
**A PROPOSED VIDEO TUTORIALS TO DEVELOP THE MATHEMATICAL SKILL
OF GRADE TEN JUNIOR HIGH SCHOOL STUDENTS**

Mariano D. Gillo

Faculty, College of Education ,Eastern Visayas State University, Tacloban City, the Philippines

ABSTRACT

The main purpose of the study is to develop a Video-Tutorials for enhancing the mathematical skills of grade 10 students. Utilizing the case study design, 36 purposively chosen students were taken as respondents. They were given a test to determine their numerical competence on specific competencies for this content subject. Results showed that their performance was at 60.26, a moderate performance far below the standard high performance of 75 percent Mean Percentage Score. Thus, the need for remediation. In this paper, video tutorials to enhance their performance serve as an intervention scheme to address the performance gap.

Key Words: Video Tutorials, Mathematical Skills, Teaching, And Learning Tools.

1. INTRODUCTION

One of the importance of international assessments like the Programme for International Student Assessment (PISA) and the Trends in International Mathematics and Science Study (TIMSS) is that it provides insights into the existing pedagogical competencies adhered to by the academic community a specific country. These insights are deemed possible, especially so that assessments of these kinds closely examine the relationship among the various aspects of the curriculum: the intended, the implemented, and the attained.

One of the measures implemented and adopted by the Philippines to overhaul its curricular offering in basic education is the institutionalization of the K-12 Curriculum or the Enhanced Basic Education Act of 2012. Among its goals is to ensure Filipino learners' holistic development and global competitiveness. One of the indicators of the reform's effectiveness is the country's performance in large-scale international assessments like the PISA and TIMSS.

In the most recent results for these assessments, Filipino learners scored lower than in the previous years despite the current curricula overhaul implemented through the K-12. This is alarming. This low achievement in mathematics is happening today. To address this problem, according to Hillier (2011), differentiating instruction in mathematics can include strategies such as the teacher modifying curriculum, teaching methods, forms of instruction delivery, resources, learning activities, and student work products. In addition, differentiation addresses the needs of individual students. When mathematics teachers use technology strategically, more students, especially those who struggle, can learn math skills effectively. Using technology such as video tutorials can improve student achievement in mathematics by providing multiple means and methods for learners to grasp the traditionally difficult concepts. (Darling-Hammond, Zieleski, & Goldman, 2014).

Video tutorials, whether recorded or live, are essential to students because they add another dimension to learning that makes students' educational experience more effective, helping with

retention. The ability to pause, rewind, stop and play a recorded video tutorial on DVD or online helps students replay important points that they need to remember, which is essential for memory retention in preparation for the exam. It is easy to miss what the instructors say at any given moment in a live classroom, but with a video tutorial, notes can be rechecked for accuracy. A lesson in video format allows students to focus on a specific segment and play the information in its entirety. It offers a multidimensional experience that may combine charts, slides, photos, graphics, narration, screenshots, on-screen captions, music, and live video. This allows students with different learning abilities to retain information more suited to them. The more tools are utilized in a video tutorial, the more ways a student can comprehend and retain the information (Chron Contributor, August 12, 2021). This paper then intends to develop video Tutorials for enhancing the mathematical skills for select competencies of grade 10 students.

2. REVIEW OF RELATED LITERATURE

Mathematics is one of the compulsory subjects for all levels of education, primary, secondary and higher education. However, some students often regard this lesson as complicated, even scary. So, it is often considered a boring lesson by students. This study aimed to determine the effects of using video in teaching on students' cognitive and affective aspects in mathematics learning. These effects were investigated from the results of previous studies.

Fede, Pierce, Matthew, and Wells (2013) examined the effects of computer-assisted schema-based instruction on math problem-solving skills. Deficiencies in students' basic-math skills are responsible for many errors made by students when solving the math problem. Hudson, Kadam, Lavin, and Vasquez (2010) stated that three common causes for these deficiencies were found to be lack of prior knowledge, negative attitude towards math, and lack of varied teaching methods being used. Their research targeted using technology to improve students' basic math skills in fourth, fifth, sixth, and ninth grades. Likewise, the Philippine Mathematics Curriculum is conceived with the twin goals of developing students' critical thinking and problem-solving. The contents are clustered into five strands: 1) Number and Numbers Sense; 2) Measurement; 3) Geometry; 4) Patterns and Algebra; and 5) Statistics and Probability (Deped, August 2016). The content dimension was based on the assessment framework in the previous TIMSS but with minimal revisions to make it reflective of the current curriculum.

Ten years into the 21st century, few teachers' preparation programs have been revised so that mathematics teachers are prepared to incorporate digital tools as they facilitate students' mathematics learning. Perhaps the vision of using digital videos for learning mathematics needs some direction. Our goal in this study is to guide mathematics teachers and teacher educators on using digital videos as mathematical learning tools. Lessons are tailored to the individual students' needs, and online tutorials on each math topic are available. Student works at their pace and is provided immediate feedback on their accuracy. These video tutorials are reimagining the look of the math classroom of today.

One of the examples is the Khan Academy, a non-profit educational organization created in 2006 by educator Salman Khan. Khan Academy is known for its extensive collection of instructional videos. It is initially covered the subject of mathematics. Math exercises are available with step-by-step hints, related videos, and immediate feedback on whether the question was answered correctly. After more schools began implementing the video instructions, the standard look of the regular math classroom changed. Many of today's school-aged youth actively contribute to YouTube, where they upload, view, and share their video clips as a way of

communicating their thinking ideas. They use simple digital video tools such as cellphone cameras with movie settings. Video clips offer instructional possibilities for engaging students in the watching mode to explore their visualization skills requiring gathering and integrating audio and visual sources.

3. METHODOLOGY

This study used the case study design. A case study is an in-depth study of a particular research problem rather than having a statistical survey or comprehensive comparative inquiry. It is usually used to narrow down a broad research topic into one or few easily researchable examples (Cohen, Swerdlik and Sturman, 2013). It utilized 36 grade 10 students as its respondents. This study utilized a teacher-made summative test based on the Most Essential Learning Competencies (MELC) to know the respondents' performance. The test result was based on what competencies need development using reinforcement material in the form of video tutorial materials. The results were treated through the most appropriate statistical tools.

4. RESULTS

The overall performance of the grade five class on the 50-item test administered is 60.26, with a moderate performance level. However, this performance is far below the standard performance of a 75 Mean Percentage Score. This entails that most learners need remediation in most of the skills tested. Additionally, moderate, remembering and understanding, applying and analyzing, and evaluating and creating. Specifically, in the illustration of a geometric sequence and types of sequence, differentiation of a geometric sequence from an arithmetic sequence, evaluating problems involving polynomials and polynomials equations, creating a proof of the remainder theorem, and the factor theorem. Based on the interpretation guide set in this study, learners' performance with moderate results requires the development of video tutorials as one of the mechanisms to improve their performance in the specific competencies in the MELC. However, there were three test items with high performance, seven (7) test items with moderate performance, and five (5) test items with low performance. Still, intervention material needs to be developed to augment these specific competencies.

5. CONCLUSION

Mathematics performance of the grade 10 junior high school students was generally moderate and far below the standard high performance, which further entails that most learners need remediation in most of the skills tested. Therefore, there was a need to develop an instructional tool that could serve as an intervention scheme to remediate these gaps in learning the MELC for Mathematics as one of the subject learning areas. The researcher is deeply convinced that video tutorials in Mathematics This premise is supported by a claim of Darling-Hammond, Zieleszinski & Goldman (2014) which states that using technology such as video tutorials can improve students' achievement in various learning areas such as Mathematics as it provides learners multiple means and methods to understand challenging concepts.

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