

SCIENCE IN TELEVISION (SCITV): IMPROVING STUDENTS' ACADEMIC PERFORMANCE IN BIOLOGY USING POWERPOINT VIDEO- BASED STRATEGY



VIVIAN D. CABALLERO
Teacher III
Mamplasan National High School

ABSTRACT

This study determined the impact of using Video-Based Strategy in improving the academic performance in Biology among the select Grade 10 students at Mamplasan National High School. The researcher utilized two – group pretest and posttest research design for the controlled and experimental groups. Eighty (80) Grade 10 students were purposively selected by the researcher to be the respondents of the study. The controlled group was given seven PowerPoint presentations while the experimental group was seven PowerPoint video lessons focusing on the topics covered in the 3rd grading period. A paired T-test was used to determine whether there is a significant difference between the pretest and posttest scores of the students. The result of the study showed that there is a significant difference in the academic performance of the students after using the PowerPoint video lesson. The researcher recommended that PowerPoint video lessons be used as an instructional intervention in improving the academic performance among the Grade 10 students.

Keywords: powerpoint video lesson, academic performance, instructional intervention

INTRODUCTION

Science plays a vital role in the foundation for "education for all" (Das 2014, p. 15). Thus, teachers need to nourish students' interest in science to respond to the challenge in quality education, specifically in the academic performance of the students. In the speech of our DepEd Secretary Leonor Magtolis Briones during the launching of Sulong Edukalidad: Addressing the Challenge in Quality Education, the performance of our students in large scale assessment, the National Achievement Test, which we administer for Grade 6, Grade 10, and Grade 12, gravitates towards the low proficiency levels especially in Science, Mathematics and English. In 2018, DepEd boldly decided to participate for the first time in the Program for International Student Assessment (PISA) of the Organization for Economic Co-Operation and Development (OECD). PISA is a triennial international assessment administered to a representative sample of 15-year-old students to test their proficiency in reading, science, and mathematics. The PISA results, where we placed last among 79 participating countries and near last in science and mathematics, put in even sharper focus our need to address quality in basic education. With this data given to us, it can be perceived that Filipino students lack knowledge and skills in science.

With the commitment of the Department of Education to ensure

that the teaching and learning process can happen while looking after the health, safety, and wellbeing of the learners, teachers, and personnel of the Department of Education (DepEd) issued DepEd Order No. 012 s. 2020 entitled Adoption of the Basic Education Learning Continuity Plan (BE-LCP) for SY 2020-2021 in the Light of COVID -19 Pandemic.

In response to the clear mandate of the Department of Education to schools and offices, Mamplasan National High School with its learners, parents, partners, and stakeholders developed its Basic Education Learning Continuity Plan (BE-LCP) that will provide educational interventions suitable to the needs of the learners amidst pandemic. With the collaboration of the internal and external stakeholders the school design a modality that will ensure the health and safety of the learners, parents, teachers, and personnel. Based on the survey conducted by the school the best fit learning modality chosen by the stakeholders in the Modular Distance Learning. Since the students will be using modular distance learning (digital print), this allows the students to use their SLMs which implies that there will be limited interaction between the teacher and the students compared to what is happening in face-to-face classes. The teacher has to utilize platforms like text messaging, instant messaging, telephone calls to address the needs of the students who do not have means and access

to online platforms. Considering that Science is already a hard subject, the context of modular distance learning makes it even harder because aside from the utmost assistance provided by the teachers, and parents/guardians the students must do self-studying.

In our today's K to 12 curricula, Science follows the spiral progression across subjects by building on the same concepts developed in increasing complexity and sophistication starting from Grade 3. With this progression, it is difficult for the student to ensure mastery of knowledge and skills after each level because students tended to forget the accumulated knowledge learned from previous years. Cimer (2011), has mentioned in her paper that students have difficulty in studying Biology because it includes many abstract concepts,

events, topics, and facts that the students must learn. Teachers' styles of biology teaching and teaching methods and techniques may also affect the students' learning in biology. This means that the teacher must provide the necessary intervention to retain the knowledge and master the competencies in Biology.

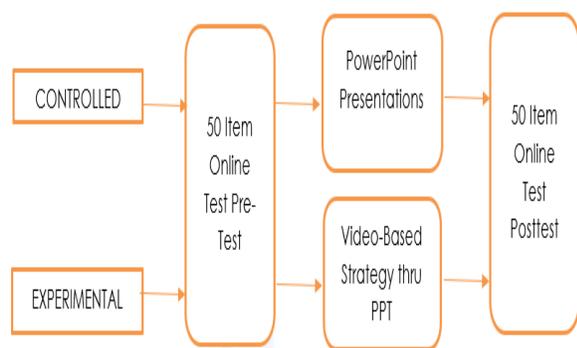
According to Real (2014), PowerPoint refers specifically the use of Microsoft Office Program which enables the person to create slide based on presentations. PowerPoint can be used as a tool by teachers to create visual content-rich presentations using multimedia.

Video lecture was statistically significant and improved student outcomes. When combined with the PowerPoint and instructor-provided lecture notes, student outcomes are even better. It was the combination of aids with a video that gave the best student outcomes (Robertson et. al 2020). To be more effective in delivering the identified least learned competencies in biology the video lessons will be created using PowerPoint presentation. Through video lessons using PowerPoint presentations, teachers can catch the attention of the students.

Mamplasan National High School has an enrolment of 875 for this school year 2020 – 2021. Out of this population, 184 are Grade 10 students. Based on the Learning Progress and Achievement Report for the first quarter, 21 students or 11% got satisfactory rate whose grade ranges from 80-84, 99 or 54% got a fairly satisfactory rate whose grade ranges from 75 – 79 while 5 or 3% of the students were not even able to meet the satisfactory rating. This distressing result had caused the researcher on how to improve the learning progress of the students.

METHODOLOGY

The research adopted the conceptual framework below to conduct the study following a strict implementation of its process.



This figure shows the paradigm that governed this paper. The study used a teacher-made series of PowerPoint Presentation and a Power video lesson covering the most essential learning competencies in the third quarter of Science.

The respondents were selected through the purposive sampling method. Each section was well represented in the study. Through percentage, the number of respondents in each section was identified. Consequently, they are the current student of the researcher in the Science 10 class for the school year 2020 – 2021.

Two sets of forty (40) grade 10 students were randomly selected by the researcher to be her participating students for this study for the controlled group and experimental group.

The materials used by the researcher were the self-made PowerPoint Presentation for the controlled group and PowerPoint video lesson for the experimental group ranging from 6 minutes to 12 minutes discussing the most essential learning competencies. The

PowerPoint presentation and PowerPoint video lessons were recorded during the second quarter. Since this is a pilot testing for the said instructional tool, the researcher only focused on the most essential learning competencies covered in the third quarter.

The researcher used a ratio scale. Bhandari (2020) mentioned in his article that a ratio scale is a quantitative scale where there is a true zero and equal intervals between neighboring points. Since the academic knowledge in Biology of the students was measured using the researcher made pretest and post-test assessment, this was the most appropriate rating scale to be used in this study.

This study is a proposal for Science teachers in utilizing PowerPoint video lessons as a learning tool in improving the academic performance in Biology of the grade 10 students of Mamplasan National High School.

RESULTS

After collecting the data, the researcher analyzed them by using statistical analysis. The researcher recorded the result of the pretest and posttest and was subjected to appropriate statistical treatment. This was conducted to find out whether

using PowerPoint video lessons as a learning tool can improve the students' academic performance in Biology.

To identify the level of proficiency of the students in their pretest and post-test, a frequency distribution table was used. To solve the mean score of both pretest and posttest, the Average Weighted Mean (AWM) was used. To check the significance difference of the students in terms of their pretest and posttest after using PowerPoint video lessons in improving the academic performance, the paired t-test was used with the help of the computer software Statistical Package for Social Sciences (SPSS).

After the thorough analysis, the following results are discussed below:

1. Based on the analysis it can be revealed that the students from the experimental group got a mean of 20.15 in their pretest while the students from the controlled group got a mean of 20.03. A mean difference of 0.12 implies that there is no significant difference between the performance of the students in their pretest scores.
2. Based on the result of their post-test the students from the

experimental group got a mean of 39.05 while the controlled group got a mean score of 32.05. The mean difference between the scores of the two groups is 7.00. A computed t – value of 26.629 revealed that there is a significant difference between the performance of the two groups after using video-based instruction.

3. After comparing the pretest mean score of the experimental group after using PowerPoint video lesson is 20.15 while the posttest mean score is 39.05. A mean difference of 18.90 is obtained. A computed t – value of 28.365 can be interpreted as significant thus using PowerPoint video lessons can increase the academic performance of the students.

DISCUSSION

After the thorough process, the researcher concluded that SciTv using PowerPoint video lessons, as a learning tool, is effective in improving the academic performance of the Grade 10 students in Biology.

For Science Teachers, it is recommended especially now that we are in the new normal that Science Teachers utilized SciTv

through PowerPoint video lessons as it is proven to significantly improve the academic performance of the students involved in the research.

For future researchers, they may conduct similar studies about the use of PowerPoint video lessons in improving the academic performance of the students not just in Science but in other subjects too.

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