

Interactive Video-Aided Instructional Materials and Learning Competencies in Physical Education

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ABSTRACT: This experimental study focused on using interactive video-aided instructional material and its impact on achieving or mastering the learning competencies in Physical Education. The study participants were Grade 10 students at Lucena Dalahican National High School (LDNHS). Based on the 2 Most Essential Learning Competencies in Physical Education, the researcher created an interactive video lesson in Physical Education that covers the topics for the third quarter. In addition, the researcher utilized validated self-made interactive video lessons in Physical Education 10. The instrument used to collect data for this investigation was the researcher-devised pre- and post-test. The prototype of the evaluation tests was created based on the researchers' prior inquiries and readings. Based on the findings of the study, the following conclusions were drawn. The pre-test scores of Grade 10 students in Physical Education covering the written and performance tasks are at a low mastery level. The post-test scores of Grade 10 students in Physical Education covering the written and performance tasks are moving toward mastery level. There was a significant difference between the pre-test and post-test scores of the students when they were exposed to the interactive-video materials connoting the effectiveness of the intervention material used. Moreover, the researcher recommends that since interactive-video materials have been proven effective, the interactive-video material could be used on a division-wide scale. The interactive-video material can be further developed and enhanced to obtain optimum results in the student's test scores.

KEYWORDS: Interactive-Video Materials, Performance Tasks, Pre-test, Post-test, Physical Education, and Written Tasks

I. INTRODUCTION

Recent technological advancements have improved virtually all educational practices. Such enhancements aided teachers' educators in developing their pedagogical practices, which impacted the performance of students whose cognitive and knowledge acquisition has significantly increased due to integrating advanced e-learning technologies into instruction. Incorporating electronic media into formal educational systems in institutions, including universities, is widespread. Further developments in pedagogical practices have given rise to "blended learning," which combines traditional learning with electronic learning.

Considering this, distance education is a powerful strategy for increasing access to higher education, regardless of socioeconomic status, during the current global crisis. Thus, the world has implemented various teaching and learning strategies suited to its resources and capabilities.

The Department of Education (DepEd) addresses these challenges through its Basic Education Learning Continuity Plan (BE-LCP) according to DepEd Order No. 012, s. 2020. In the Philippines, the pandemic of the coronavirus disease 2019 (COVID-19) continues to pose various problems and difficulties. It is a legal framework that specifies the learning delivery modalities that schools may implement based on the local health conditions of the community, the availability of resources, and the context of the learners at the school or the locality.

Blended learning utilizes various instructional material delivery methods, including direct lecturing, online communication, self-learning activities, electronic performance support system, and learning management systems. Briefly, the main components of blended learning as a newly developed instructional approach include regular face-to-face classroom interactions between teachers and their students; traditional learning materials such as printed textbooks, workbooks, and worksheets; computer-based learning through an e-learning environment, an electronic assessment, and feedback; and traditional learning materials such as printed textbooks, workbooks, and worksheets. In blended learning, the learner is the focal point of the learning process.

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II. METHOD

The following discussion focuses on the research method, population and sample design, sampling technique, description of respondents, instrumentation, data gathering procedures, and statistical treatment employed in this study.

Research Design

In the present study, the descriptive, experimental research method was utilized. The researcher utilized it because it describes the characteristic of the situation, compares two variables as they exist at the time of the study, and investigates the cause of the phenomenon. Indetermining the cause-and-effect relationships, experimental research is used as the instrument in the study. It enables the manipulation of variables and observing their effects, which is essential for comprehending how various factors influence the outcome of a study. It involved collecting data using a checklist questionnaire, the primary instrument for comparing face-to-face and online Physical Education course delivery.

Sampling Technique

Participants in the study were students in 10th grade from Lucena Dalahican National High School (LDNHS). This study selected research participants using a snowball sampling technique based on the discretion of the researchers and a predetermined set of criteria.

To ensure that the study sample is representative of the population, twenty-one percent of designated student respondents were utilized. Additionally, the matrix below guided the researcher in selecting the number of students she would work with.

Table 1. Respondents of the study by section

Sections	Population	Actual Respondents
A	49	10
B	47	10
C	48	10
D	50	10
E	48	10
Total	242	50

Research Procedure

This experimental study started with devising, validating, and pilot testing the pre-test, post-assessment tests, and video lessons. The researcher sought the help of the experts in terms of language and content review. After this, a pre-test was administered to the experimental group. Then, they taught using interactive video-aided instruction wherein they were exposed to video lessons and other interactive materials. After the given time frame of the treatment, the post-test was administered to compare the results. The results of the pre and post-test were subjected to analysis using appropriate statistical tools.

Moreover, the data was gathered by administering the tests and interpreted using the item, score analysis, and mean scores. The researcher requested a letter from the school's principal in the research location. Upon approval, the researcher immediately approached the school principal and year-level coordinator to request permission to administer the study to the students. The researcher included a consent letter explaining the purpose of the study to the respondents and requesting that they answer each question as objectively as possible.

Statistical Treatment of Data

The researcher retrieved the data and enumerated and tabulated the responses in preparation for statistical analysis. A statistician's assistance was sought to ensure the accuracy of statistical decisions, computations, and tabulations.

The researcher used simple frequency count and weighted arithmetic mean to quantitatively interpret or describe the results of the student respondents' assessment tests.

In interpreting the pre-test and post-test scores, the following proficiency level scale was used:

Percentage	Verbal Interpretation
Below 35	Very Low Mastery
36 – 65	Low Mastery
66 – 85	Average Mastery
86 – 95	Moving towards Mastery
96 – 100	Mastered

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III. RESULT AND DISCUSSION

The data gathering of the study and the interpretation of the results were presented in tables and were pre-tabulated, giving the reader a concrete and itemized view of the item.

Table 2. Respondents' Mean Pre-test Scores in Written and Performance Tasks

Learning Competencies		Mean	Std. Deviation	Verbal Interpretation
Written		7.70	1.31	Low Mastery
PerformanceTasks	Minute-dance	16.24	1.41	Low Mastery
	Hip-hop	16.18	1.83	Low Mastery

Table 2 highlights the mean pre-test scores of the Grade 10 learners in Physical Education. As for the written assessment, which comprised 15 items, it can be noted that it obtained a mean of 7.70 and a standard deviation of 1.31 with a verbal interpretation of low mastery. Meanwhile, the performance tasks on minute-dance and hip-hop, which has a score of 25, obtained a mean of 16.24 and 16.18 with a standard deviation of 1.41 and 1.83, respectively, and connotes a low mastery level.

Before using the interactive video-assisted materials covering the Physical Education competencies in the third quarter, these data suggest that students in 10th grade still need to become familiar with the competencies. It is to be anticipated, as instruction regarding the competencies has yet to begin.

Students are expected to acquire the knowledge, skills, and behaviors for a healthy, active lifestyle through physical education (US Institute of Medicine, 2013). However, the acquisition of physical activity knowledge is influenced by numerous variables. Knowledge interest is a significant factor that motivates students to learn. In American public institutions, however, a lack of interest in knowledge has been identified as a problem (Jones, Howe, & Rua, 2000). According to George (2000), the interest in scientific knowledge declines progressively during middle school. As a field of scientific knowledge, physical activity knowledge pertains to physical movement and its positive effects on human health and performance (Whitehead, 2010). However, more about students' interest in physical activity knowledge and its trajectory is needed. Therefore, it is still being determined to what extent an interest in physical activity knowledge will promote or inhibit knowledge development and behavior.

Adolescents whose interest in physical activity knowledge declines may develop undesirable behavioral changes. In facing a nationwide obesity epidemic, it is imperative to navigate middle school students' interest in physical activity knowledge and possibly alter its trajectory. This study ascertained the role of prior physical activity knowledge in predicting changes in pre-instruction interest in physical activity knowledge.

Table 3. Respondents' Mean Post-test Scores in Written and Performance Tasks

Learning Competencies		Mean	Std. Deviation	Verbal Interpretation
Written		12.30	1.16	Moving towards Mastery
Performance	Minute-dance	20.32	1.78	Moving towards Mastery
	Hip-hop	20.32	1.85	Moving towards Mastery

Table 3 highlights the mean post-test scores of the Grade 10 learners in Physical Education. As for the written assessment, which comprised 15 items, it can be noted that it obtained a mean of 12.30 and a standard deviation of 1.16 with a verbal interpretation of moving towards mastery. Meanwhile, the performance tasks on minute dance and hip-hop obtained a mean of 20.32 and a standard deviation of 1.78 and 1.85, respectively, and connotes moving toward mastery. These data imply the students' increased proficiency level after using the interactive video-aided materials in Physical Education. A significant increase in their performance would indicate a change in their knowledge and skills in the targeted competencies.

According to Harper (2020), productive online Physical Education enables students to explore, endeavor, and discover new forms of movement they enjoy while establishing physical activity as a positive experience. Physical education has a strong, positive, and directly proportional relationship with academic performance.

According to Cobarzan et al. (2017), the interactive video has many characteristics, including the ability to control the presentation of the learner, interact with the links and options that appear during the video's playback, and provide more explanation and additional information based on the preferences of each student. Furthermore, the interactive video is characterized by its adaptability and ease of use. It is possible to submit and return the video when explaining, close and reopen it at any moment, and modify it based on the requirements of the lessons to be presented. Thus, the interactive video provides students with a personalized learning environment, increasing their learning motivation.

Palaiogeorgiou and Papadopoulou (2019) noted that interactive videos transform the learning experience from a one-way flow of information to a two-way exchange in which the learner plays an active role. Interactive videos can contain various interactive

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elements, including click-to-discover interactions, inquiries, and polls. The interactive videos also give students and teachers control so that they can design and organize the virtual learning environment, where they can watch and learn from the videos at their own pace without pressure from teachers or classmates. Moreover, they can always move to the subject's advanced content or stick to the fundamentals.

Table 4. The significant difference in the Pre-test and Post-test Scores of the Respondents in the learning competencies

Learning Competencies		Pre-Test		Post-Test		t	df	Sig. (2-tailed)	Interpretation
		Mean	Std. Deviation	Mean	Std. Deviation				
Written		7.70	1.31	12.30	1.16	-23.000	49	.000	Significant
Performance	Minute- dance	16.24	1.41	20.32	1.78	-21.325	49	.000	Significant
	Hip-hop	16.18	1.83	20.32	1.85	-17.971	49	.000	Significant

Table 4 covers the significant difference test in the mean pre-test and post-test scores of the Grade 10 learners in Physical Education regarding written and performance tasks. It can be gleaned that the written task, which denotes the pre-test (7.70) and post-test (12.30), obtained a statistically significant difference between the means of the two variables. Also, in the performance task, minute dance (pre-test = 16.24, post-test = 20.32) and hip-hop (pre-test = 16.18, post-test = 20.32) obtained statistically significant differences between the means of the two variables. These data indicate a significant difference in the pre-test and post-test scores of the Grade 10 students in terms of written and performance tasks in Physical Education when they were exposed to the interactive-video materials. Thus, the result implies that interactive video-aided instruction or materials significantly contribute to the mastery of the learning competencies in Physical Education.

The findings are consistent with those of Mustadi (2019), who investigated the effectiveness of the visual thinking technique on students' critical thinking. Six indicators were used to assess students' critical thinking ability; five assessed students' cognitive ability through analysis, description, interpretation, and evaluation and conclusion of the activity, while the remaining indicator assessed students' emotional ability to self. The list consisted of 40 university students in Indonesia, and the research employed a descriptive-analytical methodology. The tools used were a written test in the form of an essay and an interview. The study's result revealed that visual thinking increased students' critical thinking abilities for all indicators: the ability to analyze, describe, interpret, evaluate, draw conclusions, and evaluate oneself.

Similarly, Laila and Raharja (2021) conducted a study to determine the impact of interactive video media on student learning in Singapore fifth-grade social studies. The investigation used interactive video media in social studies instruction during the 2020/21 academic year semester. The study employed the experimental method and applied it to the same group as experimental and control conditions. The sample for this research consisted of all fifth-grade students in a school, a total of 20 students (11 female students and nine male students), and the findings indicate that the use of interactive video media affects fifth-graders social studies learning.

IV. CONCLUSIONS

Based on the findings of the study, the following conclusions are drawn:

There was a significant difference between the pre-test and post-test scores of the students when they were exposed to the interactive-video materials connoting the effectiveness of the intervention material used; hence the hypothesis stated in the study is not sustained.

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