

Project ARCHIMEDES Video Lessons: Its Effect on the Academic Performance in Mathematics of Grade Six Learners

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Abstract

The purpose of this study was to determine the effect of Project ARCHIMEDES Video Lessons on the academic performance in Mathematics of Grade 6 learners in a public school in Aklan. Using the quasi-experimental matching-only pre test – post test design, the study examined two comparative groups of learners. The control group and the experimental group comprised of 20 learners each, matched-paired based on their general average in Mathematics in grade 5. The control group used the conventional modular modality while the experimental group was exposed to video lessons of Project ARCHIMEDES. The pre-test result of the control group and experimental group was both average in rating which was ideal for the study since the two groups possessed similarities in rating. The mean score of the post-test of the experimental group was higher than that of the control group which was 27.05 and 24.60, respectively. Consequently, both appeared to be high in rating with the T- value of -1.399 and p-value of .170. However, the difference was not significant at .05 level. The post-test result revealed that the conventional modular learning and the utilization of video lesson were both effective since teacher's intervention provided students with direct instructional support in the learning process. However, the Project ARCHIMEDES was still an effective learning enhancement tool and may be used with teacher's intervention to improve the mathematics performance of the learners.

Keywords: *Project ARCHIMEDES, effect, video lesson, mathematics performance, quality education*

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Introduction

The use of video lessons as a teaching tool has a favorable effect on the students. Videos offer potential for in-depth learning by combining different learning data, such as pictures, movement, and music, according to Greenber and Zanetis (2012). This ensures control over information reception and enables learning to occur at individual rates. The affective component is developing as the students begin to show interest in the video lessons. Their capacity for memory and a deeper comprehension of information both fall within the cognitive category. The psychomotor component occurs when students can independently solve problems, which can be practiced repeatedly with the use of video lectures.

Since the recent pandemic, teachers have become more creative in how they approach their lesson plans and connect learning to students. Use of video courses is one of the best methods for accomplishing that. Given that the majority of the students in the school were not familiar with the other online platform, it is obvious that it has become the most appropriate given the nature of the problem. Additionally, videos can be implemented practically in the modern classroom for educational purposes.

Through Project Archimedes (Aklanon-based Resources for CHildren's Mathematics Education and Development Strategies), Deped Aklan developed video lessons as standardized instruction tools in mathematics to give the students a learning environment where they could proceed at their own pace in response to the issues during the pandemic. According to the Department of Education - Division of Aklan (depedaklan.online), Project ARCHIMEDES aims to provide supplementary digital resources transformed from existing printed modules as a supplement to support students for easier and better Mathematics teachers who are particular about the lessons and understand the needs of the students.

The teacher-researcher also made the decision to carry out the study in order to assess the impact of the aforementioned project on the mathematics academic performance of students in grade six at Buswang Old Bakhaw Sur Elementary School for the academic year 2022–2023.

Methodology

Quasi-Experimental research is applied in this study to quantify the effectiveness of the Project ARCHIMEDES. A quasi-experiment was employed to identify the comparison group that was similar to the treatment group in terms of the characteristics of the intervention. It provided a

high level of evidence without randomisation. Since this study required the use of comparison group, it was much needed for a pair - matching which was the most effective method for equalizing group according to Lauren Thomas (2020).

The data were gathered through three stages: pre-experimental stage, experimental stage, and the post experimental stage.

Pre-Experimental Stage. The researcher submitted the letter of Permit to Conduct a Study to the office of the Schools District Office of Kalibo II of Aklan as noted by the school principal and the Public Schools District Supervisor. Likewise, a letter of Permit to Utilize the Project ARCHIMEDES was sent to the Education Program supervisor in Mathematics to seek for approval of the Division Office of Aklan. After the letters of permit were submitted, a scheduled orientation was conducted to inform the parents about the study and secured a letter of consent duly signed by the concerned parents. The videos from the Project Archimedes were downloaded and the test questionnaires were prepared by the teacher. The teacher-made test questionnaire was then checked and validated by the Northwestern Visayan Colleges Dean College of Education , Senior High School Principal and the Buswang Old Bakhaw Sur Elementary School Math Coordinator. After having prepared the necessary tools for the study, the 40 respondents were then grouped. The general average of the currently Enrolled grade 6 respondents for the school year 2021-2022 were collected and were used as the basis in match-pairing to equally group the respondents. Group A was assigned as the control group while the set B was assigned as the experimental group.

Experimental Stage. The teacher-researcher conducted the study on the First Quarter on September 12,2022 and ended on October 21,2022. Pre - Test was administered to both groups before the topic was introduced. After having completed the pre-test, the set A group which was the control group used the modular modality with teacher's intervention while the Set B group as the experimental group was exposed to the Project Archimedes Video Lessons. A total of 13 video lessons were exposed accordingly.

Post-Experimental Stage. A post-test was given to the two groups of respondent after the treatment. Test papers were collected and were carefully corrected. 1 point was given to every correct answer and the highest possible score was forty (40) points. The Pre-test and the post-test result were compared in order to evaluate the improvement of the learners in the test. A paired sample t-test was used to determine which methodology was more effective.

The results of the pre-test and the post-test were tabulated, analysed, compared and interpreted. Each correct answer was scored 1 point and 0 for every incorrect answer. The highest possible score that learner can obtain was forty (40) points and the lowest was (0).

Mann-Whitney U Test was used to compare the difference between the Pre-test and post-test of control group and experimental group. While Wilcoxon was used to compare the difference between the pre-test and post-test of the experimental and the control group result. The p-value must be greater than the tabular value to reject the null hypothesis. However, accept the null hypothesis if the t-value was less than the tabular value.

The teacher-researcher adhered to the ethical consideration when the study was conducted. There was no discrimination or any violation that had transpired regarding the responses of the respondents. Information and results of the study were gathered confidentially. The respondents participated willingly and were informed that they may withdraw their participation at any point during the process.

Findings

Based on the specific problems in Chapter 1, the following findings were evolved and presented. Both the control group and the experimental group performed at an average level based on their pre-test results. In comparison to the control group, the experimental group's level of post-test results is higher. The pre-test results of the experimental group and the control group did not significantly vary. The experimental group's pre-test and post-test results show a substantial change. The post-test results show no discernible difference between the experimental group and the control group in terms of performance level.

Conclusion

In the light of the findings presented, these conclusions were arrived: since the control group and experimental Group's pre-test scores were similar before the experiment, there was no discernible difference between them, which made the experiment a great success.

The post-test results of the responders show a considerable difference, giving the experimental group better scores. Given the fact that the experimental group outperformed the control group in terms of test results, it can be concluded that using Project ARCHIMEDES video courses in the classroom is successful.

Since teacher intervention was still crucial during the learning process, the level of difference between the pre-test and post-test results of the group using conventional modular learning was highly significant in comparison to the result of the group exposed to Project ARCHIMEDES. For whatever reason, the teacher's language was more persuasive when imparting instruction. However, both the control group and the experimental group saw an improvement in their academic performance, making both modalities beneficial. The post-test results between the experimental group and the control group, however, did not significantly differ. As a result, more time is needed to process the augmentation of the courses and produce more efficient video lessons.

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