

**MODULAR DISTANCE LEARNING IN RELATION TO THE ACADEMIC
ACHIEVEMENT IN STATISTICS OF GRADE 11 STUDENTS OF
BIÑAN CITY SENIOR HIGH SCHOOL S.Y. 2020-2021**



DINAH C. HABIG
TEACHER II

Biñan City Senior High School-Sto. Tomas Campus

ABSTRACT

The COVID – 19 pandemic has severely disrupting the global economy as well as the education around the world. As we are in what so called “new normal” set up, our education system changed the settings of delivering education to the learners from the traditional setting such as face-to-face learning to distance learning such as the learners will just study at home through different setting. The Biñan City Senior High School – Sto. Tomas Campus offered modular – distance – learning for the school year 2020 – 2021.

This study aims to determine the relationship between the modular distance learning towards academic achievements in Mathematics of selected Grade 11 students. This study used pre-test post – test research design with 33 participants. The module-distance – learning was categorized into eight indicators such as content, learning and support, visual design, navigation, accessibility, interactivity, self-assessment and learnability, and motivation to learn. The study revealed that there is a significant difference between pre-test and post-test of the respondents. Hence the average mean of the pre-test and post-test are not far more with each other. The pre-test of the respondents was interpreted as poor, while the post-test were interpreted as fair. The study also revealed that there is no significant relationship between the modular – distance – learning and academic achievement of the respondents.

Keywords: modular-distance-learning, academic achievement

INTRODUCTION

The COVID-19 pandemic is considered as the most crucial global health calamity of the century and the greatest challenge that the humankind faced since the 2nd World War. The coronavirus outbreak is severely disrupting the global economy. It has severely demobilized the global economy. To restrict further transmission of the disease in the community, many of the affected countries have decided to undergo complete lock down. Major international flights and all types of business transports have been deferred amid different countries. Due to lockdown all domestic flights, railway service (except goods trains), bus, truck, and vehicles transports are suspended with special exemption to those associated with essential commodities. In almost all the COVID-19 stricken countries, entire educational, commercial, sports and spiritual institutions are closed. Industries are suffering a lot as many of these excepting those related to essential amenities, are closed for a long time in many countries (Jianmin Chen, 2020).

Going to school is the best tool to enhance learners' skills such as social skills, social awareness and even

the learning process increase the child's ability. And we don't know how much the COVID-19 interruption will affect the learning of the learners. As we are in what so called "new normal" set up, our education system change the settings of delivering education to the learners from the traditional setting such as face-to-face learning to distance learning such as the learners will just study at home through different setting. As stated by Sec. Briones last July 1, 2020 "The Self-learning-modules and the other alternative learning delivery modalities are in place to address the needs, situations, and resources of each and every learner and will cover all the bases in ensuring that basic education will be accessible amid the present crisis posed by COVID-19,". Some learners agreed to SLMs settings wherein the learner will be given modules and they will study it with the help of their relatives at home. Some learners will use Online-Distance-Learning (ODL) as mode of instruction wherein the students will study through the of e-learning materials such as computer and other related devices. They can talk to their teachers and classmates through these materials.

METHODOLOGY

This study used pre-test post test design and correlational research under quantitative type of research. 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 (Pritha Bhandari, 2020). A Pre-test and post test in Statistics and Probability for the academic achievement was administered to determine the progress of the learners in Mathematics.

On the other hand, a Correlation Research is the systematic investigation of relationships among two or more variables, without necessarily determining cause and effect. This study is also correlational because it attempts to determine the relationship between Modular-Distance Learning and the academic achievement in Statistics and Probability of the learner. It will also determine the significant difference between the pre-test and post-test result of the learners to identify the effectiveness of the flipped classroom.

The participants of this study were 33 Grade 11 Sports track students of Biñan City Senior High School-Sto.

Tomas Campus who are currently taking Statistics and Probability under the monitoring of the researcher in the time of the conduction of the study.

Upon permission of the concerned authorities, the study commenced with the distribution of the survey questionnaire to the participants. Then, the researcher prepared and personally sent letters to the respondents, informing them that they were chosen to be the respondents of the study and together with the questionnaire, for them to fill up. An online survey questionnaire was also sent to the respondents. The researcher personally managed the administration of the data gathering instrument to the respondents and direction was explained to the respondents for better understanding. The specific objectives of the study was clearly explained to the respondents. Their responses were confidential. The accomplished research – instrument was check for accuracy and completeness. All data that was gathered and collected were computed and tabulated for analysis and interpretation in accordance with research design and statistical tools adopted formula from the conclusion that arrived.

RESULTS

The study show the result of the respondents assessment towards the modular distance Learning that is categorized into eight. In terms of Content, the respondents agree that *“Terminology of the functions is used consistently throughout the Mathematics Module”, “Abstract concepts (principles, formulas, rules, etc.) are illustrated with concrete, specific examples”, “The material in the modules is accurate and current”, “The subject provides learners opportunities for reflection”, “Vocabulary and terminology used are appropriate for the learners”, “All units/modules in Mathematics include an overview and a summary”, “Learning objectives of each module are quite (obvious) clear to the learners”, and “Content is organized in an appropriate sequence and in small modules for flexible learning”* since it has a mean score of 3.15, 3.12, 3.09, 3.12, 3.09, 3.06, 3.15, and 3.06 respectively and has a verbal interpretation of “Agree”. With a total mean score of 3.11, it implies that the respondents “agree” on the content of the modules.

In terms of Learning and Support, the respondents “agree” that *“The modular distance learning*

motivate learners to request feedback from instructors, experts and peers, through e-mail or other online communications”, “Feedback given (by exercises or simulations etc.) at any specific time is tailored to the content being studied, problem being solved, or task being completed by the learner”, “The modules enable learners to practice new knowledge and skills”, “The Mathematics modules offer tools (taking notes, job-aids, recourses, glossary etc.) that support learning”, “Wherever appropriate, higher-order assessments (for example case studies, business simulations, discussion topics etc.) are provided rather than lower-order assessments (simple quizzes and tests)”, “The subject provide support for learner activities to allow working within existing competence while encountering meaningful chunks of knowledge”, “The Mathematics modules provide opportunities and support for learning through interaction with others (discussion or other collaborative activities)” and “The modules include activities that are both individual-based and group-based” since it has a mean score of 2.85, 3.00, 2.94, 3.03, 2.97, 3.06, 3.09, and 2.97 respectively and has a verbal interpretation of “Agree”. With a total

mean score of 2.99 and interpreted as “Agree”.

In terms of Visual Design the respondents also Agree that “*The most important information was highlighted to attract the learner’s attention*”, “*Text and graphics are legible (readable)*”, “*Fonts (style, color, saturation) are easy to read*”, and “*The lesson is written clearly*” since it has a mean score of 3.21, 3.18, 3.15, and 3.09, respectively and interpreted as “agree”. With a total mean score of 3.16 on Visual Design and interpreted as “agree”.

In terms navigation, the respondents strongly agree on the statement “*Learners can choose (easily) what parts of the module to access, the order and pace of studying according to WHLP*” since it has a mean score of 3.3 and interpreted as “Strongly agree”. On the other hand, the respondents agree on the statements, “*Learners have control of their learning activities (studying, exercising, collaborating with other peers etc.)*”, “*The module layout is sufficiently apparent so that learning can develop without extensive consultation of online help*”, and “*It is clear what learners should do if they get stuck or have questions*” since it has a mean score of 3.06, 3.0, and 2.79 respectively and has a verbal

interpretation of “Agree”. With a total mean score of 3.04, it implies that the respondents “Agree” on the statements under the Navigation.

In terms of accessibility, the respondents strongly agree on the statement “*The module is free to access*” since it has a mean score of 3.28. On the other hand, the respondents agree on the statements “*The pages and other components of the module is quickly access*”, and “*The Mathematics Module can be anytime*” since it has a mean score of 2.91 and 3.03 respectively and interpreted as “Agree”. With a mean total mean score of 3.07 and interpreted as “Agree” on accessibility.

In terms of interactivity, the respondents agree on the statements “*The modules has games, simulations, role-playing activities, and case studies to gain the attention, and maintain motivation of learners*”, “*The modules provide meaningful interactions (for example embedded quizzes, tests etc) when there are long sections of text*”, “*The module provide access to a range of resources (web links, case studies, simulations, problems, examples) appropriate to the learning context and for use in the real world*”, and “*The Mathematics module engage learners in tasks that are closely aligned with the*

learning goals and objectives" since it has a mean score of 2.82, 3.06, 3.12, and 3.09 respectively and has verbal interpretation of "Agree". With a total mean score of 3.02 the verbal interpretation is "Agree".

In terms of self-assessment and learnability, the respondents responded agree on the statements "*Learners can predict the general result through the use of Answer key*", "*It is clear to learners what is to be accomplished and what will be gained from its use*", "*The modules provide opportunities for self-assessments (post tests and other assessments) that advance learners' achievements according to the learning objectives*", and "*Embedded exercises and other types of assessment (simulations etc.) prepare learners to apply new knowledge and skills in their everyday job conditions.*" Since it has a mean score of 3.03, 3.03, and 2.97 respectively. While the respondents responded disagree on the statement "*Learners can answer the module even without assistance*" since it has a mean score of 2.45 and interpreted as "Disagree". With a total mean score of 2.902, it implies that the self-assessment and learnability can be interpreted as "Agree".

In terms of motivation to learn, the respondents responded agree on the statements "*The mathematics modules incorporates includes motivational activities characteristics*", "*The mathematics modules stimulates further inquiry*", "*The mathematics is enjoyable and interesting*", "*The subject provides instruction/training that matches with learners' experience*", "*The module meets learners' needs*", "*The subject module provides learner chances to make decisions*", "*The module provides learner with frequent and varied learning activities that increase learning success*", "*Learning requirements, criteria for learning success are clear within the subject module*", "*The subject module provides learners opportunities to use new skills in authentic situations*", and "*The module assists learners to have positive feelings about their accomplishments*" since it has a mean score of 3.18, 3.12, 2.94, 2.97, 3.03, 3.18, 3.03, 3.12, 3.12, and 3.12 respectively and described as "Agree". With a total mean score of 3.08 and described as "Agree".

The study revealed the pre-test result in Statistics and Probability that was conducted before the second semester of school year 2020-2021 was officially started. It reveals that 9 or 27.27% has a score of 13-16 and interpreted as fair. On the other hand, 24 or 72.73% has a score of 0 - 12 and interpreted as poor. With a mean score of 8.1212 it reveals that respondents has a poor academic achievement

during the pretest for statistics and probability. The obtained standard deviation is 4.3356, it implies that the data are spread widely.

The study revealed the post-test result in Statistics and Probability that was conducted a week before the second semester of school year 2020-2021 ends. It reveals that 2 or 6.06% of the respondents has a score of 21-23 and interpreted as "Very Good", 8 or 24.24% got a score of 17-20 and interpreted as "Good", 14 or 42.42% got a score of 13-16 and interpreted as fair, and 9 or 27.27% has a score of 0 - 12 and interpreted as poor. With a mean score of 15.0909 it reveals that respondents has a "Fair" in academic achievement during the post test for Statistics and Probability. The obtained standard deviation is 3.6943.

The study revealed the significant difference between the pre test and post test of the respondents in Statistics and Probability in which the obtained average in pretest was 8.1212 and 15.0909 was average was obtained during the post-test. The obtained standard deviation for pre - test was 4.3356 and 3.6343 which implies that the data in pre test are more spread than the data obtained in post test. The obtained t-test value was -7.029, and ± 1.96 critical value with 5%

significant level it reveals that there is a significant difference between the pre-test and post-test in Statistics and Probability. Therefore, null hypothesis is rejected.

The study revealed the significant relationship between the post test and the modular distance learning in which the obtained pearson r value 0.0747 and degree of freedom is 31. With 5% significant value the obtained critical value was 0.29. Since the critical value is greater than the computed value it implies that there is no significant relationship the modular distance learning and the post test result of the respondents.

DISCUSSION

As revealed in the study, the researcher reflected that there is a difference between the results of pre-test and post-test of the respondents. Hence, the computed standard deviation and average score were not far from each result, it implies that even if there is a difference, the score of the respondents under modular distance learning is considered as fair after the semester. In line with this, the researcher recommends that there should be another method and strategies to be implemented for the better learning of the students.

The study also revealed that there is no significant difference

between the use of modular distance learning and the post test result of the respondents in Statistics and Probability subject.

ACKNOWLEDGEMENT

The researchers would like to extend our heartfelt gratitude to the people who contributed to the completion of this action research.

Special thanks to our principal, Roderick C. Tobias, for his continuous support and encouragement in the conduct of this action research.

To Ms. Rose-Ann Simbrano, Teacher II and Mathematics coordinator, for validating the materials for this study and for sharing her expertise in Mathematics.

REFERENCES

- Chakraborty, Maity. (April 2020). COVID-19 outbreak: Migration, effects on society, global environment and prevention. ScienceDirect.
- EasyLMS. (August 2020). Flipped learning in corporate training: the advantages and disadvantages. EasyLMS.
- EdSys. (2019). What is E-learning and how it's Important to our Education System?
- Hernando-Malipot, M. (2020). DepEd prepares self-learning modules for education's 'new normal'. Manila Bulletin.
- Llego, M. A. (2020). DepEd Learning Delivery Modalities for School Year 2020-2021. Buhay Guro.
- LMS. (2019). Corporate E-learning vs. E-learning in the education sector. Explore Talent.
- Santos Green, Lucy, Banas, Jennifer R., Perkins, Ross A. (Eds.). (2017). The Flipped College Classroom. Springer.
- University, M. S. (2017). What, Why, And How To Implement a Flipped Classroom Model. Michigan State University.
- Zaharias, P. (2004). A Usability Evaluation Method for E-Learning Courses, Unpublished PhD Dissertation, Department of Management Science and Technology, Athens University of Economics and Business.
- Zaharias, P. and Poulymenakou, A. (2009). Developing a usability evaluation method for e-learning applications: beyond functional usability. *International Journal of Human-Computer Interaction* vol 25 (1), January 2009, 75 – 98.