

Study Habits and Learners' Performance During Online Distance Learning

Irish Mae B. Freo*

^a irishmae.freo@deped.gov.ph

^aLaguna State Polytechnic University, Santa Cruz, Laguna 4009, Philippines

Abstract

Study habits and its effect on learners' performance in online distance learning determined learners' strengths, weaknesses, interests, and ability to learn and engage in meaningful learning.

The research sought to investigate the level of study habits with regards to time management, learning environment, note-taking skills, and use of digital devices. A descriptive method using the purposive sampling technique was used in the study to gather the necessary data from the ninety-seven (97) learners in the three (3) public elementary schools in the Santa Cruz District, SDO Laguna.

Findings indicated that the level of learners' study habits with regards to time management, learning environment, and use of digital devices is high. Furthermore, their note taking skill was revealed as very high. This shows that learners always practice their note-taking skills and often possess desirable practice in managing their time, have an ideal learning environment, and are accompanied using digital devices. The level of learners' performance as to first quarter and second quarter grades were both interpreted as very satisfactory. This means that the learners' performance is above average. There is a significant effect of study habits in terms of time management to the learners' performance in the first quarter grade, while it posted a not significant effect on the learners' study habits in terms of learning environment note-taking skills and use of digital devices. On the other hand, study habits showed no significant effect at all on learners' performance in the second quarter grade.

The study concluded that study habits show a partial significant effect on learners' performance. Therefore, the null hypothesis which stated that " study habits have no significant effect on the learners' performance" was partially rejected since one of the variables affects the learners' performance during their first quarter. The overall result of the test of effect partially rejected the null hypothesis.

Moreover, it is recommended that teachers and school administrators should conduct remedial classes or enhancement activities based on learners' needs and interests. Teachers should incorporate simple study habit practices in the lesson to find out the learners' strengths and weaknesses. Parents should reinforce and motivate their children to better develop their study habits. Teachers and school administrators should conduct remedial classes or enhancement activities based on learners' needs and interests. Grades in the 3rd quarter could be requested to show the change in performance based on their study habits. Additional research may be conducted to confirm the findings of this study. Also, to make further investigations into other unknown factors which are not used in this study that can also contribute to the better learning outcomes of the learners.

Keywords: Study Habits; Academic Performance; Time Management; Learning Environment; Note-taking Skills; Use of Digital Device

1. INTRODUCTION

The COVID-19 pandemic changes the educational system in the Philippines. As stated in the DepEd Order no. 012 s. in 2020, DepEd developed a Basic Education Learning Continuity Plan (BE-LCP), a package of education interventions that will respond to basic education challenges brought by COVID-19. As one with the President in his non-negotiable commitment to the health and safety of the learners, teachers, and staff. It

is the first and most important principle of the BE-LCP. However, the BE-LCP also emphasizes learning opportunities for the learners may be provided through different distance learning modalities until any prohibition by the DOH, the Inter-Agency Task Force for the Management of Emerging Infectious Diseases (IATF) or the President for face-to-face learning schools/CLCs is lifted or relaxed.

The Department of Education offered different learning modalities suited for learners' situations. One of these is Online Distance Learning Modality, which requires an internet connection and digital devices that learners may use to attend online class and engage in different activities.

Distance learning through the use of internet can be synchronous or asynchronous. Synchronous learning is distance learning where learners virtually interact with the teacher and classmates, participate in class activities in real time, and set weekly schedules. Asynchronous learning, on the other hand, enables students to view the weekly learning material whenever they want. (Scheiderer, 2021)

Learners are unique individuals with different abilities, skills, strengths, and weaknesses but it is not a hindrance to learning and developing themselves. The diversity of learners' challenges teachers in their teaching strategies even in face-to-face or online learning. It is more challenging to handle diversity of learning through Online Distance Learning. Limited time and internet connection are one of the problems in online distance learning.

In synchronous and asynchronous learning learners will discover more about their self, abilities, strengths, and weaknesses. Several factors may affect learners' learning while they study at home. Through these, learners may develop their study habits to comprehend the lessons. These are the reasons that motivated the researcher to conduct a study on Study Habits and Learners' Performance During Online Distance Learning.

1.1. Statement of the Problem

The purpose of the study was to determine the effect of study habits to learners' performance during online distance learning.

Specifically, it sought to answer the following questions:

1. What is the level of learners' study habits with regards to:
 - 1.1 time management;
 - 1.2 learning environment;
 - 1.3 note taking skills; and
 - 1.4 use of digital devices?
2. What is the level of the learners' performance as to:
 - 2.1 First quarter grade; and
 - 2.2 Second quarter grade?
3. Do the study habits significantly affect the learners' performance during Online Distance Learning in the 1st and 2nd quarter?

2. METHODOLOGY

2.1. Research Design

The study used a descriptive method to gather the necessary data and reliable sources about study habits and learners' performance.

According to Bhat (2019), descriptive research pertains to the questions that will be studied, the research design, and the data analysis that will be done. Since none of the variables that make up the research study are in any way influenced, it is known as an observational research method.

Quantitative research design was utilized in this study. According to Bhandari (2020), Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations..

2.2. Respondents of the Study

The respondents of the study were from the selected public elementary schools in Santa Cruz, Laguna. A total of ninety-seven (97) learners are composed of forty (40) learners from Bagumbayan Elementary School, thirty-four (34) from Gatid Elementary school and twenty-three (23) learners from Santo Angel Central Elementary School.

This study used purposive sampling in choosing the respondents. Crossman (2020) stated that a purposive sample is a non-probability sample that is selected based on characteristics of a population and the objective of the study. Purposive sampling is different from convenience sampling and is also known as judgmental, selective, or subjective sampling. This type of sampling can be very useful in situations when you need to reach a targeted sample quickly, and where sampling for proportionality is not the main concern.

2.3. Research Instrument

The research instrument used in this study is a self-made survey questionnaire to determine the effect of study habits on the learners' performance during online learning.

Roopa and Rani (2012) said that questionnaires are frequently used in quantitative marketing research and social research. A questionnaire is a series of questions asked to individuals to obtain statistically useful information about a given topic. When properly constructed and responsibly administered, questionnaires become a vital instrument by which statements can be made about specific groups or people or entire populations. Appropriate questions, correct ordering of questions, correct scaling, or good questionnaire format can make the survey worthwhile, as it may accurately reflect the views and opinions of the participants.

The questionnaire was divided into two parts, first part was the demographic profile of the respondents such as name (optional), age, grade level and school. The second part was composed of questions that determined the respondents' study habits in terms of time management, learning environment, note taking skills and use of digital devices which is composed of five (5) questions each. This used a rating scale range from 1-5: 5- Always, 4- Often, 3- Sometimes, 2- Rarely, 1- Never.

2.4. Statistical Treatment

The responses of the ninety-seven learners on the survey questionnaire were tallied, analyzed and interpret.

For the statement of the problem 1-2 weighted mean and standard deviation was used to compute the level of study habits and learners' performance in terms of time management, learning environment, note-taking skills and use of digital devices.

Sykes et. al., (2016), Mean is the most common measure of central tendency and refers to the average value of a group of numbers. Add up all the figures, divide by the number of values, and that is the average or mean It is calculated from the formula $\Sigma X / N$. [The sum of all the scores in the distribution (ΣX) divided by the total number of scores (N)].

As Hargrave (2019) stated, standard deviation is a statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance. It is calculated as the square root of variance by determining the variation between each data point relative to the mean.

For the statement of the problem three (3) made use of regression analysis to find if the study habits of grade six learners significantly affect the learners' performance in 1st and 2nd quarter.

Montgomery et. al., (2021) stated that regression analysis is one of the most widely used techniques for analyzing multi factor data. Its broad appeal and usefulness result from the conceptually logical process of using an equation to express the relationship between a variable of interest and a set of related predictor variables. Regression analysis is also interesting theoretically because of elegant underlying mathematics and well-developed statistical theory. Successful use of regression requires an appreciation of both the theory and the practical problems that typically arise when the technique is employed with real-world data.

3. RESULTS AND DISCUSSION

Study habits are behavior or actions habitually done by the learners in relation to effective learning. Learners have different study habits which aids them to learn effectively.

In this study, learner's study habits were described with regards to time management, learning environment, note-taking skills and the use of digital devices and were determined by the weighted mean and standard deviation. On the other hand, learners' performance was described in terms of first and second grading grades and was determined by frequency, percentage and mean grade.

Table 1. Level of Study Habits with Regards to Time Management

Time Management is measured by...	Mean	SD	Remarks
...creating a schedule to be followed while I am studying to avoid cramming.	4.24	0.96	Always
...exerting more time on doing a difficult task.	4.21	0.92	Always
...reviewing the lesson before and after I sleep.	4.09	0.93	Often
...doing the task a day before the deadline.	3.89	1.26	Often
...having short breaks to relax my mind and body.	4.44	0.83	Always
Grand Mean	4.17		High

It can be seen in table 1 that the level of learner' study habits with regards to time management was high, denoted by the grand (M=4.17). This explains more that learners often possess desirable practice in managing their time.

The respondents appeared to always have short breaks to relax their mind and body, which gained the highest (M=4.44, SD=0.83). However, they often do the task a day before the deadline, it obtained the lowest (M=3.89, SD=1.26). This implies that learners affirm that relaxing their mind and body enables them to learn better though they opt to do the task assigned to them before its due in many cases.

Time management is very important and it may actually affect an individual's overall performance and achievements stated by Nasrullah and Khan (2015) However, all of these are related by how individuals manage their time to suit their daily living or to make it flow steadily with their routines. having their teachers deliver engaging lectures, the learners will benefit greatly from supportive environments and settings. However, one of the factors that can influence a learner to become a good learner is their ability to manage their time. For students to excel, effective time management is essential. However, some of the students struggle with time management, which has a severe impact on both their personal lives and their academic performance. Students' daily schedules and activities have an impact on how they use their time in higher education institutions. As they must manage their assignments and personal successes, students' stress levels might be impacted by how well they manage their time.

Table 2. Level of Study Habits with Regards to Learning Environment

Learning Environment is measured through...	Mean	SD	Remarks
...a distraction-free studying environment.	4.50	0.89	Always
...studying with a friend or in a group.	3.23	1.19	Sometimes
...organizing my things before studying.	4.73	0.66	Always
...to music which makes me more focused.	3.76	1.30	Often
...a place with adequate lighting that helps me concentrate.	4.59	0.89	Always
Grand Mean	4.16		High

It can be seen in table 2 that the level of learners' study habits with regards to learning environment was high, denoted by the grand ($M=4.16$). This shows that more learners often have an ideal learning environment.

The respondents appeared to always organize their things before studying which gained the highest ($M=4.73$, $SD=0.66$). However, they often listen to music to make them more focused, which was obtained ($M=3.76$, $SD=1.30$). This revealed that learners preferred an organized environment than one accompanied by music.

The COVID-19 pandemic affected several countries' educational systems, particularly on platforms for teaching and learning according to Raggala (2021). The Philippines is one of the nations that has changed its educational environment to a modular and online learning. As a result, a study into the numerous elements that have been connected to learner academic achievement was carried out by several researchers. The themes that were established based on the respondents' responses were online learning experience during the COVID-19 pandemic, quality of education during the pandemic, environmental factors, academic performance, and coping techniques. The study discovered that the environmental elements that students encountered in their online classes during the COVID-19 pandemic had an impact on their academic achievement. In the study area of the respondents, environmental elements such as noise, light, temperature, and air quality were identified. The coping strategies used by the learners differ from person to person and are influenced by their environment. Based on the study's findings, it is critical to keep in mind that learner behavior is an important predictor of the learning environment. Teachers will be more aware of the potential effects of their students' learning environment and attitudes toward online learning.

As a result, teachers will be encouraged to look for more suitable and efficient teaching-learning methods for both themselves and their students. This study will encourage parents to give their kids well-rounded supervision and a conducive learning environment while they are learning online. Finally, by taking into account the students' learning environment, curriculum designers for schools can learn more about how to make online classes better. This will help students feel more positive and less negative about learning, which will boost their academic achievement.

Level of Study Habits with Regards to Note Taking Skills

Table 3 presented the level of learners' study habits with regards to note-taking skills as very high, denoted by the grand ($M=4.24$). This shows that learners were practicing their note taking skills.

The respondents appeared they always prepare all the supplies needed when studying for example their ballpen and pencil which gained the highest ($M=4.69$, $SD=0.73$). On the other hand, they often use highlighter to emphasize important details with the lowest obtained ($M=3.86$, $SD=1.21$). This implies that respondents prepare their supplies needed for note taking such as pencil and ballpen, yet they prefer using highlighter.

Table 3. Level of Study Habits with Regards to Note Taking Skills

Note-taking skill is measured through...	Mean	SD	Remarks
...preparing all the supplies needed when studying. Ex. pencil, ballpen, etc.	4.69	0.73	Always
...writing down notes during the discussion.	4.17	0.97	Often
...writing notes in my own words.	4.18	0.88	Often
...a highlighter to emphasize important details.	3.86	1.21	Often
...taking pictures of lessons of PowerPoint presentation during discussion and writing it after.	4.28	0.97	Always
Grand Mean	4.24		Very High

Academic excellence in tertiary schools of learning requires taking thorough notes from lectures. Akintunde (2013) conducted research on the value of taking notes and the necessity of instructing students in note-taking techniques. It was also emphasized that students should take notes on what to do before, during, and after lectures. These abilities include sitting in a strategic position, paying attention actively, choosing what is pertinent, identifying and noting the major concepts of lectures, and employing symbols and abbreviations. Additionally, it was suggested that regular conferences and seminars on taking notes be held for both teachers and students.

Table 4. Level of Study Habits with Regards to Use of Digital Device

The Use of Digital Device is measured through...	Mean	SD	Remarks
...the use of different search engines such as Google Chrome, Mozilla Firefox, Internet Explorer, etc.	4.13	0.95	Often
...the different online platforms used in communicating with the teacher for assistance.	4.07	1.12	Often
...watching videos on Youtube for better understanding.	4.10	1.02	Often
...the use of different educational online games to enhance learning	3.84	1.20	Often
...the use of Google Classroom and other sites to easily access the lesson.	4.70	0.70	Always
Grand Mean	4.17		High

As presented in table 4, the level of learners' study habits with regards the use of digital devices was high, denoted by the grand ($M=4.17$). This shows that learners' study habits are often accompanied by the use of digital devices.

The respondents are always using Google Classroom and other sites to easily access the lesson ($M=4.70$, $SD=0.70$). However, they often use different educational online games to enhance learning ($M=3.84$, $SD=1.20$). This implies that respondents always use suggested applications and online sites in accessing their lesson rather than using educational online games.

Today, a various types of tablet computers, including iPad and Android tablets, are in use. To facilitate mobile individualized learning, these individual portable digital devices can be utilized as e-book readers. Even though e-books have been the subject of numerous research aimed at undergraduate learners, have received less attention. As a result, an Interactive E-book Learning System (IELS) was created for learners in primary school. To enhance learners' individualized learning experiences with e-books, the interactive

concepts of multimedia learning were used. In the meantime, a group of in-service teachers were consulted for their subject-matter expertise in order to suit the learner's learning needs. To support learner learning, personalized learning features including annotation and bookmarking, content searching, and learning process tracking were created. Usability and functionality of the developed system were well-suited for most of the learners. The learners' ability to read accurately was unaffected by whether they used an electronic or paper book, but the IELTS learning process tracking technique may produce thorough logs on the actual learning processes, which the system can utilize to give particular students more support. For students in primary school, a custom e-book learning system could produce a more individualized learning experience (Huang et.al., 2012).

Table 5. Level of Performance as to First Quarter Grade

Grading Scale	Frequency	Percentage	Descriptors
90 – 100	10	10%	Outstanding
85 – 89	56	58%	Very Satisfactory
80 – 84	31	32%	Satisfactory
75 – 79	0	0	Fairly Satisfactory
Below 75	0	0	Did Not Meet Expectations
Mean	85.71		Very Satisfactory

Table 5 presented the learners' level of performance as to first quarter grade. It can be gleaned that 10 out of 97 or 10 percent of the learners obtained an outstanding performance. Moreover, 56 out of 97 or 58 percent of the learners got a very satisfactory performance, while 31 out of 97 or 32 percent obtained a satisfactory performance. The over-all mean of 85.71 indicates that the performance of the learners based on the first quarter grade was very satisfactory. This means that the learners' performance on average exceeds expectations.

The academic success of a learner is a crucial component of the learning process, claim Alnagar et al. in 2021. There are a number of different factors that can have an impact on female students' academic achievement. The challenge of identifying and analyzing influential elements that affect learners' academic achievement is difficult because lifestyles are changing so quickly. The most important factors influencing the overall grade point average (GPA) of the female learner are her family and social characteristics, psychological characteristics, educational process and system, high transportation costs and distance from home to the university, academic advice and lack of references, and economic characteristics.

Table 6. Level of Performance as to Second Quarter Grade

Grading Scale	Frequency	Percentage	Descriptors
90 – 100	19	20%	Outstanding
85 – 89	47	48%	Very Satisfactory
80 – 84	31	32%	Satisfactory
75 – 79	0	0	Fairly Satisfactory
Below 75	0	0	Did Not Meet Expectations
Mean	86.52		Very Satisfactory

Table 6 presented the learners' level of performance as to second quarter grade. It can be seen that 19 out of 97 or 20 percent of the learners obtained an outstanding performance. Moreover, 47 out of 97 or 48 percent

of the learners got a very satisfactory performance, and 31 out of 97 or 32 percent obtained a satisfactory performance. The overall mean of 86.52 indicates that the performance of the learners based on the second quarter grade was very satisfactory. This shows that learners' performance is above average.

The prediction of learner academic achievement has garnered a lot of attention in education, claim Namoun and Alshanqiti (2021). Although it is thought that learning objectives will enhance teaching and learning, there is still little research on how to predict whether learners will actually achieve their goals. The most obvious indicators of learning outcomes were learner academic emotions, term assessment grades, and learner online learning activities.

Significant Effect of Study Habits on Learners' Performance

Minitab 14 was used in computing the data gathered and treating them statistically using Regression Analysis. The computed p-values were compared to the level of significance at 0.05 to determine the significant effect of study habits in terms of time management, learning environment, note taking skills and the use of digital devices on learner's performance in terms of first and second quarter grade.

Table 7. Significant Effect of Study Habits on Learners' Performance during Online Distance Learning on First Quarter Grade

Variables	t-value	p-value	Analysis
Time Management	-1.94	0.050	Significant
Learning Environment	1.09	0.279	Not Significant
Note Taking Skills	0.16	0.874	Not Significant
Use of Digital Device	0.11	0.912	Not Significant

*significant at .05 level of significance

Table 7 presented the effect of study habits on learners' performance in the first quarter. It can be seen that study habits in terms of time management have a significant effect on learners' performance in terms of first quarter grade supported by the obtained p-value of 0.050 which was equal to the 0.05 level of significance. Nevertheless, learning environment obtained p-value of 0.279, note taking skills gained p-value of 0.874 and the use of digital devices obtained p-value of 0.912 which were all higher than 0.05 level of significance which suggested that study habits have no significant effect on learners' performance in the first quarter. This further expound that learners' time management has implication on their learning however the learning environment, note taking skills, and the digital devices used in some instances shows no influence on their school performance.

Spitzer and Musslick, S. (2021), stated that closing schools in response to COVID-19's rapid expansion poses hazards to young children's education, including a widening achievement gap. In the current work, the researchers looked into how German students' performance in a mathematics curriculum-based online learning program was affected by school closings in 2020. The researchers examined data from more than 2,500 K–12 students who computed more than 124,000 mathematical problem sets before and during the closure and discovered that students' performance improved in 2020 compared to the previous year. The performance gap between low-achieving and high-achieving students appears to be closing, since low-achieving students improved more than high-achieving students. In order to mitigate the potential educational losses brought on by existing and upcoming school closures, online learning environments may be useful.

Table 8. Significant Effect of Study Habits on Learners' Performance during Online Distance Learning on Second Quarter Grade

Variables		t-value	p-value	Analysis
Time Management		-1.45	0.150	Not Significant
Learning Environment	Second Quarter	0.36	0.716	Not Significant
Note Taking Skills	Grade	1.01	0.317	Not Significant
Use of Digital Device		-0.75	0.453	Not Significant

*significant at .05 level of significance

Table 8 presented the effect of study habits on learners' performance in the second quarter. Study habits in terms of time management got a p-value of 0.150, learning environment attained p-value of 0.716, note-taking skills gained p-value of 0.317, and use of digital device gained p-value of 0.453 which were all higher than level of significance 0.05 which revealed that learners' study habits have no significant effect on the learners' performance in the second quarter. This finding further showed that learners' study habits as to time management, learning environment, note-taking skills and use of digital device in some instances does not affect their academic performance during the second quarter.

In the spring of 2020, the COVID-19 epidemic sparked lockdowns and unexpected school closings all throughout the world, having a substantial negative influence on students' education (Velde et.al., 2021). They examine how study behavior and performance in an online retrieval practice tool used for language acquisition in Dutch secondary education were affected by the shift to distant learning. After lockdown began, the tool was used much more frequently, with weekday mornings seeing the majority of study activity. Lockdown had little to no impact on students' progress through the content, while students on the most challenging educational track were somewhat more likely than students on lower-level tracks to be on or ahead of time. Performance on individual study trials remained largely steady, although open-ended questions saw an increase in accuracy and reaction time, possibly as a result of students' increased concentration at home. These encouraging results add to the expanding body of data on the effects of distant learning on education during lockdown.

4. CONCLUSION

Based on the data gathered, the following conclusions were deduced: Study habits with regards to time management revealed a significant effect on learners' performance in the first quarter, while learning environment note-taking skills and use of digital devices have no significant effect on the learners' first quarter grades. Meanwhile, study habits in general have no significant effect on the learners' performance on the second quarter grade. Therefore, the null hypothesis which stated that "study habits has no significant effect on the learners' performance" was partially rejected since one of the variables affects the learners' performance during their first quarter. The overall result of the test of effect partially rejected the null hypothesis.

5. RECOMMENDATIONS

Based on the findings and conclusions formulated in this study, the following recommendations were proposed:

1. Teachers should incorporate simple study habit practices in the lesson to find out the learners' strengths and weaknesses.

2. Parents should reinforce and motivate their children to better develop their study habits.
3. Teachers and school administrators should conduct remedial classes or enhancement activities based on learners' needs and interests.
4. Grades in the 3rd quarter could be requested to show the change of performance based on their study habits.
5. Additional research may be conducted to confirm the findings of this study. Also, to make further investigations to other unknown factors which are not used in this study that can also contribute to the better learning outcomes of the learners.

Acknowledgement

The researcher wishes to convey her heartfelt gratitude to everyone who generously offered their time, expertise, and support in the preparation and completion of this study. The researcher extends her gratitude to:

Mario R. Briones, EdD, the President of Laguna State Polytechnic University, for his vision and dedication to inspire students to pursue their dreams and provide quality education to the researcher;

Engr. Manuel Luis R. Alvarez, Campus Director of Santa Cruz, for the full support for the programs of the campus that benefits its students;

Rosario G. Catapang, PhD, the Dean of College of Teacher Education and her adviser, for her invaluable assistance to the accomplishment of this study;

Lyrma C. Hife, EdD, her subject specialist, for her knowledge, suggestions, time and patience in completing the research;

A/Prof. Rhoneil B. Vibora, her technical editor for his patience, politeness, and availability during consultations to help her organize each section of the thesis;

Benjamin O. Arjona, EdD, her internal statistician for the support and suggestions given as panel member during the conduct of the study;

Armie P. De Lima, her external statistician, for her assistance and informative suggestions;

Fatima M. Quiambao, her English critic, for her time, effort and patience in editing the manuscript;

Marites A. Ibañez, Cesó V, the Schools Division Superintendent of Schools Division Office of Laguna for allowing her to conduct the study in the selected public elementary schools in Santa Cruz, Laguna;

Luis G. Germina, Santa Cruz District Supervisor for the assistance for allowing her to conduct this study;

Anna Liza T. Cruz, PhD, her school principal for the help, moral support and all means to complete this research;

The Teachers of (3) three public elementary school in the District of Santa Cruz namely: Bagumbayan Elementary School, Gatid Elementary School and Santo Angel Central Elementary for their valuable cooperation as official respondents of this study;

Master Teachers of Gatid Elementary School, who validated her questionnaires before giving them to the learners.

Above everything, with sincere thanks to the Almighty God, the source of knowledge, wisdom, strength, skills, and inspiration, as well as of His abundant love and mercy.

References

- Akintunde, O. (2013). Training in Note-Taking Skills: An Effective Strategy for Improving Students' Learning At The Tertiary Level.
- Alnagar, D., Alharbi, R., Alamri, O., & Alamri, O. (2021). Analysis of the female student academic performance using an exploratory factor analysis. *Advances and applications in statistics*, 69(1), 41-57.
- Bhandari, Pritha (2020). "What Is Quantitative Research? | Definition, Uses and Methods"

- Bhat, Adi (2019). "Descriptive Research: Definition, Characteristics, Methods, Examples and Advantages" Fachinger, J., den Exter, M., Grambow, B., Holgerson, S., Landesmann, C., Titov, M., Podruhzina, T., 2004. "Behavior of spent HTR fuel elements in aquatic phases of repository host rock formations," 2nd International Topical Meeting on High Temperature Reactor Technology. Beijing, China, paper #B08.
- Crossman, Ashley. (2020). Understanding Purposive Sampling. Retrieved from <https://www.thoughtco.com/purposive-sampling-3026727>
- DepEd Order no. 012 s. 2020 Retrieved from: https://www.deped.gov.ph/wp-content/uploads/2020/06/DO_s2020_012.pdf
- Hargrave, M., (2019) Standard Deviation Definition
- Huang, Y. M., Liang, T. H., Su, Y. N., & Chen, N. S. (2012). Empowering personalized learning with an interactive e-book learning system for elementary school students. *Educational Technology Research and Development*, 60(4), 703-722.
- Montgomery, D. C., Peck, E. A., & Vining, G. G. (2021). *Introduction to linear regression analysis*. John Wiley & Sons.
- Namoun, A., & Alshantiti, A. (2021). Predicting student performance using data mining and learning analytics techniques: a systematic literature review. *Applied Sciences*, 11(1), 237. Retrieved from: <https://www.mdpi.com/2076-3417/11/1/237>
- Nasrullah_PhD, S., & Khan_PhD, M. S. (2015). The impact of time management on the students' academic achievements.
- Ragpala, E. (2021). Environmental Factors that Affect the Academic Performance of Senior High School Students during COVID-19 Pandemic. *International Journal of Social Sciences: Current and Future Research Trends*, 11(1), 1-19.
- Roopa S., & Rani M.S., (2012) Questionnaire Designing for a Survey. *The Journal of Indian Orthodontic Society* 46(4):37-41 Retrieved from https://www.researchgate.net/publication/235801675_Questionnaire_Designing_for_a_Survey
- Scheiderer, J. (2021) What's the Difference Between Asynchronous and Synchronous Learning? Ohio State Online. The Ohio State University. Retrieved from <https://online.osu.edu/resources/learn/whats-difference-between-asynchronous-and-synchronous-learning>.
- Spitzer, M. W. H., & Musslick, S. (2021). Academic performance of K-12 students in an online-learning environment for mathematics increased during the shutdown of schools in wake of the COVID-19 pandemic. *PLoS one*, 16(8), e0255629.
- Sykes, L. M., & Gani, F. (2016). Statistical terms Part 1: the meaning of the MEAN, and other statistical terms commonly used in medical research: communication. *South African Dental Journal*, 71(6), 274-278.
- Velde, Van der M., Sense, F., Spijkers, R., Meeter, M., & van Rijn, H. (2021). Lockdown learning: Changes in online study activity and performance of Dutch secondary school students during the COVID-19 pandemic.