using the Asynchronous Learning Approach, wherein the learners are given Learning Activity Sheets good for one week. For those students who have access to the internet and devices, aside from the Learning Activity Sheets, we also prepared audio/video instructions uploaded to their group chats in order to maximize learning.

According to Guderya's (2004) in his study that E-Learning has become one of the sets of tools for teaching and learning whereby the mere objective is to promote creativity among the student and teachers and how the integration of computers can be a means of improving teaching and learning within a schools system to acquire information through a variety of tools for learning.

One of the emerging technology tools for online learning is synchronous web systems or video conferencing tools (e.g., Blackboard Collaborate, WebEx, Saba Centra, Adobe Connect, Cisco Telepresence). This new technology, which affords a complete suite of communication features, has provided the opportunity for a high level of real-time, students-to-students and students-to-instructor interaction in online learning environments. The potential of these complex communication tools for providing virtual, yet interactive learning experiences that are closer to what is possible in face-to-face learning environments (Rourke, Anderson, Garrison & Archer, 2001a and b; Shi & Morrow, 2006).

Synchronous web-conferencing is one of the two communication methods (synchronous and asynchronous) used for delivery of course content and for course-related communication and interaction. While its use is still limited (Sloan, 2013), asynchronous method for delivery of online courses brings teachers and students together simultaneously in virtual spaces. Asynchronous method, on the other hand, delivers instruction without any specific timetable using communication tools such as e-mail, discussion boards, and web 2.0 tools. Although limited due to the relatively new synchronous web-conferencing tools, studies suggest that absence or presence of synchronous or live interaction affects student perception, motivation, interaction and sense of contribution (e.g., Barbour, McLaren & Zhang, 2012; Chen, Pedersen & Murphy, 2011; Falloon, 2011; Hampel & Stickler, 2012; Han & Johnson, 2012; McBrien, Jones & Cheng, 2009; Schullo, Hilbelink, Venable, & Barron, 2007; Teng, Chen, Kinshuk & Leo, 2012).

Based from the records on the Summative Test conducted by the researcher, the Grade 10 students in Physics shows very low in the Mean Percentage Score. This is maybe because of the type of strategy that the teachers are not implementing, which makes the students difficult to understand, the printed modules that were given to the students for a period of time. Another reason is that some of the students have had difficult times in returning the answered modules due to the location of the school in which it is located in the far-flung barangay and it's difficult to be given

a support thus, only a few gadgets (multi-media) can be used in the school that could possibly help the pupils improve their academic performance specifically in Physics.

Another reason for the low turnout of modules that resulted to a low mean percentage score is that Learners don't have parents or household members who can guide and support their learning at home thus, this research could be an avenue to create social interaction using social media support group so that they can exchange ideas with their fellow learners and ask for assistance and even give some feedback on the different instructional videos as used for supplementary resources. With those learners that don't have access to devices and the internet, maybe the teachers have the idea through this study such as provision of Learners' activity sheets that will be contextualized based on the learners type of learning.

From the aforementioned concerns, this study is conducted to address the students' need of Kalinawan National High School to increase the performance in Physics particularly to the Grade 10 pupils by integrating Synchronous Learning Approach as bases for an integration plan.

This study evaluated the effectiveness of the Blended Learning Approach to the performance of the Grade 7 students in Physics of Granja - Kalinawan National High School for the S.Y. 2020-2021. The findings were the basis for a proposed improvement plan.

Specifically, the study sought to answer the following questions:

1. What is the pre-test scores of the Grade 7 students in Physics before the integration of Blended Learning Approach in the delivery of the Most Essential Learning Competencies in Physics?
2. What is the posttest scores of the Grade 7 students in Physics after the integration of Blended Learning Approach in the delivery of the Most Essential Learning Competencies in Physics?
3. Is there a significant difference in the pretest and posttest scores before and after the integration Blended Learning Approach in the delivery of the Most Essential Learning Competencies in Physics?
4. What Improvement Plan can be proposed based on the findings of the study?

#### NULL HYPOTHESIS

1. Ho : There is no significant difference in the pretest and posttest scores before and after the integration of Blended earning Approach in the delivery of the Most Essential Learning Competencies in Physics

## II. Methodology

**Design.** This study used the quasi-experimental method of research to evaluate the effectiveness of Blended Learning Approach to the performance of the Grade 7 students in Physics. The results were the basis for an integration plan. The researcher utilized Universal Sampling in identifying the respondents of the study. Kalinawan National High School in the Division of Leyte is the main locale of the study. The research respondents of the study were the Grade 7 Students in Kalinawan National High School. There were 200 total number of pupils that were chosen through the universal sample technique.) and the data based on the pupils' performance ratings; pretest and posttest questionnaires in the Contextualized Learners' Activity Sheets were utilized. This research is mainly focused to gather data on: The Integration of the Contextualized learners' Activity Sheets in the delivery of the most essential learning competencies in the Modular Distance learning Delivery ; The performance of Kindergarten pupils during the during the utilization of the contextualized Learners' Activity Sheets was based on the matrix schedule; Proposed Improvement Plan based on the findings of the study.

**Sampling.** There were 282 Grade 7 Students who were included in the study, and the primary means of reach is through Facebook page, Messenger and cellphone numbers of the parents or guardians.

**Research Procedure.** The researcher prepared the research design and tools that were utilized in the study. The researcher formulated the following procedures as a guide in gathering of data:

The researcher asked permission from the Schools Division Superintendent as well as to the Public School District Supervisor (PSDS) of Kalinawan National High School to conduct a research study.

The research instrument was given to the Grade 7 Students based on the validated learning materials which was the Video Lessons, Contextualized Learners' Activity Sheets and or Self-learning Modules coming from the DepEd Central Office. The researcher personally administered to the identified respondents. Then the Researcher used the aforementioned different learning Materials in delivering the Most Essential Learning Competencies to the Grade 7 Students that underwent series of validation prior to the usage.

In the collection of data from the Grade 7 Students, the researcher utilized the pretest and posttest performance during the intervention and delivering of the most essential learning competencies to get the gauge in the utilization and integration of the Blended Learning Approach. Moreover, the platforms used by the researcher in getting the data was through different media platforms such as messenger, cell phones, emails.

After conducting the pretest, the researcher immediately starts the activities by giving the different learning materials, Video Lessons on the topics based on the most essential learning competencies in Science particularly in Physics Subject, (Contextualized Learners' Activity Sheets) and Self Learning Materials were also utilized which are carefully validated by the immediate. After the

given allotted time to the Respondents, the researcher was then give the posttest to see to it if there are improvement in the performance of the Grade 7 Students after the intervention was done for a specific period of time in Physics.

Lastly, the researcher consolidated the data of the Grade 7 Students in the form of test scores based on the areas mentioned in the DepEd order 31 s. 2020.

**Ethical Issues.** The right to conduct the study was strictly adhered through the approval of the different School Administrators, approval of the Superintendent of the Division. Orientation of the parents or guardians as well as to the teachers of the respondents was done.

**Treatment of Data.** The effectiveness of the Blended Learning Approach were focused on the pretest and posttest was treated through a weighted mean and descriptions (refer to appendices for the scoring and description). It was also treated through weighted means and T-test of Mean Difference.

### III. Results and Discussion

TABLE 1

#### PERFORMANCE OF GRADE 7 STUDENTS BEFORE BLENDED LEARNING

Score Range	Description	PRETEST	
		Frequency	%
41-50	Excellent	0	0
31-40	Very Good	0	0
21-30	Good	0	0
11-20	Fair	87	27
0-10	Poor	234	73
Total		321	100
<b>Weighted Mean</b>		<b>8.66</b>	<b>Poor</b>

The table 1 above shows the performance of the Grade 7 students before the integration of the blended learning approach. In this time of activity, the Grade 7 students solely receiving the original learning modality, which is actually the Printed Modular Learning Modality in which it was chosen not only for Leyte Division but the entire DepEd, regional Office. Based from the results in table 1, it shows that among the three hundred twenty one (321) respondents none of the pupils achieved an excellent, very good and good level of performances in which they have the

score ranging from 41-50, 31-40 and 21-30. Majority of the Grade 7 pupils falls in the Poor level of performance with the score ranging from (0-10). In this level of performance, there were two hundred thirty four (234) or 73 percent out of the 321 total number of respondent while in the fair level there were 87 respondents or 27 percent which is considered as the least number of frequency of Grade 7 students before the integration of the blended learning approach.

Based on the result on table 1 which focuses on the pretest performance before the integration of the identified intervention. The result implied that since the most of the Grade 7 students who took the pre-test are belong in the poor and fair level of performances in physics which resulted to the weighted mean of 8.66 which interpreted as Poor connotes difficulty of the grade 7 student to learn the topics/competencies in physics subject. Some of the reasons why the grade 7 got a very low performance is because the some of the lessons were new to them and quite complicated due to the fact that they have the difficulty in learning due to pandemic. Secondly, due to the use of purely printed modules in delivering the lessons, thus pupils were not that motivated to learn the skills because there were students who are not fun of answering or learning the lessons on purely reading the whole time.

Furthermore, the majority of the pupils needs to experience another strategy in teaching in order to be motivated in their study, particularly in learning Physics.

**TABLE 2**  
**PERFORMANCE OF GRADE 7 STUDENTS AFTER BLENDED LEARNING**

Score Range	Description	PRETEST	
		Frequency	%
41-50	Excellent	56	17
31-40	Very Good	179	56
21-30	Good	86	27
11-20	Fair	0	0
0-10	Poor	0	0
Total		321	100
<b>Weighted Mean</b>		<b>38.76</b>	<b>Very Good</b>

Table 2 presents the posttest performance of the Grade 7 students in Physics after the integration of blended learning approach that focused on video lessons and printed modules and other teaching strategies that does not focused only on the printed modules in teaching physics. The results shows that none or 0% percent belong in the poor level and fair level of performances. In the good level of performance, there were 86 grade 7 students or 27 percent out of the 321 total number of respondents. There were 179 total number of respondents or 56 percent in the very good level from the score ranging from 31-40 In the excellent level of performance, there were

56 total number of respondents or (17%) got the corresponding scores from 41-50.

The results implied that after the integration of the blended learning modality in the delivery of the different most essential learning competencies in the physics subject there were big positive impact which means the results from the pretest and posttest are increasing in terms of the number of frequency in each performance level. In other words, the grade 7 students really doing well in learning the physics subject when there were integration of virtual interaction or audio-video in teaching lessons aside from the delivering the lessons in the normal scenario in which giving of printed modules to the students. There were big possibilities that during the teaching and learning processes utilizing the blended learning approach could help in improving the academic performance of the students.

**Table 3**

**Test of Difference Between the Scores in the Pre-test and Post-test Scores of Grade 7 Students**

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
	Pre	Post				
<b>Blended Learning</b>	8.66	38.76	9.154	3.441	Reject H <sub>o</sub>	Significant

Table 3 presents the test of difference between the scores in the pretest and posttest of Grade 7 students in physics before and after the integration of blending learning approach during the teaching and learning process or in the delivery of the different most essential learning competencies in physics subject. Based on the findings found in table 3, there was a strong positive impact brought about by the blended learning modality or approach in teaching physics seeing the results in the table that the computed t value of 9.154 which is obviously greater than the critical t value of 3.441 from the posttest value of 38.76 which is greater than the pretest value of 8.66 and the hypothesis which state that there is no significant difference between the pretest and posttest performance of the grade 7 students in physics before and after the integration of the blended learning approach is rejected.

The result implied that the integration or utilization of the blended learning approach is significantly effective in improving the performance level of the Grade 7 students in physics, considering to the fact that there was a big leap of the test scores in the pretest to the posttest scores thus, it really helps the students' increase their performances and have active participation during the completion of the modules either hard copies or soft copies depending on the required requirements of the teachers. It also help Ignites the pupils' desire to learn and plays a purpose in a better teaching and learning atmosphere.

#### **IV. Conclusion**

Based on the findings of the study, the blended learning approach in teaching physics brought about positive impact in improving the academic performance of the Grade 7 pupils in Physics. Furthermore, Integrating video lessons at the same time printed materials in the delivery of the most essential learning competencies could really help the students in improving their academic performances.

#### **V. Recommendations**

1. . The proposed intervention plan should be utilized.
2. The teachers in physics should integrate and practice the blended learning approach in every lesson, especially to those topics which the students experience difficulties in understanding and comprehending the lessons.
3. The school head should conduct INSET through WEBINAR which are related to the integration of blended learning approach and those activities which are related to the integration of video or radio-based lesson not only in physics but also in other subject areas.
4. The School Head should closely monitored the teacher's performance on the integration of blended learning in the teaching and learning process to assess the academic performance of the pupils in Science and Technology and to other subjects through observations either limited face to face or in virtual platforms.
5. Teachers in the school should give activities to their students that could motivate them to learn new things specially science subject particularly physics
6. The School Head should include the procurement of the ICT gadgets in helping the teachers to create more interactive learning strategies in the school Annual Implementation Plan and School Improvement Plan.
7. The school head together with all the teachers, PTCA should ask any type of assistance to the National and Local Government, Non- Government Organization in acquiring additional gadgets to support the program being implemented.

In relation to the abovementioned, the researcher is giving the authority to those future researchers to conduct or do the same study to verify the usability and significance of the study in order to improve the performance of the Grade 7 students in all subject areas in the curriculum.

#### **ACKNOWLEDGMENT**

First and foremost, praises and thanks to God, the Almighty for the blessings and opportunity given to be able to pursue the graduate studies and gaining professional development. I wish to extend my special thanks to Dr. Sabina S. Conui, Dean of Graduate School, for his encouragement and untiring effort in improving the study; The assistance, valuable suggestions,

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and encouragement provided by Dr. Elvin H. Wenceslao as writer's research adviser was greatly honored. I am extremely grateful to Dr. Jasmine B. Misa and Dr. Annabelle A. Wenceslao, as members of the Panel of Examiners for giving their professional suggestions and recommendations toward the realization of this study. I would also like to show my deep appreciation to the Grade - Seven Student Respondents of Granja – Kalinawan National High School, for their honesty and cooperation in completing the data needed. I also would like to thank my family, whose unconditional love and understanding inspired me to finish this book; and to all those who helped make this research paper done.

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### AUTHOR'S PROFILE



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