Development and acceptability of science video for grade 9 students: Basis for an enhanced inquiry-based e-learning material

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Abstract

The researcher developed and utilized a science video in improving the students performance of grade 9 with modern technology , this e-learning material can be a more constant way of communicating between teachers and students amid COVID 19 pandemic. The study aims to determine the efficacy of digital science video for enhanced inquiry-based e-learning material for Custer IV School Year 2020-2021. Specifically, it answer the following questions: 1.What is the level of acceptability of science video as basis for enhanced inquiry-based e-learning material in academic teachers and ICT teachers in terms of 1.1 color; 1.2 format; 1.3 graphics; and 1.4 sound? 2.Is there a significant difference on the perceptions of Academic Teachers and ICT Teachers on the level of acceptability of science video as basis for enhanced inquiry-based e-learning material? 3.What is the performance of grade 9 students in pre-test and post -test in modular distance learning? 4.What is the performance of grade 9 students in pre-test and post -test in online distance learning? 5.Is there a significant difference in the performance of grade 9 students in pre-test and post -test in modular distance learning? 6.Is there a significant difference in the performance of grade 9 students in pre-test and post -test in online distance learning? 7.Is there a significant relationship on the level of acceptability of science video and in actual performance of learners? 8.What output can be proposed to improve the developed inquiry-based e-learning material?

The researcher used the quantitative/ descriptive survey and descriptive experimental method of research in this study.

On the level of acceptability of science video as basis for enhanced inquiry-based e-learning material in academic teachers and ICT teachers in terms of color, format, graphics, and sound. In terms of color, the level of acceptability of science video were found to be “Very Acceptable” by the ICT teachers ($\bar{x}$=3.72) and the academic teachers ($\bar{x}$=3.87). Item 5 received the highest mean score of ($\bar{x}$=3.95) from the academic teachers, whereas the same item received the lowest mean score of ($\bar{x}$=3.50) from the ICT teachers. In terms of format, the level of acceptability of science video were found to be “Very Acceptable” by the ICT teachers ($\bar{x}$=3.72) and the academic teachers ($\bar{x}$=3.91). Item 4 received a perfect mean score ($\bar{x}$=4.00) from the academic teachers, which was indeed the highest mean score. Items 3, 4, and 5 received the highest mean score ($\bar{x}$=3.80) from the ICT teachers. In terms of graphics, the level of acceptability of science video were found to be “Very Acceptable” by the ICT teachers ($\bar{x}$=3.74) and the academic teachers ($\bar{x}$=3.81). Item 1 received the highest mean score ($\bar{x}$=3.90) from the ICT teachers and ($\bar{x}$=3.85) from the academic teachers. On the other hand, item 3 received the lowest mean score ($\bar{x}$=3.50) from the ICT teachers and ($\bar{x}$=3.75) from the academic teachers. In terms of Sounds, the level of acceptability of science video were found to be “Very Acceptable” by the ICT teachers ($\bar{x}$=3.74) and the academic teachers ($\bar{x}$=3.85). Item 4 received the highest mean score ($\bar{x}$=3.90) from the ICT teachers, while item 3 received the highest mean score ($\bar{x}$=3.95) from the academic teachers. Item 2

received the lowest mean score ($\bar{x}$=3.60) from the ICT teachers, while item 5 received the lowest mean score ($\bar{x}$=3.75) from the academic teachers.

On significant difference on the perceptions of academic teachers and ICT teachers on the level of acceptability of science video. In terms of color, the computed t-value of 1.785 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected. In terms of format, the computed t-value of 1.848 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected. In terms of graphics, the computed t-value of 0.746 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected. In terms of sounds, the computed t-value of 1.064 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected.

On the performance of grade 9 students in pre-test and post -test in modular distance learning. The Grade 9 students have a Pre-test mean score of 20.38 and a Post-test mean score of 24.78.

On the performance of grade 9 students in pre-test and post -test in modular distance learning. The Grade 9 students have a Pre-test mean score of 23.14 and a Post-test mean score of 27.62.

On the significant difference in the performance of grade 9 students in pre-test and post -test under the modular distance learning. The computed t-value of 4.712 is greater than the critical t-value of 2.010; thus, the null hypothesis raised in this study is rejected.

On the significant difference in the performance of grade 9 students in pre-test and post -test under the online distance learning. The computed t-value of 6.149 is greater than the critical t-value of 2.010; thus, the null hypothesis raised in this study is rejected.

On the significant relationship on the level of acceptability of science video and in actual performance of learners. Between color and actual performance of learners under the MDL, the r-value of -0.17 shows a "Very Weak Negative Relationship". Since the computed t-value of 1.223 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between format and actual performance of learners under the MDL, the r-value of 0.08 shows a "Very Weak Positive Relationship". Since the computed t-value of 0.595 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between graphics and actual performance of learners under the MDL, the r-value of -0.18 shows a "Very Weak Negative Relationship". Since the computed t-value of 1.324 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected. Between sounds and actual performance of learners under the MDL, the r-value of -0.14 shows a "Very Weak Negative Relationship". Since the computed t-value of 0.957 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected.

Between color and actual performance of learners under the ODL, the r-value of 0.12 shows a "Very Weak Positive Relationship". Since the computed t-value of 0.813 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between format and actual performance of learners under the ODL, the r-value of 0.14 shows a "Very Weak Positive Relationship". Since the computed t-value of 0.955 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between graphics and actual performance of learners under the ODL, the r-value of -0.09 shows a "Very Weak Negative Relationship". Since the computed t-value of 0.661 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected. Between sounds and actual performance of learners under the ODL, the r-value of -0.01 shows a "Very Weak Negative Relationship". Since the computed t-value of 0.068 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected. 1.

Science videos are very useful and very efficient whether the student is under the MDL or ODL modalities based on the results and responses of academic teachers and ICT teachers on the acceptability of science videos in terms of teachers in terms of color, format, graphics, and sound.

Keywords: Acceptability; e-learning material ; inquiry-based; science video; student performance;training program

Over the past 100 years, the Pandemic has substantially changed educational systems while inflicting havoc on the planet according to Reimers (2020). There is little doubt that the disruption in education results in fresh initiatives and productive collaborations between teachers and students during the teaching-learning process. Teachers are critically needed to assist pupils with online education as a replacement in the teaching approach amidst the epidemic (Schleicher, 2020). Particularly during this pandemic, poor science performance in public schools has been a serious concern for both education and the government in general. Several factors, including the utilization of appropriate strategies and instructional materials in remote learning as new teaching methodologies included the teaching-learning process to improve student performance, have contributed to this issue. The importance of using the right strategic tactics and techniques in a range of areas should therefore be emphasized by educators, especially in online science programs. Teaching strategies are methods used to help students understand the desired course information and give them the tools they need to set attainable goals for the future. Technology has permeated every aspect of our life as time has gone on. We can see that the bulk of today's technologically sophisticated classrooms require smartboards, or at the very least projectors and PCs. Universities also do not limit instruction for our young adults who favor using technology over direct or physical knowledge or guidance when necessary. Given that we currently live in a digital age, it should come as no surprise that literature has frequently focused on the motivational effects of using online technology in science-based classrooms, as well as workable solutions for providing input on the success or progress of students, particularly through the use of Web 2.0. resources. Therefore, science teachers are responsible to utilize this technology and the tools to the fullest extent possible. Videos and presentations rank highly among these resources in science courses. Students began spending more time viewing videos than reading books during the beginning of the twenty-first century, which increased the use of movies in the classroom. This supports the researcher's continued belief that watching scientific movies can enhance learning. The researcher strives to produce and use a science video featuring students or teachers to improve grade 9 student performance in light of the Department of Education (DepEd) order requiring contextualization and localization of lesson delivery. This e-learning material can serve as a more consistent means of teacher-student communication. The research aims to determine the acceptability of digital science video for enhanced inquiry-based e-learning material for Custer IV School Year 2020-2021. Explicitly, it answers to the following questions: What is the level of acceptability of science video as basis for enhanced inquiry-based e-learning material in academic teachers and ICT teachers in terms of: color; format; graphics; and sound? Is there a significant difference on the perceptions of Academic Teachers and ICT Teachers on the level of acceptability of science video as basis for enhanced inquiry-based e-learning material? What is the performance of grade 9 students in pre-test and post -test in modular distance learning? What is the performance of grade 9 students in pre-test and post -test in online distance learning? Is there a significant difference in the performance of grade 9 students in pre-test and post -test in modular distance learning? Is there a significant difference in the performance of grade 9 students in pre-test and post -test in online distance learning? Is there a significant relationship on the level of acceptability of science video and in actual performance of learners? What training program can be proposed to improve the developed science video? This chapter provides an overview of relevant literature and studies which has been drawn from books, magazines, journals, and the internet. This also contains related studies on several manuscripts, which had given baseline information in conducting this activity.

1.1 Inquiry-based e-learning material

Iskandar et.al (2019) defined inquiry as a learning strategy states that involves students using a variety of sources to learn about and comprehend the subject matter. Open Inquiry, Structured Inquiry, Confirmation

Inquiry, and Guided Inquiry are the four levels of the inquiry model. Guided inquiry is a suitable model which gives students the chance to learn about and apply science firsthand while enhancing their scientific literacy abilities. Guided inquiry is a style of active learning in which students work in groups to learn and complete learning activities. The restricted time allowed to complete a single round of grammar in a single meeting is one of the difficulties teachers face while implementing inquiry-based learning. The educator is, therefore, more inclined to use conventional techniques. To employ the inquiry learning methodology, they need a strategy for optimizing learning time. The best approaches to maximize learning time are face-to-face and online (Landed Learning) instruction. As explained by Nuchrurita Rosida, M., & Muchson, M. (2020) e-learning resources that are inquiry-based can help students enhance their knowledge and scientific process abilities as well as their scientific attitudes. It helps students modify their knowledge and apply it to practical circumstances. Students learn to formulate their results independently after receiving broad direction or guidance at the start of learning thanks to the inquiry learning model used in the creation of the e-learning material.

1.2 Science video

Videos are now also employed interactively in ways that provide a real-world experience, comprehensible relationships and controls, the opportunity for feedback, and the freedom for several users to access the same system concurrently. Higher education has started to employ video more and more frequently. It serves as a cornerstone of many blended courses, is incorporated into traditional courses, and is typically the main mode of content delivery in MOOCs. Based from study by Nuchrurita and Muchson (2020) looked at the benefits of learning resources that are loaded as learning videos in 2D and 3D that are easily accessed by students using smartphones to make them more adaptable and usable by students on their own. This educational material also includes augmented reality technology, which can project virtual items into the physical world so that they appear to be in plain sight. This learning material has been organized methodically using the guided inquiry learning methodology so that students can utilize it independently as extra or alternative learning resources. The fact that internet access is necessary to access the learning content is the learning material's main flaw. Development is limited to only the third stage. To determine whether learning materials help enhance student comprehension and make the material more accessible, field tests must be conducted. According to Bullo (2021), the video lesson was more effective in this challenging period and with modular techniques. It helps students learn the subject more effectively and independently without the teacher's assistance. the use of the video courses was found to be statistically significant. These regulations also apply to both teaching and education. The usage of videos in the classroom is nothing new. They date back to the earliest times when cave instructors used 16mm projectors to present examples of insurance companies marketing advertisements to cave students (Berk, 2019). As claimed by West (2019), digital skills and competencies have shifted from being optional to obligatory. In today's technologically advanced society, having the ability to use digital technology is becoming just as important to one's welfare as having the ability to read and write. If people cannot control technology, they run the risk of being overtaken by it or cut off from local, national, and global societies. As a result, educational systems strive to offer excellent, fair, and inclusive digital skills education and training. These initiatives are especially crucial because digital skills open avenues to further education and skill improvement.

1.3 The science video was assessed through its content, graphics, format, sounds, and color.

Color leads a significant act in impacting their emotions and programs to promote. This study analyzes Instagram travel photos using machine learning and finds a link based on images with varying colors, and the relationship between color and user engagement qualities. The findings indicate that user preferences improve when blue is present in photos of natural landscapes, fine cuisine, and sacral architecture. While photos of cityscapes and interior design benefit from the use of violet and warm colors, shots of local cuisine and atmosphere benefit from a red/orange color scheme. By adopting a broad using aesthetic epistemology lens

and limiting it down to color schemes, this research offers marketing standards for promoting the tourism industry with the use of color. Yu, & Egger (2021). In this study, the format is also used as a variable, according to Luo (2019), the choice of visualization format is influenced by the task's complexity and cognitive type. Decision accuracy is impacted by spatial ability, but choice confidence is not. The choice of a visualization format is made using a multi-criteria approach from the viewpoint of the user. Users should have access to a variety of visualization formats so they can investigate and pick the ones that best suit their cognitive preferences and work requirements. In this study, the graphic also functions as a variable, evaluated in terms of how interactive features and graphic quality work together to create an enjoyable and educational VR buying experience. According to the study's findings, 2D displays value visual quality more than 3D virtual reality environments do (Kang, Shin, & Ponto, 2020). The content and images extracted are used such as the extent to the medium of the level of characteristics to create a collection of keyframes that comprise the majority of the visual content. Additionally, they lessen content redundancy and provide a mosaicked rapid image by matching extracted material based on K-th Hausdorff distance and connected component disintegration. Presentation evaluation of four comprehensive instructional movies demonstrated the excellent effectiveness of the Ou technique for summarizing viewer satisfaction with instructional videos. Another factor employed in this investigation was sound. Adding in-video quizzes, "chapters," and speed adjustments can give students control over this feature, and overall narration speed seems to boost student interest. Video presenters may be tempted to speak slowly to ensure that students understand crucial ideas. The crucial thing to remember is that, like interpretation, watching a video could be an action that is not open to receiving. To get the most out of our educational videos, we must help students with the distribution and self-evaluation that will lead to their education.

1.4 Student performance

This study also showed student performance to be a significant indicator, and the pre-and post-tests served as its equivalent factors.In their quest to understand the factors that influence students' academic achievement, social scientists, and notable psychologists, are surely turning their attention to this topic. Recent research has shown that a variety of psychosocial elements, including inspiration, behavior, connection, academic identity, family, tension, and so on are all factors to consider. impact on kids' academic success in schools (Liu, 2019). According to Avila and Lavadia (2019), the study evaluated if the academic performance of students improves using science podcasts. The researchers find out that the content, language, and assessment of science podcast were highly acceptable and therefore academic performance was improved.As a result, Davis (2019) claims that the enthusiasm and openness of students to interact in class across these lingual exchanges will foster a positive learning atmosphere.

1.5 Training program

Microteaching, which is used as a professional development tool in pre-service or in-service teacher training programs, is one of the most recent breakthroughs in teacher training programs. Teachers can use microteaching to learn teaching techniques, examine their teaching, and examine the teaching of others, as well as better understand the processes of teaching and learning, Reddy (2019). The current study on training programs in teaching Chemistry using an electronic application assessed the implications and interpreted the perception level. According to the study, there were statistically significant differences between the pretest and post-test after the utilization of the training program, the evaluation rubric tool, and integration of technology in lesson plans had a favorable response in post-test, Ezzeldin, S. (2022)

2.Methodology

This chapter presents the description of the research design, population sampling, respondents/participants of the study, data gathering procedure, the research instrument, and the statistical

treatment of the research study Entitled " Development and acceptability of science video for grade 9 students: basis for an enhanced inquiry-based e-learning material"

2.1 Research design

The study used the quantitative/ descriptive survey and descriptive experimental method of research . The process of collecting and analyzing numerical data is referred to as quantitative research. It can be used to identify patterns and averages, draw conclusions, test causal relationships, and generalize results to larger populations. Bhandari (2020). This method was used by the researcher to address the research problem by gathering numerical data that could be analyzed using descriptive statistics. It is used to accurately measure a set of parameters and to make inferences population sample. The descriptive survey is a constructed questionnaire given to the given populations that are designed to elicit specific information from the respondents. The researcher proceeded with the descriptive survey research through the use and distribution of questionnaires to the respondents in the seven public secondary schools in SDO Laguna Cluster IV. Descriptive experimental is a research design that will statistically analyze the collected data and gathered future insights from the variables that are being observed. A questionnaire was a type of research tool that consisted of a set of questions or other types that were used to collect responses from participants. In addition, pre-test and post-test were done to evaluate the student's performance in science. This study used researcher-made questionnaires with four (4) parts. Part I is a researcher-made questionnaire to measure the acceptability of science videos in terms of color, and format. graphics and sound in academic teachers and ICT experts, the Likert scale will be used and will be given corresponding interpretation. Part II is a researcher-made questionnaire that measures the student's achievement in the use of digital science video in remote learning opportunities. Part III will provide space that evaluates and compare the indicators for the academic performance of the students. And lastly, Part IV will determine the correlation of the ratings of the academic teachers and ICT teachers on the performance of the learners. use open-ended questions to provide inferences in the improvement of developing inquiry-based e-learning material interventions employed to secure increasing academic progress.

2.2 Population sampling

The present study applied purposive sampling for ICT teacher's respondents and grade 9 learners under modular and online distance learning and total enumeration sampling technique for academic teachers. According to Glen (2018) Total enumeration or complete enumeration, where all members of the whole population are measured. Purposive sampling is designed to target a specific group of people. Purposive sampling may be the only option whenever the desired population in this study is rare or difficult to locate and recruit for. as claimed by Crossman (2020). It is also used by a specific group of individuals in achieving the desired goals. A purposive sample is a process of choosing participants in a premeditated and non-random manner to achieve the desired results. In a focused group, for example, they may want to deliberately focus on finding out sample respondents from both ends of a spectral range as well as some within the middle to help verify that all points of view are accurately addressed. They may also preferentially employ subjects with the most experience and knowledge in a given field. The reason for employing this type of purposive sampling is to concentrate on people who possess particular characteristics able to assist the study.

2.3 Respondents of the study

The primary source of information about the " Development and acceptability of science video for grade 9 students: basis for an enhanced inquiry-based e-learning material" is seven (7) schools secondary in Cluster IV such as Upland Integrated National High School, Lowland Integrated National High School, Liliw National High School, Calumpang National High School, Talangan Integrated National High School. Plaridel National High School and Conducto Memorial National High School. They filled out the questionnaire according to their level of agreeability. Academic and ICT teachers and Grade 9 students enrolled in online and modular distance learning in seven schools.

2.4 Research instrument

The science video was created, developed by the researcher was validated by selected academic teachers and ICT experts. In this study a survey questionnaire determines the acceptability of science videos for enhanced inquiry-based e-learning material in Cluster IV. A Likert scale was used to gather necessary data during the undertaking, a four-point rating scale indicated below was used.

Scale	Interval	Verbal Description
4	3.26 – 4.00	Very Acceptable
3	2.51– 3.25	Acceptable
2	1.76 – 2.50	Moderately Acceptable
1	1.00 – 1.75	Not Acceptable

Fig. 1. Four-point rating scale

In addition, the researcher created pre-test and post-test questionnaires. which were paralleled and aligned on most essential learning competencies lessons and it was validated by science experts that were employed to measure the efficacy of the digital science video in the performance of Grade 9 students in cluster IV in Laguna province.

2.5 Validation of the instrument

An extensive review of various books, publications, and internet sites was used in the development of the above-mentioned questionnaire. A proposal of the research tool was created and distributed to professors and panel members for advice and feedback. Validation was used to compare the description of the items to those of others working in the same field of study, ICT experts, and academic teachers. The adviser's assistance with the contents of the questionnaire was requested. The completed questionnaire was copied and distributed to the potential respondents.

2.6 Data gathering procedure

The ways to gather data or information concerning the topic or study of the researcher include the following: The first is to identify the problem. The researcher used it to gather information to support conducting the study. The next step was the preliminary survey of the researcher about the independent variable construction, for the researcher to know what was their opinion about the video lessons. Next was constructed questionnaire approved by the research panels. The researcher seeks permission or an endorsement letter from the District Supervisors and School Principals of seven (7) junior high schools in Cluster IV to conduct a study. Upon approval, the researcher personally visited the schools following IATF safety protocols to request the principal’s permission to survey their respective schools. Before administering the questionnaire, a meeting was scheduled to orient the respondents to the purpose of the study. The researcher personally dispersed and collected the questionnaire to monitor progress on ambiguous responses given by the respondent and to promote compliance. Provisions about responding to the questions, the researcher clearly outlined the instructions and aims of the research. The answering of the questionnaire lasted for twenty to thirty minutes. Once all the data are completed, the questionnaires were collected, encoded, and tabulated. Later, the data of the study were given the necessary statistical treatment, scrutinized, and analyzed. The researcher proceeds to calculate and tabulate the results that are believed to have a noteworthy function in the success of this undertaking.

2.6.1 Process of material development and distribution

Stage 1. The researcher looked for various videos about the topics to be discussed to gather information in the development of science video in topics in grade 9 third quarter. In addition, it was also done to have an insight into the appropriate design as to format, graphics, sounds, and color which had a great impact on the learning process. The researchers formulated pre-test and post-test questionnaires based on the most essential learning competencies, which were then evaluated and affirmed by science validators. Stage 2. Format analysis was made by the researcher to summarize and select the appropriate format for the selected topics to be incorporated in the science video. Stage 3. Content management was also made to process data and selected content in a manner that supports the collection and management of information appropriately in any form or medium such as video presentations. The following Most Essential Learning Competencies (MELCs) in the third quarter to strengthen this science video. Based on the characteristics of the sun, infer the characteristics of stars. Assume that the arrangement of stars in a group (constellation) remains constant. Using models, show how the position of a constellation changes throughout the night and which constellations can be seen at different times of the year. Stage 4. Distribution of material in online distance learning science video was utilized during online synchronous and asynchronous class and posted in the google classroom. The researcher provides a flask drive in each school and the respondents watched the science video lesson during the retrieval of outputs in four sessions.

2.7Statistical treatment

This research used a mathematical formula to describe the data or information collected by the researcher and analyzed it in a statistical method. To interpret the results of weighted mean, standard deviation, T-test, and Pearson R used as statistical tools to get the results and evaluate the efficacy of the research study. To determine the level of acceptability of science video as a basis for enhanced inquiry-based e-learning materials in terms of color, format, graphics, weighted mean, and standard deviation were used. To evaluate the significant difference in the perceptions of Academic Teachers and ICT Teachers on the level of acceptability of science video as a basis for enhanced inquiry-based e-learning materials, weighted mean and standard deviation were used. The results in the significant difference in the performance of grade 9 students in pre-test and post-test in modular and online distance learning used T-Test. A T-test was utilized to measure the difference in the student's performance before and after employing the science videos. Pearson R is the statistical tool that is used to find the relationship between the level of acceptability of science videos and the actual performance of learners. This tool denotes the correlation between the two variables measured within the same interval or ratio scale. The Pearson coefficient quantifies the potency of the relationship between the two variables.

This chapter presents the results of the study and discusses the implications of these findings to the current state of knowledge on the topic of study.

Table 1. Level of acceptability of science video as a basis for enhanced inquiry-based e-learning material of academic teachers and ICT teachers in terms of color

Indicators	ICT Teachers		Academic Teachers	
	$\bar{x}$	Verbal Description	$\bar{x}$	Verbal Description
The layout and color of the video is attractive.	3.80	Very Acceptable	3.85	Very Acceptable
The color used in the digital science video is appealing to the eye.	3.70	Very Acceptable	3.90	Very Acceptable

The color and images used is pleasing to look.	3.80	Very Acceptable	3.90	Very Acceptable
The use of interactive features is engaging.	3.80	Very Acceptable	3.75	Very Acceptable
The combination of colors in pictures and graphics is inviting.	3.50	Very Acceptable	3.95	Very Acceptable
1. Overall Weighted Mean	**3.72**	**Very Acceptable**	**3.87**	**Very Acceptable**

Legend: $\bar{x}$ = weighted mean

Point Value	Mean Scale	Verbal Description
4	3.26 – 4.00	Very Acceptable
3	2.51 – 3.25	Acceptable
2	1.76 – 2.50	Moderately Acceptable
1	1.00 – 1.75	Not Acceptable

It can be seen from table 1 the level of acceptability of science video were found to be "Very Acceptable" by the ICT teachers ($\bar{x}$=3.72) and the academic teachers ($\bar{x}$=3.87). Item 5 received the highest mean score of ($\bar{x}$=3.95) from the academic teachers, whereas the same item received the lowest mean score of ($\bar{x}$=3.50) from the ICT teachers.

Table 2. Level of acceptability of science video as a basis for enhanced inquiry-based e-learning material of academic teachers and ICT teachers in terms of format

Indicators	**ICT Teachers**		**Academic Teachers**	
	$\bar{x}$	Verbal Description	$\bar{x}$	Verbal Description
The parts of the science video are congruent to each other.	3.70	Very Acceptable	3.95	Very Acceptable
The content is adequate in covering the scope specified by the objectives.	3.50	Very Acceptable	3.90	Very Acceptable
There is appropriate presentation and discussion of the content regarding the objectives.	3.80	Very Acceptable	3.90	Very Acceptable
The ideas, concept and points in science video presented are well-expressed.	3.80	Very Acceptable	4.00	Very Acceptable
The contents of science video are within the comprehension of the target group.	3.80	Very Acceptable	3.80	Very Acceptable
2. Overall Weighted Mean	**3.72**	**Very Acceptable**	**3.91**	**Very Acceptable**

Legend: $\bar{x}$ = weighted mean

In terms of format, the level of acceptability of science video were found to be "Very Acceptable" by the ICT teachers ($\bar{x}$=3.72) and the academic teachers ($\bar{x}$=3.91). Item 4 received a perfect mean score

($\bar{x}$=4.00) from the academic teachers, which was indeed the highest mean score. Items 3, 4, and 5 received the highest mean score ($\bar{x}$=3.80) from the ICT teachers.

Table 3. Level of acceptability of science video as a basis for enhanced inquiry-based e-learning material of academic teachers and ICT teachers in terms of graphics

Indicators	ICT Teachers		Academic Teachers	
	$\bar{x}$	Verbal Description	$\bar{x}$	Verbal Description
The images displayed in the video arouse students' curiosity.	3.90	Very Acceptable	3.85	Very Acceptable
The pictorial representation of images catches and holds the students' interests.	3.70	Very Acceptable	3.85	Very Acceptable
The animations used are fascinating and stimulate visual skills of students.	3.50	Very Acceptable	3.75	Very Acceptable
Graphics highlight essential features in the science video.	3.80	Very Acceptable	3.80	Very Acceptable
Graphics are functional and artistic at the same time.	3.80	Very Acceptable	3.80	Very Acceptable
3. Overall Weighted Mean	**3.74**	**Very Acceptable**	**3.81**	**Very Acceptable**

Legend: $\bar{x}$ = weighted mean

In terms of graphics, the level of acceptability of science video were found to be "Very Acceptable" by the ICT teachers ($\bar{x}$=3.74) and the academic teachers ($\bar{x}$=3.81). Item 1 received the highest mean score ($\bar{x}$=3.90) from the ICT teachers and ($\bar{x}$=3.85) from the academic teachers. On the other hand, item 3 received the lowest mean score ($\bar{x}$=3.50) from the ICT teachers and ($\bar{x}$=3.75) from the academic teachers.

Table 4. Level of acceptability of science video as a basis for enhanced inquiry-based e-learning material of academic teachers and ICT teachers in terms of sounds

Indicators	ICT Teachers		Academic Teachers	
	$\bar{x}$	Verbal Description	$\bar{x}$	Verbal Description
The science video reflects high technical sound quality.	3.70	Very Acceptable	3.85	Very Acceptable
The loudness is just enough to hear and understand the information from the science video.	3.60	Very Acceptable	3.90	Very Acceptable
The sound of the science video is adequate to classroom size.	3.80	Very Acceptable	3.95	Very Acceptable
Normal rendering for sound allows playback in mono or stereo through one or two speakers.	3.90	Very Acceptable	3.80	Very Acceptable

The level or loudness of their voice needs to be significantly above the room noise.	3.70	Very Acceptable	3.75	Very Acceptable
4. Overall Weighted Mean	**3.74**	**Very Acceptable**	**3.85**	**Very Acceptable**

Legend: $\bar{x}$ = weighted mean

In terms of sounds, the level of acceptability of science video were found to be "Very Acceptable" by the ICT teachers ($\bar{x}$=3.74) and the academic teachers ($\bar{x}$=3.85). Item 4 received the highest mean score ($\bar{x}$=3.90) from the ICT teachers, while item 3 received the highest mean score ($\bar{x}$=3.95) from the academic teachers. Item 2 received the lowest mean score ($\bar{x}$=3.60) from the ICT teachers, while item 5 received the lowest mean score ($\bar{x}$=3.75) from the academic teachers.

Table 5. Significant difference on the perceptions of academic teachers and ICT teachers on the level of acceptability of science video as basis for enhanced inquiry-based e-learning material

Categories	Coefficient of t		P-value	Decision	Interpretation
	Critical (2-tailed)	Computed			
Color	2.048	1.785	0.0851	Do Not Reject Ho	Not Significant
Format	2.048	1.848	0.0752	Do Not Reject Ho	Not Significant
Graphics	2.048	0.746	0.4617	Do Not Reject Ho	Not Significant
Sounds	2.048	1.064	0.2963	Do Not Reject Ho	Not Significant

Legend: t = t-test; α = level of significance = 0.05

Data from table 5 revealed that in terms of color, the computed t-value of 1.785 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected. In terms of format, the computed t-value of 1.848 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected. In terms of graphics, the computed t-value of 0.746 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected. In terms of sounds, the computed t-value of 1.064 is less than the critical t-value of 2.048; thus, the null hypothesis raised in this study is rejected

Table 6. Performance of grade 9 students in pre-test and post-test in the modular distance learning

	Pretest Mean Score	Post-test Mean Score
Modular Distance Learning	**20.38**	**24.78**

As shown from table 6, that the Grade 9 students have a pre-test mean score of 20.38 and a post-test mean score of 24.78. It can be observed that the scores of Grade 9 students have improved using the modular distance learning modality.

Table 7. Performance of grade 9 students in pre-test and post-test in the online distance learning

	Pretest Mean Score	Post-test Mean Score
Online Distance Learning	**23.14**	**27.62**

As shown from table 7, that the grade 9 students have a pre-test mean score of 23.14 and a post-test mean score of 27.62. It can be observed that the scores of Grade 9 students have improved using the online distance learning modality.

Table 8. Significant difference in the performance of grade 9 students in pre-test and post -test in the modular distance learning

Modular Distance Learning	Mean	Critical (2-tailed)	Computed	P-Value	Decision	Interpretation
Pre-test	**20.38**	**2.010**	**4.712**	**<0.0001**	**Reject Ho**	**Significant**
Post-test	**24.78**					

Data from table 8 revealed that the computed t-value of 4.712 is greater than the critical t-value of 2.010; its p-value of <0.0001 is less than the hypothesized level of significance of 0.05; therefore, Ho is rejected. This implies that there is a significant difference between the performance of grade 9 in the pre-test and post-test in modular distance learning. The result suggests that the performance of the grade 9 students in the pre-test is significantly different from their performance in the post-test under the modular distance

learning. This would mean that the performance of the students under the modular distance learning have improved with the help of the science video lessons.

Table 9. Significant difference in the performance of grade 9 students in pre-test and post -test in the online distance learning

Modular Distance Learning	Mean	Critical (2-tailed)	Computed	P-Value	Decision	Interpretation
Pre-test	**23.14**	**2.010**	**6.149**	**<0.0001**	**Reject Ho**	**Significant**
Post-test	**27.62**					

Data from table 9 revealed that the computed t-value of 6.149 is greater than the critical t-value of 2.010; its p-value of <0.0001 is less than the hypothesized level of significance of 0.05; therefore, Ho is rejected. This implies that there is a significant difference between the performance of grade 9 in the pre-test and post-test in online distance learning. The result suggests that the performance of the grade 9 students in the pre-test is significantly different from their performance in the post-test under the online distance learning. This would mean that the performance of the students under the online distance learning have improved with the help of the science video lessons.

Table 10. Result of the t-test for correlation on the significant relationship between the level of acceptability of science video and the actual performance of learners in the modular distance learning

			Coefficient of t				
Categories	R	Interpretation	Critical (2-tailed)	Computed	P-value	Decision	Interpretation
Color	-0.17	Very Weak Negative Correlation	1.680	1.223	0.2351	Do Not Reject Ho	Not Significant
Format	0.08	Very Weak Positive Correlation	1.680	0.595	0.5563	Do Not Reject Ho	Not Significant
Graphics	-0.18	Very Weak Negative Correlation	1.680	1.324	0.1994	Do Not Reject Ho	Not Significant
Sounds	-0.14	Very Weak Negative Correlation	1.680	0.957	0.3478	Do Not Reject Ho	Not Significant

Legend: r = Pearson Correlation; t = t-test for Pearson r correlation; α = level of significance = 0.05

Between color and actual performance of learners under the MDL, the r-value of -0.17 shows a "Very Weak Negative Relationship". Since the computed t-value of 1.223 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between format and actual performance of learners under the MDL, the r-value of 0.08 shows a "Very Weak Positive Relationship". Since the computed t-value of 0.595 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between graphics and actual performance of learners under the MDL, the r-value of -0.18 shows a "Very Weak Negative Relationship". Since the computed t-value of 1.324 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected. Between sounds and actual performance of learners under the MDL, the r-value of -0.14 shows a "Very Weak Negative Relationship". Since the computed t-value of 0.957 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected.

Table 11. Result of the t-test for correlation on the significant relationship between the level of acceptability of science video and the actual performance of learners in the online distance learning

Categories	R	Interpretation	Coefficient of t				
			Critical (2-tailed)	Computed	P-value	Decision	Interpretation
Color	0.12	Very Weak Positive Correlation	1.680	0.813	0.4228	Do Not Reject Ho	Not Significant
Format	0.14	Very Weak Positive Correlation	1.680	0.955	0.3488	Do Not Reject Ho	Not Significant
Graphics	-0.09	Very Weak Negative Correlation	1.680	0.661	0.5139	Do Not Reject Ho	Not Significant
Sounds	-0.01	Very Weak Negative Correlation	1.680	0.068	0.9461	Do Not Reject Ho	Not Significant

Legend: r = Pearson Correlation; t = t-test for Pearson r correlation; α = level of significance = 0.05

Between color and actual performance of learners under the ODL, the r-value of 0.12 shows a "Very Weak Positive Relationship". Since the computed t-value of 0.813 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between format and actual performance of

learners under the ODL, the r-value of 0.14 shows a “Very Weak Positive Relationship”. Since the computed t-value of 0.955 is less than the critical t-value of 1.680; the null hypothesis raised in this study is not rejected. Between graphics and actual performance of learners under the ODL, the r-value of -0.09 shows a “Very Weak Negative Relationship”. Since the computed t-value of 0.661 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected. Between sounds and actual performance of learners under the ODL, the r-value of -0.01 shows a “Very Weak Negative Relationship”. Since the computed t-value of 0.068 is less than the critical t-value of 1.680; the null hypothesis raised in this study is rejected.

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