

Contextualized Physical Education Video-Based Instruction in Google Classroom

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Abstract

This study focuses on the development, validation, and evaluation of contextualized Physical Education video-based instruction for Grade 9 STE students using Google Classroom. Employing a developmental research design guided by the REACT model, the researcher adhered to the five stages of designing contextualized instructional materials. Given the limited number of participants, total enumeration was used to 66 Grade 9 STE students. The tool has undergone quality assurance validation from qualified Grade 9 MAPEH Teachers, learning Resource Evaluators in terms of content, instructional quality and technical quality and by the IT experts in terms of Style and Organization, creativity, content, quality, Spelling, Usage, Grammar, and Mechanics. Thus, findings revealed that the developed tools are acceptable as assessed by the two groups of validators. Pretest results indicated a mean score of 12.88 however, following the integration of video clips the post-test scores improved significantly with a mean score of 24.92. Additionally, the study will compare pre-test and posttest results before and after the exposure of the video-based instruction to ascertain the importance of the learning gains made by the students. The results will add to the increasing amount of information that supports contextualized teaching strategies and technology integration in the K-12 curriculum.

Keywords: *Contextualization, Google Classroom, Video-Based Instruction*

Introduction

Contextualization is making content usable and adaptable to meet the needs of a particular region, a particular teaching need, and a particular cultural preference. It is also a multidiscipline in a different learning environment with diverse needs, and either a school's or a district centralized curriculum.

Under to DepEd Order No. 43, s. 2013 entitled Implementing Rules and Regulations of Republic Act No. 10533, The K-12 Curriculum was contextualized (Rule II, Section 10.2 b), and flexible enough to allow schools to localize, indigenize, and develop it by their unique educational and social settings (Rule II, Section 10.2 h) these values and standards serve as the foundation for the DepEd's attempts to maintain the inclusive, egalitarian, and culture-based basic education system. It is crucial that teachers must find new ways to address students' needs to help them achieve the competencies and skills specified in the curriculum. The teachers can teach a lesson while also enhance students' knowledge of a particular subject further.

The idea that incorporating technology into physical education lessons (like brain breaks) has a favorable effect on students' attitudes and physical activity behavior (like self-efficacy) was supported by research findings. Furthermore, research indicates that integration of technology in physical education has facilitated educators in designing more dynamic learning environments that cater to a diverse spectrum of students' physical activity and fitness status (Keating, et al., 2020). Zoleta and Andal (2023) noted that students' performance tasks indicate progress toward mastery, which suggests that they have improved their level of competency following their use of interactive video-assisted physical education materials. The notable improvement in their performance would suggest a shift in their understanding and proficiency of the desired competencies.

Nevertheless, there is a paucity of research on its application to support secondary school students' performance-based physical education competencies. After realizing this gap, the researcher sought to investigate the revolutionary possibilities of performance models for physical education that rely on video. The goal of this study is to provide solutions to close the current academic gaps, promote a paradigm shift in teaching strategies, and eventually improve the physical education proficiency of Grade 9 STE students. By doing this study, the researcher hopes to both advance and add insightful perspectives to the larger conversation about education.

Literature Review

On Contextualizing Instruction

According to Garcia et al. (2021), teachers need to anchor their instruction in the lives of their students and use real resources to contextualize. Given this, if teachers were not given enough contextualized resources, it will be

challenging to create this type of instructional content. Furthermore, by placing various subjects in pertinent and meaningful situations, contextualization aids students in acquiring new abilities, attitudes, knowledge, and skills. Through contextualizing and localizing the lesson according to the learner's prior experiences and real-life circumstances, teachers can deliver the lesson in a more meaningful and pertinent way. However, Abad (2020) carried out research on Creating Culturally-Based and Contextualized Reading Materials for Indigenous Students. Since comprehension and other higher-order cognitive abilities rely on a topic's vocabulary, reading is a popular method of learning new things. As a result, regardless of the language barrier, contextualized content would make it easier for students to interact with it and improve their understanding. Reading strategies are essential for assisting students in overcoming their reading difficulties. When instruction and learning were contextualized per the defined curriculum's principles and standards, a locally based and culture-responsive education is delivered. The Philippine Constitution's Article XIV, Section 1 (par. 1), states that "The state shall establish, maintain and support complete, adequate and integrated system of education relevant to the needs of the people and society." This clause includes contextualization.

Also, learning can result from contextualizing the teaching strategy since it affects students' thought processes. This is because the issue presented is combined with the context of their daily life which is in line with the curriculum. For the teacher it cannot be easy because they need to put in extra work to prepare the lesson. The fact that the topics were interwoven with the students already know however it can be advantageous.

On Instructional Material Development

Instructional materials have a significant impact in both the teaching and learning process and the student's academic performance. Instructional Materials assist educators in making their lessons clear and understandable. The materials also help learners receive ideas and information that enhance their overall educational experience. Instructional Materials also assist students with remembering the lessons they have studied. Furthermore, Instructional Materials were used to evaluate students' progress and assist them in putting their skills into practice. Therefore, it is undeniable that instructional materials are crucial instruments for enhancing the teaching and learning process. It needs to be produced and supplied in sufficient quantities and quality especially in Physical Education. For that reason, by encouraging students to seek out learning and performances in digital content, this intervention may be used to accomplish the desired consequence. A presentation that uses videos to illustrate the necessary best practices for teaching through lessons and material (Wong & Tan, 2021).

Rodriguez and Ang (2020) also cited that video lectures stimulate students' interest, help them understand fundamental science concepts, improve lecture discussion and students' comprehension, make the lesson easier to understand, and offer pertinent information, meaningful examples, and a visual presentation. Good utilization of teaching resources and their connection to the subject matter would help students learn and remember what they have learned, improving their performance. It also explained that the only way to accomplish this is by using video-based instructional materials in the teaching process. Learning is the process by which facts, ideas, habits, knowledge, and principles are acquired, retained, and used. Therefore, during the teaching process, teachers can teach more effectively and efficiently when they use pertinent instructional resources. They also pointed out that only teachers can ensure that students use the resources effectively and appropriately, which will help them succeed in their studies.

On Video-Based Instruction in Physical Education

Although there are advantages to using video-based instructional materials, there are drawbacks. For instance, there may be issues with internet access when using in-class YouTube videos (Wawuda, 2019). Furthermore, Macandog and Insorio (2022) pointed out that although YouTube videos are helpful in demonstrating paralinguistic components, including body language, eye contact, gestures, and facial expressions, teachers encounter several challenges when using them. Despite these obstacles, Robosa et al. (2021) discovered that educators become more creative and inventive in their search for methods to offer instructional materials and learning resources, including video-based teaching resources, to accomplish learning objectives.

Galatsopoulou et al. (2022) found that these parameters were strongly correlated with the intention of use, as were students' positive sentiments regarding videos. Furthermore, the video's technical elements did not pose an issue for the learning process, probably because of the high caliber of modern internet connections, audiovisual productions, and playback devices. Duration of the video clips was also a problem because there are various ways to incorporate videos into the educational process. In general, films can be utilized in various active learning contexts to improve student motivation and engagement while creating a happy, friendly, and cooperative learning atmosphere. In addition to being accustomed to digital tools and technologies, students appear to appreciate using audiovisual materials in the classroom.

Zhang's (2021) study indicates that video presentations that enhance students' motor skills are the most beneficial and practical applications of digital video and self-modeling in physical education. With the help of readily

accessible technology and 21st-century skills, the teaching and learning process adjusts to the ever-changing surroundings. The study will identify areas for growth and obstacles so students can take advantage of every opportunity to integrate ICT into the learning process. Video-based presentations can be used to enhance training in physical education. ICT integration, according to Wyant & Baek's 2019 study, is essential in creative and innovative teaching and learning. Realizing the potential of digital technology is necessary, if students are to become critical thinkers, active learners, knowledge creators, and responsible global citizens engaging in both the economy and society, this will improve instruction, study, and appraisal. In the same way, Gordillo et al. (2022) claimed that students' learning was much enhanced by video-based learning.

On Google Classroom as Instructional Platform

Online learning was superior for the student. Since online learning allows students to study more easily by using computers, tablets, or Android phones instead of just listening to books, it is a fun way to learn. Online learning may also help students become less disinterested, engaged, and bored with their studies. Students must actively participate in the learning process to be both practical and pleasurable. Enhancing readability, developing positive viewpoints, encouraging class discussions, and improving reading and critical thinking skills are all possible with online learning. They found that Google Classroom, an online learning platform, had a significant impact on students' information literacy skills. It shows that Google Classroom is far more efficient than conventional education. This study influences using Google Classroom to establish practical learning experience. It could be considered by policymakers for possible uses of the learning techniques. Ideas for future studies that investigate the efficacy of Google Classroom, particularly when evaluating information literacy from other subject areas like digital literacy to find out how efficient teaching and learning will be with Google Classroom.

Google uses Google Apps for LMS to help meet the increased demand for instruction. Initially made available for free to eligible organizations in October 2006, this ecosystem of apps was designed to integrate with well-known educational institutions' current mail and user account directory systems, and it included tools to make the transfer of these systems to Google Apps possible (Micro, 2019). Google introduced Google Classroom in August 2014 as an LMS that integrates seamlessly with the other instructional resources already included in Google Apps. Teachers can better manage their schoolwork with the help of a simplified, user-friendly classroom application. Teachers can create classes, assign homework, mark it, provide feedback, and view all of this information in one location using the classroom (Google for Education, 2021).

Materials and Methods

Research Design

In order to create and validate a contextualized video-based instruction for teaching Grade nine (9) in Physical Education components, this study used a developmental research design. Developmental research was distinguished from simple instructional development by systematically investigating the design, improvement, and evaluation of instructional processes, products, and programs that met internal coherence and efficacy standards. While many research methodologies could offer practitioners actionable data, developmental research stood out for its particular emphasis on the planning, creation, and assessment of educational processes and outcomes. Therefore, the purpose of developmental research may be to either draw conclusions or legal declarations that are applied to a broad generating context-specific information to address problems.

Respondents of the Study

The main participants of the study are the validators who are the experts that assessed the developed contextualized instructional video materials and the sixty-six (66) grade nine STE students of one secondary school of the Division of Sagay, Sagay City, Negros Occidental, in the school year 2024-2025.

Using the rating scale adopted from DepEd LRMDS, the evaluation for the developed contextualized Physical Education Video-Based Instruction in Google Classroom was described in terms of Content, Instructional, Technical Quality, and other findings, including conceptual, factual, grammatical, and other types of error evaluated by the seven (7) grade nine MAPEH teachers who have three years of teaching experience; and in terms of style and organization, creativity, content, quality and spelling, usage, grammar, and mechanics evaluated by the three (3) ICT experts who also have three years of working experience on their field. They are deemed qualified to provide the most feedback for validating Contextualized Physical Education Video-based instruction in Google Classroom due to their experience, educational background, and competence.

On the Development of Contextualized Physical Education Video-Based Instruction in Google Classroom

The researcher utilized the REACT instructional strategy in the planning, creating, and validating of contextualized material. Therefore, students saw how the topic was beneficial in a real-world situation since the REACT approach connected the information to everyday experiences.

After conducting a pretest for Grade 9 STE students to evaluate their academic performance, the researcher adheres to the five essential steps in the REACT model. These procedures were carefully achieved by the steps of the model to produce a more engaging and successful learning experience to contextualize video-based instruction in Physical Education with the incorporation of interactive and contextually relevant video instruction. The systematic application of the REACT model ensured that the instructional design satisfied the requirements of the students as well as the learning objective.

I. Relating

In the first stage, to help students better comprehend what information needed to be mastered and what were the key concepts, the first step of REACT technique is to learn was to make connections with everyday happenings and advantages of mastered subject matter. Students started to understand how to connect a topic to everyday life at this point. Specifically, when students learned in the context of real-world experiences- daily sights, sounds, and circumstances- they were better able to connect newly acquired knowledge to issues that needed to be solved or new information that had to be processed.

II. Experiencing

In the experiencing stage, it could assist students in developing new information through interactive exercises and creative video lessons. The researcher chose a video editing tool to develop contextualized Physical Education Video-based Instruction in Google Classroom. The primary tool utilized to develop video lessons for this investigation was the KineMaster application. Voiceovers, sound effects, speech modulators, and music were all incorporated by users. The researcher would design, investigate, and create videos to deliver the contextualized instruction since KineMaster was an application software used. The researcher developed contextualized physical education video-based instruction then upload to Google Classroom so that the Grade nine STE students could explore better learning experiences.

Hence, contextual learning revolves around learning within the framework of invention, exploration, and discovery. Even though other teaching tactics, including text- or video-based activities, may produce motivated or tuned-in students, these were still relatively passive modes of instruction. Furthermore, when students could use tools and materials, learning seemed to be much faster.

III. Applying

In the third stage, learning was accomplished by applying knowledge to problem-solving activities and exercises both through worksheets, assignment tasks, and other educational activities that need student participation. At this point, students upload their assigned outputs and written works in Google Classroom for easier access and changes or editing their uploaded outputs. It was also convenient for the teacher to check outputs, assignments, and other written works. Hence, applications in contextual learning courses were centered around occupational activities; ideally, these were genuine, non-contrived, real-world assignments. Students could anticipate success in their future occupations and higher education by applying new concepts and information in a practical context while learning. Guest speaker appearances and first-hand experiences like plant visits, mentorship programs, and internships could be added to these contextual learning opportunities.

IV. Cooperating

In the fourth stage, students shared their insights, feedback, suggestions and asked questions in the assigned task to them. The outputs and performance tasks they uploaded shared were easier to access with their classmates. At this point, it had a significant impact on how students communicated with classmates and the subject. Hence, contextual teaching places greatly emphasized on learning through sharing, interacting, and communicating with others. In addition to aiding most students in understanding the subject matter, cooperation aligned with contextual teachings and real-world orientation. Workers who could work well in a team environment, freely shared information, and communicated well were highly valued employers. Therefore, there was good reason for us to support students in acquiring while they were still in the classroom, where we could help with the process.

V. Transferring

In the last stage, the students were excited at this point. Students were able to discuss their group friends' well-presented output and how they came up with the idea about it. At this point, the researcher could evaluate the students' collective thought processes, communication styles, and group teamwork. Afterward, peers could impart information to other pupils. There were still a lot of ashamed students in this process, but after receiving a stimulant, they eventually dared to share what the group had accomplished. After sharing their presented work, students could apply it to different contexts and circumstances - knowledge transfer, or learning within the framework of pre-existing knowledge, is built on and utilized prior knowledge. Acquiring the ability to adapt well-known knowledge to novel settings empowered students to tackle unknown scenarios and issues confidently.

Sampling Technique

Since the number of Grade nine students enrolled in STE is limited, total enumeration was used. The research topic was therefore best suited for total population sampling, as all Grade nine (9) STE students were selected to participate in the study. It worked well in situations where the population as a whole was manageable or easy to govern, like in the case of an easily understood subgroup of a larger community.

Research Instruments

The research instrument to be used in this study is a 30-item test questionnaire based on the Learning Competencies from the Second Quarter of Grade nine (9) in Physical Education components made by the researcher. The developed researcher (teacher) made-test questionnaire was submitted to her research adviser for feedback on the statement structures. After that, the teacher-researcher sought assistance from MAPEH teachers to provide proper guidance, recommendations, and paper structures.

The developed contextualized instructional video in Physical Education had it validated by the ICT experts utilizing the video evaluation/criteria from University of Vermont Extension and the Grade 9 MAPEH experts and Learning Resource Evaluators utilizing the evaluation rating sheet for non-print materials from DepEd LRMS.

Validity

Three (3) Master Teacher in Physical Education from the Division of Sagay City validated the research instrument (test questionnaire) and the Table of Specifications (TOS) for meticulous examination and review, along with expert validation and consultation. Their feedback was taken into account to improve the content of the test questionnaire. Physical Education specialists were also asked to evaluate each statement on the questionnaire to see if it accurately reflected the survey objectives. The instrument's validity was established by applying the evaluation criteria established by Carter V. Good and Douglas F. Scates. The evidence from the jury showed that the approved research instrument has a very high level of 4.78.

Reliability

After the validation, the test questionnaires were administered to the third section or class of 35 Grade 9 STE students at the respondent school but not the actual respondent. Their scores obtained from the test were used for item analysis. The researcher had to see that the remaining items left after validation were not too easy nor too difficult for the respondents to answer. To analyze each item of the test for its level of difficulty and level of discrimination, the U-L Index Method proposed by Stocklein was used. The scores in the dry run were correctly arranged from highest to lowest. Twenty-seven percent (27%) of the scores at the top and twenty-seven percent (27%) at the bottom were taken for the rest of the results. The discrimination index is set at 0.20 and below, considered to be marginal items or poor items that are either rejected, or improved, or revised. As a result, thirty (30) items remained were accepted. These Thirty item questions proved to be acceptable in their level of difficulties and suitability.

The validated test questionnaires were subjected to another round of tests, the test of reliability. After the test items had been conducted to item analysis the test questionnaire underwent final revision. The test-retest method was used, in which the same set of test questionnaires was administered twice to a group of forty (40) Grade 9 STE students of one of the secondary schools (ELMIS) from the Division of Sagay City but not the actual respondents for the school year 2024-2025 at the gap of two weeks. The scores of the first and second administrations of the test were determined using Pearson Product-Moment Correlation (PPM). Results of the test-retest reliability using PPM showed a correlation of 0.912 which described as very high correlation. Hence, this showed that the test questionnaire has a very high level of reliability.

Data Gathering Procedure

The data collection process began with a letter request sent to the principal's office asking for authorization to conduct and implement the study to include the use of the developed video based instructional materials in PE using Google Classroom, and the accompanying learning activities and test questionnaire to the respondents.

The pretest was administered to the grade nine STE students on the first day of the 2nd Quarter. It was to determine the academic performance of the participants in Physical Education. The results were computed, scaled, and interpreted.

Since the teacher researcher taught four (4) components such as Music, Arts, Physical Education and Health, the teacher researcher opted to teach Physical Education every Thursday. Fridays were utilized for assignments, quizzes and other assessments based on the video instruction to be submitted in Google Classroom. The implementation of the developed contextualized video-based instruction in Physical Education commenced on October 3, 2024, and ran

for 10 days during the Second Quarter. The researcher followed the REACT model/method for the entire process of developing and utilizing contextualized video-based instruction in Physical Education.

Posttest were given after utilizing the developed contextualized instructional video in Physical Education in Google Classroom. The results obtained from the pretest and posttest, were analyzed and computed to determine the significant difference between the pretest and posttest scores in Physical Education of Grade nine STE students before and after the exposure to the developed contextualized Physical Education Video-based instruction in Google Classroom.

Data Analysis

The criteria developed by LRMS and IT experts will be used to evaluate the participant data. A minimum of 30 points of a possible 40 points must be earned in content and instructional quality to meet this requirement. In order to meet the required standards, Technical Quality needed to receive at least 39 out of a possible 52 points. Other findings, including conceptual, factual, grammatical, and other types of errors, must score at least 16 out of a possible 16 points. The mean score was going to apply to the scores provided by the evaluators. The mean of the pretest scores in Physical Education of Grade nine STE students before the exposure to the developed instructional materials was going to be compared to the mean result of the posttest.

Ethical Consideration

The researcher adhered strictly to Republic Act No. 10173, also known as the Data Privacy Act of 2012, which mandated that any entity involved in data processing implemented and reviewed procedures for collecting personal data for appropriate data retention policies. This law addressed ethical considerations in research. In this regard, the researcher obtained a permit from each participating individual and their particular school principal to carry out the study and distributed the questionnaire with ethical approval. Adhering to the ethical principles and professional norms, the researcher ensured research integrity by upholding the principles of confidentiality and truthfulness. This implied that the researcher must adhere to notions of truth and guarantee the absence of dishonesty. Furthermore, the investigator was required to maintain the privacy of the individuals whose personal information was used to perform the study.

Results

On the development of Contextualized Physical Education Video-Based Instruction in Google Classroom for Grade 9 STE Students

In developing a Contextualized Physical Education Video-Based Instruction in Google Classroom for Grade 9 STE students, the goal was to enhance both online and offline learning and student engagement in Physical Education. The five significant steps of the REACT model such as relating, experiencing, applying, cooperating, and transferring were followed in developing a contextualized video-based physical education. Every stage was essential in ensuring the teaching resources were helpful and engaging for the students. To improve, the instructional materials were carefully designed to align students' needs. The results showed that the developed instructional material increased student participation and engagement by suggesting efficient and accessible instructional learning experiences. The instructional material's simplicity, applicability, and convenience of use in an offline or online setting was emphasized in the good feedback given by students. The instructional video clips using KineMaster as the video editing tool was an effective strategy to contextualize a Physical Education lesson, which was a valuable instrument for providing high-quality video clips in an offline or online learning setting.

On the validation of the developed instrument and/or contextualized Physical Education Video-based instruction in Google Classroom

The effectiveness of the developed instrument to contextualize Physical Education Video-based instruction in Google Classroom that aligned with the most essential learning competency was validated. Its relevance, validity, and significance in developing student learning was identified in expert assessments and feedback. According to the findings, the teaching resources provide a reliable means of providing high-quality Physical Education in both online and offline learning environments. The results of the validation in determining the level of acceptability of Contextualized Physical Education Video-based Instruction in Google Classroom as evaluated by Grade 9 MAPEH teachers and Learning Resource Evaluators was indicated in Table 1.

On the evaluation of the effectiveness of the developed contextualized video-based instruction in teaching Physical Education in improving the academic performance of the Grade nine STE students in Google Classroom

When the contextualized video-based instruction for physical education was evaluated, Grade 9 STE students' academic performance significantly improved. Comparing video-based instruction with traditional learning approaches, findings revealed that students who used it demonstrated greater understanding and retention of important topics. Feedback from teachers and students indicated that the teaching material was more accessible, motivated, and engaged. Students' understanding and general academic performance are improved according to the findings when video-based education was incorporated into the digital learning environment. Thus, it turns out that the proposed instructional video-clips is a creative and successful way to provide Physical Education lessons both online and offline.

On determining the acceptability of contextualized video-based instruction for teaching Physical Education as evaluated by the Grade 9 MAPEH Teachers and Learning Resource Evaluators

The next objective of this study was to assess the level of acceptability of contextualized video-based instruction for teaching Physical Education in Google Classroom as evaluated by the Grade 9 MAPEH Teacher and Learning Resource Evaluators. The results were shown in table 1.

Table 1. Acceptability of Contextualized Physical Education Video-Based Instruction in Google Classroom as Evaluated by Grade 9 MAPEH Teachers and by Learning Resource Evaluators

Variables	Mean	Std. Dev.	Description
Content	4.00	.000	Highly Acceptable
Instructional Quality	4.00	.000	Highly Acceptable
Technical Quality	4.00	.000	Highly Acceptable
Other findings	4.00	.000	Highly Acceptable

3.26-4.00 (Highly Acceptable); 2.56-3.25(Acceptable); 1.76-2.50 (Not Acceptable); 1.00-1.175 (Very Not Acceptable)

Table 1 presents the evaluators' assessment of the acceptability of Contextualized Physical Education video clips designed for Grade 9 STE students. The evaluations were based on four key criteria, yielding an impressive overall average score of 4, with a standard deviation of 0.00000. This remarkable consistency in scoring indicated a unanimous agreement among evaluators that the video clips were indeed Highly Acceptable. Furthermore, the clips were validated against established quality standards, demonstrating excellence in several areas such as content, instructional quality, technical quality, and other findings.

Video-based Learning (VBL) is gaining knowledge or skills through instructional videos. A key feature of this format was its effective use of visual and auditory elements, where visuals served as the primary medium for conveying information. In contrast, audio served as a supplementary tool (Majumdar 2017, as referenced in Sablic et al., 2021). The effects of video-based instruction and traditional text-based teaching on students' attention and motivation were markedly different. Students reported that video-based instruction was more memorable than its text-based counterpart. Furthermore, the findings indicated that using video-based songs significantly enhanced students' proficiency in using vocabulary appropriately. By presenting lessons in a more engaging and realistic format, this approach effectively captured students' interest and motivated them to learn both new vocabulary and a foreign language.

Consequently, it was vital for teachers to prioritize using high-quality digital resources, including the video clips developed in this study. By sourcing materials that enhance engagement and learning, teachers could significantly improve the educational experience for students. It may involve seeking resources that promote deep and meaningful interaction, in line with the researcher's conviction regarding the positive effects of such materials on student learning. Ultimately, teachers were crucial curators of educational materials that contributed to a vibrant and impactful learning environment.

On determining the acceptability of Contextualized Physical Education Video-Based Instruction in Google Classroom in Teaching Grade 9 Physical Education as evaluated by the IT experts

The second purpose of this study is to evaluate the level of acceptability of the contextualized video clips as evaluated by IT Experts utilizing the video evaluation/criteria focused on various aspects such as style and organization, creativity, content quality, spelling, usage, grammar, and mechanics presented in Table 2.

Table 2. Acceptability of Contextualized Physical Education Video-Based Instruction in Google Classroom as Evaluated by IT Experts

Variables	Mean	Std. Dev.	Description
Style and Organization	4.0000	.00000	Highly Acceptable
Creativity	4.0000	.00000	Highly Acceptable
Content	4.0000	.00000	Highly Acceptable
Quality	4.0000	.00000	Highly Acceptable
Spelling, Usage, Grammar, and Mechanics	4.0000	.00000	Highly Acceptable
Mean	4.0000	.00000	Highly Acceptable

3.26-4.00 (Highly Acceptable); 2.56-3.25(Acceptable); 1.76-2.50 (Not Acceptable); 1.00-1.175 (Very Not Acceptable)

The table illustrated the acceptability level of the developed instructional material as assessed by IT experts, who gave it a mean score of 28 across five parameters, with a standard deviation of .00000. This score was classified as excellent, indicating that the materials fulfilled the requirements established by the experts, which aligned with specific learning objectives for students. By adhering to these standards, student learning of fundamental concepts and skills became essential to enhancing the educational experience. The evaluation criteria focused on various aspects such as style and organization, creativity, content quality, spelling, grammar, and mechanics. The overall mean score of 28 was classified as highly acceptable, demonstrating strong adherence to standards related to skills and learner needs. The positive evaluation indicated that the instructional materials were well-equipped to support student learning and achievement, reinforcing the importance of quality educational resources in fostering a conducive learning environment.

To enhance the effectiveness of electronic teaching materials, they needed to be not only aesthetically appealing but also designed to maximize engagement and facilitate learning. High-quality visuals and interactive elements should be integral to the design and content layout, as these factors significantly contribute to the overall user experience. The visual and auditory components of digital learning materials played a critical role in their effectiveness, particularly in information design. A well-thought-out design could capture attention and support comprehension, making it vital for educational resources to integrate these elements seamlessly. Furthermore, it was imperative that digital tools function without technical issues, and any malfunctions that hinder students' ability to complete assignments undermined the educational experience. In our fast-paced digital age, incorporating multimedia learning strategies in classrooms is more important than ever. By utilizing a diverse array of mediums such as text, images, audio, and video, educators could cater to a variety of learning styles thereby enhanced student engagement and overall learning outcomes. This multifaceted approach not only enriched the educational experience but also prepared students to navigate a complex and media-rich world effectively.

Richard Mayer, a renowned educational psychologist, had extensively researched multimedia learning, established 12 foundational principles that inform the design of compelling multimedia educational experiences. These principles are rooted in cognitive science aimed to optimize learning by reducing cognitive load and enhancing retention. Among these principles, the Multimedia Principle stood out prominently. This principle advocated for integrating verbal and visual elements, such as words and images, in educational content. Research indicated that when learners were presented with multimedia resources, their ability to comprehend and retain information improved significantly. This was attributed to the dual coding of information, where text and visuals worked together to create richer mental representations. The incorporation of multimedia not only facilitated the visualization of complex concepts but also fostered the creation of mental connections between disparate information elements. This interconnectedness enhanced cognitive processing, allowing learners to engage more deeply with the content.

In the context of our data analysis, analyzing the effectiveness of these principles within the researched video clips could provide insight into how well these multimedia strategies were applied and the resultant impact on learning outcomes. Metrics such as engagement levels, comprehension scores, and retention rates could be utilized to assess the effectiveness of the applied principles. By systematically evaluating these aspects, we could conclude the optimal strategies for leveraging multimedia learning in educational settings and provide recommendations for future content development.

On determining the pretest and posttest scores in Physical Education of Grade 9 STE students before and after exposure to the developed contextualized Physical Education Video-Based Instruction

Another objective of the study was to analyze the level of performance of Grade 9 STE students in Physical Education before and after the implementation of video clips as instructional tools, which were assessed using pretests and posttests. The results are presented in Table 3.

Table 3 Level of Effectiveness of Contextualized Physical Education Video-Based Instruction in Google Classroom Based on Achievements of Pupils in Pretest and Posttest

Variables	Mean	Std. Dev.	Description
Pretest	12.88	3.57	Fair
Posttest	24.92	3.26	Very High

Scale: 24.00-30.00 (Very High); 18.00-23.00 (High); 12.00-17.00 (Fair); 6.00-11.00 (Poor); 1.00-6.00 (Very Poor)

The table highlighted the performance levels of Grade 9 STE students in Physical Education 9, comparing results before and after using video clips in instruction, as reflected in the pretest and posttest scores. Prior to the introduction of video clips, student performance was rated as "fair," evidenced by a mean score of 12.88 and a standard deviation of 3.57. However, after integrating video clips into the curriculum, the posttest scores improved significantly, with a mean score of 24.92 and a reduced standard deviation of 3.26. This shift indicated an enhancement in learner performance, now classified as "Very High."

Video-based learning had a significant impact on students' perspectives and practical application of learning, as emphasized by Pal & Patra (2020). Students got greater knowledge, comprehension, and abilities through video-based presentations, as reinforced by Nadeak & Naibaho (2020). Teachers were increasingly utilizing multimedia resources, especially video clips, in their classrooms to enhance learning experiences. These tools created a more interactive educational environment that catered to diverse learning styles while offering a dynamic and engaging presentation format.

The effects of video-based instruction and traditional text-based teaching on students' attention and motivation were markedly different. Students reported that video-based instruction was more memorable than its text-based counterpart. The notable rise in performance levels observed in the posttest results after implementing the developed materials indicated a significant positive effect of using video clips in Physical Education instruction. This enhancement suggested that the integration of video clips had facilitated better understanding, knowledge retention, and skill acquisition among learners. It further highlighted the effectiveness of multimedia resources, especially video clips, as valuable instructional tools. The observed positive correlation between video clips and improved student performance indicated that thoughtfully integrating multimedia could elevate the overall quality of educational experiences.

On determining if there is a significant difference between the pre-test and post-test scores in Physical Education of Grade 9 STE students before and after exposure to the developed contextualized Physical Education Video-Based Instruction.

Finally, the last purpose of this study was to assess the differences in performance in Physical Education between the pretest and posttest periods, as illustrated in Table 4.

Table 4 Differences on the Effectiveness of Contextualized Physical Education Video-Based Instruction in Google Classroom Based on Achievements of Pupils in pretest and posttest.

Variables	Mean	Std. Dev.	t	df	p	Interpretation
Pretest	12.88	3.57	18.76	65	.000	Highly Significant
Posttest	24.92	3.26				

**Significant @ alpha .05*

As indicated in Table 4, the calculated value exceeded the t-value, leading to rejecting the null hypothesis. This provided strong evidence to suggest that there is a significant difference between the posttest and pretest results. The significant increase in the learners' performance levels after using video clips in teaching Physical Education also supported the findings of the various studies on the positive impact of using video clips in teaching different learning areas. One such study conducted by Pumbaya et al. (2019), which demonstrated that students whose Earth and space science classes incorporated video footage enrichment achieved a "very satisfactory" level of academic achievement. This indicated that students had attained the fundamental understanding, skills, and knowledge necessary to apply them through authentic performance tasks independently. Zhang's (2021) research indicated that the most beneficial and practical applications of digital video and self-modeling in physical education were video presentations that enhanced students' motor skills. Physical education teachers began seeing the benefits of using video to enhance their lesson plans (Laughlin et al., 2019). Teachers' efforts to teach could unleash students' innate capacities to analyze and comprehend videos and adapt to the 21st-century skills required by the educational system using video-based presentations.

These findings highlighted the necessity of creating additional instructional materials in digital or electronic formats and incorporating them into Physical Education classes to enhance students' comprehension of the subject. This discipline equipped learners with essential judgment and ethical responsibility aided them in making informed life choices. Additionally, educators must prioritize the quality of the multimedia resources used in their teaching. It was vital to ensure that video clips were not only relevant but also of high quality and pedagogically effective, as this significantly influenced student learning outcomes.

Discussion

1. The study effectively developed, validated, and evaluated the effectiveness of the instructional video clips based on the REACT Model for Grade 9 STE students in Physical Education. The results showed that these instructional videos proved valuable educational tools, leading to significant enhancements in the academic performance of Grade 9 STE students in the subject.

2. The evaluation of the contextualized Physical Education videos by Grade 9 MAPEH teachers and Learning Resource Evaluators yielded an overall mean score of 4, indicating a high level of acceptability. This result suggested that the developed instructional materials met the standards set forth by the Learning Resource Management and Development System (LRMDS).

3. The assessment of the Contextualized Physical Education video-based instruction conducted by IT experts yielded an overall mean score of 28, indicating that the materials were deemed acceptable. This result confirmed that the developed instructional resources met the IT standards set by the State University of Northern Negros.

4. The Grade 9 STE students' pre-test results yielded a mean score of 12.88 and a standard deviation of 3.57, which categorized their performance as "Fair." In contrast, the posttest scores significantly improved, with a mean of 24.92 and a standard deviation of 3.26, which was classified as "Very High." It appears from this result that the learners' performance was more positively affected by the video-based instruction.

5. It is determined that there was a High significant difference in the physical education performance of Grade 9 STE students based on the T-value of 18.76 and the P-value of .000.

Conclusion

1. The study's findings revealed that the developed contextualized video-based instruction is highly regarded by learners. The data indicated that learners not only received the video instruction positively but also felt that it effectively fulfilled its intended purpose and met their expectations. This high level of acceptability suggested that the video clips resonated well with the learners, likely contributing to enhanced engagement and a deeper understanding of the subject matter. Overall, the positive reception of the video instruction underscored its potential as a valuable educational tool.

2. The research indicated that integrating contextualized video-based instruction in Physical Education significantly boosted students' interest and critical thinking abilities. It also emphasized the limitations of standard teaching methods for fostering students' higher-order thinking skills. Consequently, it is recommended that Educators implement more innovative teaching strategies and resources to meet the changing demands of digital learners.

3. The posttest results indicated a significant improvement in student understanding and engagement attributed to incorporating video clips. This finding underscored the effectiveness of quality-assured multimedia resources in enriching the teaching and learning experience within the classroom. By integrating such innovative tools, educators could foster a more dynamic learning environment that not only improved academic performance but also nurtured students' enthusiasm for the subject matter. Further exploring diverse multimedia formats may provide additional insights into optimizing educational practices.

4. The significant difference between pretest and posttest scores indicated that incorporating multimedia resources, such as video clips, into Physical Education teaching methods could be a highly effective strategy for educators. This underscored the critical role of technology in enriching the learning experience and improving academic outcomes in Physical Education. By leveraging multimedia tools, teachers could engage students more effectively, foster a deeper understanding of the material and enhance their overall performance.

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