

The Impact of Distance Learning Modality on the Academic Performances of Grade 10 Students: A Case Study of San Vicente National High School in the Division of Agusan Del Sur

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Abstract - The study investigated the level of academic performances of the students in the existence of COVID-19 pandemic. Implementation of online learning and modular distance education was one of the major difficulties for both educators and learners during this crisis time. This study aimed to determine and evaluate the understanding, development and the academic performances of the Grade 10 students' during the distance learning modality. Also, this study aimed to discover how students grasp and adapt to a distance learning environment. The researchers used descriptive-correlation and T-test method for the treatment of the study were used to find the significant difference in students' academic performance before and after the implementation of distance learning modality. Based on the findings, it was indicated that the mean of the four quarters before the distance learning modality implementation is on the average of 90.25%, whereas after the implementation of the distance learning modalities the mean value is underneath 88.50%. The researchers used the alpha (α) = 0.05 with the confidence level of 95%, hence, the computed degrees of freedom (df) are 2.00 and the t-Stat is equivalent of 0.64. This study found significant differences between the previous grades of the grade 10 students and the present grade on the academic year 2021-2022. On the results, it was discovered that there were significant differences between A.Y. 2019-2020 (90.25) and A.Y. 2021-2022 (88.50). The independent T-tests were utilized to evaluate these significant differences $t = 2.91$ ($p = 0.048$). Thus, students might face the home environment problems particularly the disturbance of internet connection and family members, which definitely lead to negative academic performance of the students throughout the crisis time, however the teachers and stakeholders could explicitly create activities and educational platform to edify the performance of the students during this distance learning education.

Keywords- Distance Learning, Academic Performance, COVID-19, Internet Connectivity

I. INTRODUCTION

The spread of the COVID-19 virus has an enormous global impact, ramifications for various facets of education. Due to the implementation of online learning and modular distance education, the government has responded by suspending and cancelling the face-to-face classes, events, and other school affiliations. Also, due to the Philippines' transition to an online-based distance education system and modular distance learning education, the students have also been significantly impacted. In these uncertain times, adjusting to the "new normal" of learning makes it much more difficult. Practice sessions and educational outcomes in a comprehensive distance modality classroom. This tactic is well regarded as a practical and efficient alternative that may be tailored to provide complete online training to the students. The transition to online learning and modular education during the COVID-19 pandemic was a major difficulty for both educators and learners (Irien, 2021). Most of the people suffered from this crisis, world leaders and educators are trying their very best to contain the situation, the world's brightest mind, and the most high-technology laboratory race against time to put a stop to this ravaging curse of the 21st century. In the study of Chinazzi *et al.*, 2020, he scrutinized on the fight against the threats of COVID-19 pandemic. Herein, profound effects and significant impacts on almost all sectors in the human race. The most affected is the educational sectors. The COVID-19 pandemic is still existent nowadays, the situation presents a unique challenge to every educational expert and leaders' decision-making procedure (Fernandes, 2020). Accordingly, the spread of the COVID-19 virus has been affected the nation worldwide. Wherein, it also affects the educational system as a whole, particularly the need to properly monitor and guide young students. The absence of face-to-face classes deprives the beginning learners of constant guidance, coaching, and monitors their progress in learning process. The students are forced to adapt the new method of learning which turns them to be more independent students and explicitly explores the possibility of online learning and modular education (Karalis, 2020). Based on the research of UNESCO, around more than 100 million children will likely have poor-reading proficiency; this is because of the spreading of the COVID-19 virus that significantly impacted the students (Childhope Philippines, 2022).

Based on another perspective interest, majority of the respondents in a related study showed readiness for online learning education (Muthuprasad *et al.*, 2021). According to the research article by Hossain and Rahman (2017), they extremely stipulated that most of the students from their studies need to enhance their internet usage and the school might provide internet facilities and an environment for students. In relation to the study of Tarimo and Kavishe (2017), they profoundly found that 82% of the students in their study utilized the internet connectivity for academic purposes. Furthermore, in terms of attitude towards the use of online learning management systems, the study showed negative findings (Serhan, 2020). Hence, the internet connection is both an issue and challenging not only for the students but also for teachers and the school during this distance learning modality of education. The purpose of this quantitative research study is to determine and evaluate the understanding, development and the academic performances of the Grade 10 students' during the distance learning modality. This study aimed to discover and assess how students grasp and adapt to a distance learning environment. The grade 10 students of San Vicente National High School are plainly exploring the elements that influence their impression of the new modality of education. The researchers aimed to provide insight on how students' experiences during distance modality learning influenced their development. This study was able to explain the diverse and profound experiences of selected grade 10 students of San Vicente National High School in the Division of Agusan del Sur. This study tries to scrutinize, "The Impact of Distance Learning Modality on the Academic Performances of Grade 10 Students: A Case Study of San Vicente National High School in the Division of Agusan del Sur". This research will benefit not only the student's perspective, but also teachers, parents, and guardians to describe their understanding and development during distance learning and to also provide insights on how significant can they be to the academic performances of the grade 10 students in San Vicente National High School, therefore, guided with the following questions: What is the demographic profile of the Grade 10 students in terms of; age, sex, annual family income, and internet connectivity; What is the level of academic performances of the Grade 10 students 'before and after distance learning modality for academic year 2019-2020 to 2021-2022; and, is there a significant difference of Grade 10 students' academic performances in distance learning modality when grouped according to age, sex, annual family income, and internet connectivity.

II. MATERIALS AND METHODS

Research design

This study used and employed descriptive-correlation and T-test methods of research. A descriptive-correlational research design according to Creswell (2021), is a statistical test used to determine the tendency or pattern of two or more variables or two sets of data to vary consistently. Herein, allow the researchers to observe characteristics, trends and relationships between and see the cause-and-effect relationship of the given variables (Shona, 2019). This research design was utilized to analyze the data that were gathered in the study.

Research locale

This study was conducted on the Division of Agusan del Sur, particularly in San Vicente National High School – Prosperidad District V. The researchers were gathered the needed data to determine and evaluate the academic performances of Grade 10 students' during the distance learning modality.

Respondents of the Study

The participants of the study were the Grade 10 students in San Vicente National High School enrolled in the school year 2021-2022. Precisely, there are 30 selected grade 10 students were chosen as they are the seniors in the Junior High School department. Thus, the researchers should determine how grade 10 students adjust to the new of education.

Research Instrument

The study used survey questionnaires to the respondents. The researchers created a questionnaire via Google Forms in gathering data from the respondents. The study utilized this type of research instrument because it can collect data faster than any other research instrument. The motive of using this instrument is to develop a questionnaire that was utilized to obtain information needed on how students grasp and adapt to a new distance learning modality for grade 10 students. After the data has been gathered, the researchers could start to determine the impact of using distance learning as a modality on the academic performances of the grade 10 students in San Vicente National High School. The researchers were formulated questions that are entirely structured and relevant to the study. The survey questionnaires were set-up based on the research questions of the study, three (3) of these questions inquire about their demographic profile, and another three (3) questions concern about the impact of distance learning modality on the academic performances of the grade 10 students.

Data Gathering Procedure

The data gathering procedure was properly take place in the Division of Agusan del Sur, particularly on the Grade 10 students of San Vicente National High School. After the survey questions have been finalized, in the first phase, the researchers were able to send a request letter to the school principal and grade 10 advisers to gather data from the grade 10 students. Additionally, the respondents were ensured that ethical consideration was explicitly practiced throughout the data gathering procedure. In the second phase, after the data gathered from the students, the researchers were beginning to analyze the data. The data was gathered and collected through google forms. The researchers were generated the data from the responses and scrutinize it using the appropriate statistical analysis for this study.

Ethical Considerations

Throughout the investigation, the researchers were guided with the ethical guidelines. The respondents are from the grade 10 students of San Vicente National High School. This study was conducted through an online survey. Prior to conducting the online survey, formal request letters are issued to each respondent, via their social media or online platform account, to offer them sufficient notice of the current investigation and to define the study's goals, methods, and relevance. The researchers were handled the data interpretation with accuracy and precision to accurately interpret the data for the general public to grasp. All information acquired

during the data collection process was kept privately and exclusively utilized for research purposes. The collecting, archiving, and dissemination of research materials would assure security, confidentiality, and anonymity.

Statistical Treatment and Analysis

Microsoft Excel was utilized by the researchers in computing the percentage and frequency of the data gathered and constructing the tables for the interpretation of the results of the study. Furthermore, the researchers were used descriptive-correlation method and T-test method for the treatment of the study was used to find the significant difference in students' academic performance before and after the implementation of distance learning modality.

III. RESULTS AND DISCUSSION

Demographic Profile of the Grade 10 Students

The following tables show the findings of the survey done by the researchers to the grade 10 students in assessing the impact of new normal of delivery of learning education. The results of this study support on the findings and conclusion of various studies in this relationship between the demographic profile of the grade 10 students and their level of academic performances during distance learning modality. Additionally, this finding is in line with the studies by Eamon (2005); Shahzad *et al.*, (2013), and Yousefi *et al.*, (2010), who profoundly found that the family annual income is a stronger predictor of students' academic performances and might be obtained low scores and high scores in new education system. Hence, it can be concluded from this study that some demographic factors had significantly impacted on academic performances of the Grade 10 students. Based on the findings, it implies that the majority of the respondents who answered the internet-based review survey via Google forms are the age ranges from 15 (40%) to 16 (30%) that clearly obtained the highest percentage. As shown in the table, out of the 30 respondents who answered the online survey, 13 were male and has an average of 43%, whereas 17 respondents were female that plainly obtained 57% (Table 1). In relation, there is no significant difference between the two set of concern on this study. Moreover, the impact of gender on the academic performances has been properly examined by several studies. Some studies revealed that female emerging to perform better than male, yet it has an extremely effects on the distance learning (Crede *et al.*, 2015).

Table 1. The demographic profile of the Grade 10 students in San Vicente National High School.

Demographic Variables	Frequency	Percentage
<i>Age</i>		
13	2	7%
14	7	23%
15	12	40%
16	9	30%
<i>Sex</i>		
Male	13	43%
Female	17	57%
<i>Annual Family Income</i>		
0 - 50,000 Php	18	60%
50,001 Php - 100,000 Php	8	26%
100,001 Php - 150,000 Php	3	10%
150,001 Php - 200,000 Php	1	4%
200,000 Php – Up	0	0%
Total (n)	30	100%

Based on the data gathered, most of the respondents from the Grade 10 students of San Vicente National High School were female who greatly sustained an annual family income ranging from 0-50,000 Php (60%). Hence, various students depend on their parents for academic financial support and school activities and affiliations, wherein, some of the parents earn more income from employment and agriculture, however, some of the parents from business and trade, while others depend financial assistance from the government (Reindolf *et al.*, 2016). In the same manner, many factors that might contribute the achievement of the students: including socioeconomic status, students' temperament and motivation, and parental involvement and influence support on the academic performances (Sarwat *et al.*, 2019). In table 2, it can be deduced that the majority of the selected grade 10 students has very slow internet connectivity (50%). This is represented by 15 out of 30 selected grade 10 students of San Vicente National High School. Some of the grade 10 students implied that their internet connectivity is underneath from slow connection (34%). To add, it was concluded on the findings that the grade 10 students in San Vicente National High School had difficulty on the internet connection since no one from the selected grade 10 students answered on the very fast and extremely fast internet connectivity. It is also interesting to note that majority of the grade 10 students do not usually used internet connection at home due to signal interference. With this result in mind, several studies have the same problems on the internet connectivity might become a barrier

among the students in their learning process (Siddiquah and Salim, 2017; Bisht *et al.*, 2020). Also, the same findings from the study of Wickramanayake and Muhammad Jika (2018), they properly indicated that the unreliable internet connections are one of the strong barriers of the students' success. Thus, this might possibly incur some significant amount in the financial standings of the students in public school since work is also affected and most of the families rely on their works and on the resources given from the government. Kapasia *et al.*, 2020, stated in their study that most of the students were utilized android phones for attending classes online and accessing on academic affiliations. Accordingly, mobile phones are well-liked by students specially in Junior High school and became one of the best and useful tools for an educational activities yet very slow internet connectivity (Al Tameemy, 2017). Nonetheless, in the local context, these devices are still insufficient or unavailable to some students. Therein, it becomes a burden or a challenging for them especially in their learning, especially during this new normal education (Cleofas and Rocha, 2021; Yra *et al.*, 2020). In the Philippines, several studies well-showed various contrasting sentiments and point of view with regards to internet connectivity or signal interference and the use of gadgets and other devices for distance learning education. According to the study of Fabito *et al.*, 2021, the certain group revealed that one of the three complex barriers and challenges that most of learners encountered during this new mode of learning was the lacked of internet connection, thus, various teachers and educators concluded to manually set-up modular learning of education. The students would substantially answer the activities based on the modules provided by their subject teachers. Another related concept from Casillano (2019), indicated that only a minimum of the students has internet access, hence impeding them to access the electronic learning platform.

Table 2. Survey responses from the selected Grade 10 students on their internet connectivity.

Items	Responses	Frequency	Percentage
Very Slow	Yes	15	50%
	No	15	50%
Slow	Yes	10	34%
	No	20	66%
Average	Yes	3	10%
	No	27	90%
Fast	Yes	2	6%
	No	28	94%
Very Fast	Yes	0	0%
	No	30	100%
Extremely Fast	Yes	0	0%
	No	30	100%
Total		30	100%

The level of academic performances of the Grade 10 students' before and after distance learning modality (DLM)

The data collected by the researchers are the data from before and after the implementation of Distance Learning Modality (DLM) at San Vicente National High School. Based on the findings, it was indicated that the mean of the four quarters before the distance learning modality implementation is on the average of 90.25%, whereas after the implementation of the distance learning modalities the mean value is underneath 88.50% (Table 3). Thus, this implies that there is a 1.75% difference between the mean before and after the implementation of the distance learning modality. The distance learning modalities involved individualized instruction that allows the students to utilize self-learning modules, either printed or in any digital format which are certainly centered on the Most Essential Learning Competencies (MELC), provided and approved by the Department of Education (DepEd) (Martinez, 2020).

Table 3. General Weighted-Average (GWA) of the academic year 2019-2020 to 2021-2022.

Quarter	Before DLM (A.Y. 2019-2020)	After DLM (A.Y. 2021-2022)
1	89	87
2	86	89
3	92	90
4	94	88
Mean Value	90.25	88.50

Note: DLM; Distance Learning Modality

Table 4. The T-Test: Paired Two Samples for Means from Before and After Distance Learning Modality.

	Before DLM	After DLM
Mean	90.25	88.50
Variance	17.33333	1
Observations	3	3
Pearson Correlation	-0.24019	
Hypothesized Mean Difference	0	
df	2	
t Stat	0.640184	
P(T<=t) one-tail	0.293803	
t Critical one-tail	2.919986	
P(T<=t) two-tail	0.587607	
t Critical two-tail	4.302653	

The above results T-test of the data in researchers used the

the confidence level of 95%, hence, the computed degrees of freedom (*df*) are 2 and the t-Stat is equivalent of 0.64. When using the t-table for the two-tailed test, the degrees of freedom (*df*) and the alpha value would plainly intersect on 4.30, would be the result of critical value or know as t Critical two-tail (t_{crit}), the variance of the result is 17.33 that were considered the statistical value of 0.64.

imply the computed table 4. The alpha (α)= 0.05 with

Table 5. Incidental findings of the level of academic performances of the Grade 10 students.

Variables	Mean±Standard Deviation	T-test
Quarters (GWA) (A.Y 2019-2020 to 2021-2022)		t = 2.91 (p = 0.048)
87-89	88.00±6.35	
86-89	87.50±2.48	
92-90	91.00±6.37	
94-88	90.50±4.20	
Subjects (GWA) (A.Y 2021-2022 to 2021-2022)		t = 2.13 (p = 0.001)
<i>Science</i>		
87-94	90.50±4.20	
<i>Mathematics</i>		
89-96	92.50±5.50	
<i>English</i>		
86-92	89.14±1.96	
<i>Filipino</i>		
90-95	92.50±2.13	
<i>Araling Panlipunan</i>		
85-93	89.00±2.04	
<i>MAPEH</i>		
90-97	93.50±1.99	
General Weighted-Average (A.Y 2021-2022)		t = 2.07 (p = 0.024)
88-93	90.50±1.96	

This study found significant differences between the previous grades of the grade 10 students and the present grade on the academic year 2021-2022. On the results, it was discovered that there were significant differences between A.Y. 2019-2020 (90.25) and A.Y. 2021-2022 (88.50). The independent T-tests were utilized to evaluate these significant differences ($t = 2.91$ ($p = 0.048$)). Moreover, there was a statistically significant difference on the general weighted-average in each major subjects based on the data collected ($p = 0.001$). Hence, there was a statistically significant difference in previous academic performance, measured by the overall general weighted-average from the majors' subjects between distance learning students. Based on the results of this study, it is evident that there is significantly difference on students' proficiency level and academic performance on the topic concern. There

is a highly significant difference between the demographical variables of the respondents on the academic performances of the students and the extensive problems that they encountered.

IV. CONCLUSION

The following conclusions are drawn from the study's findings. Findings of this study support on the conclusion of various studies in this relationship between the demographic profile of the grade 10 students and their level of academic performances during distance learning modality. It can be concluded from this study that some demographic factors had significantly impacted on academic performances of the Grade 10 student's during distance learning modality (DLM). The data collected by the researchers are the data from before and after the implementation of Distance Learning Modality (DLM) at San Vicente National High School. Based on the findings, it was indicated that the mean of the four quarters before the distance learning modality implementation is on the average of 90.25%, whereas after the implementation of the distance learning modalities the mean value is underneath 88.50%. The researchers used the alpha (α) = 0.05 with the confidence level of 95%, hence, the computed degrees of freedom (df) are 2 and the t-Stat is equivalent of 0.64. This study found significant differences between the previous grades of the grade 10 students and the present grade on the academic year 2021-2022. On the results, it was discovered that there were significant differences between A.Y. 2019-2020 (90.25) and A.Y. 2021-2022 (88.50). The independent T-tests were utilized to evaluate these significant differences $t = 2.91$ ($p = 0.048$). Moreover, there was a statistically significant difference on the general weighted-average in each major subjects based on the data collected ($p = 0.001$). It is evident that there is significantly difference on students' proficiency level and academic performance on the topic concern. This study was limited to assess and evaluate the academic performance of the students during distance learning modality, so in the future, the performance of the teachers could be checked with similar kinds of conditions and variables. There might be some issues and problems faced by the students, like the limited access to the internet connection or the interference and disturbance due to slow signal connection on their area. Some of the students might face or encounter the home environment problems particularly the disturbance due to family members, which definitely lead to negative academic performance of the students. The above-mentioned points can be inculcated in the future study.

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